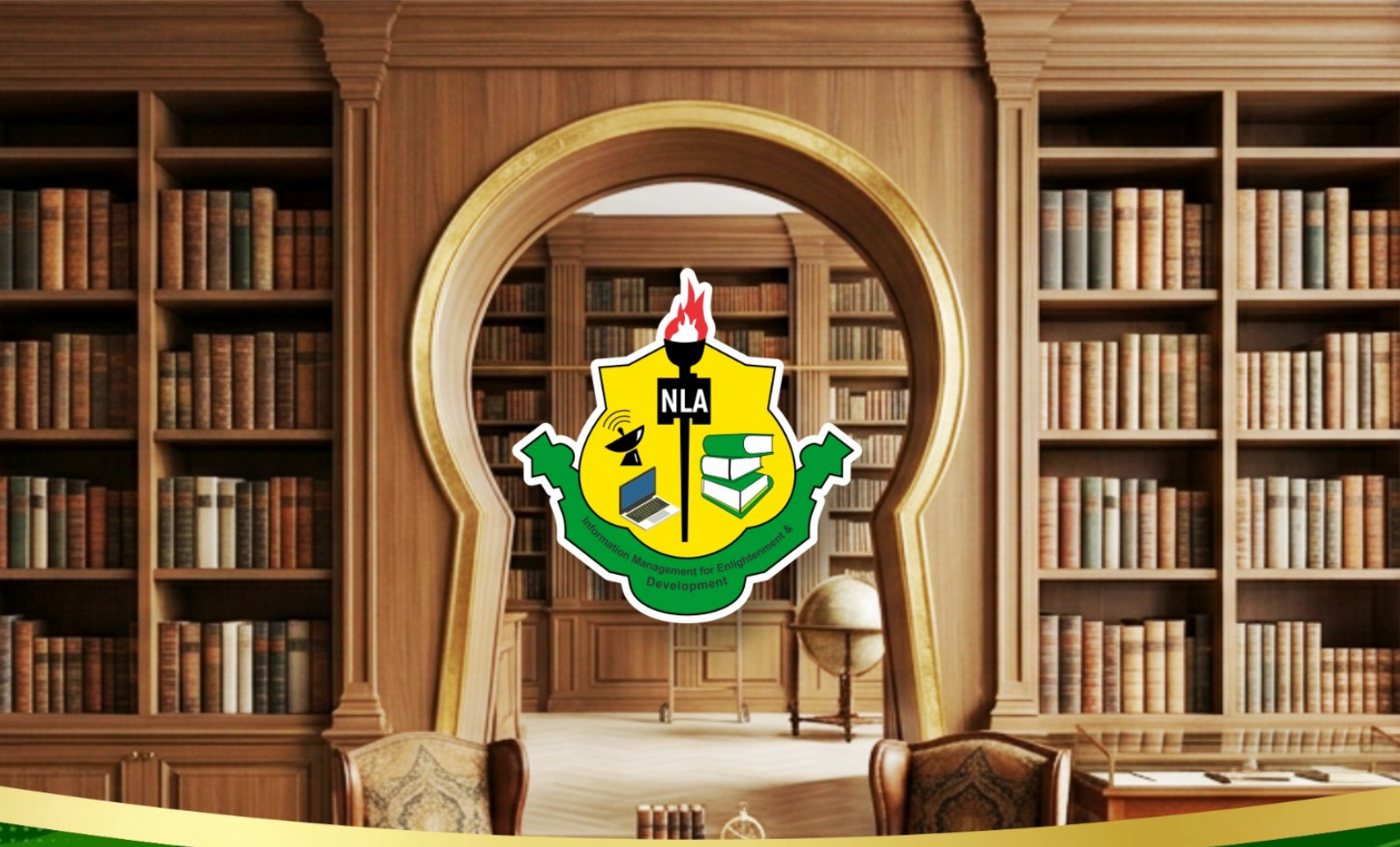


PROCEEDINGS OF THE 64TH NIGERIAN LIBRARY ASSOCIATION CONFERENCE ON OUR FUTURE, OUR HOPE: THE STATE OF LIBRARIES AND LIBRARIANSHIP IN NIGERIA.

MINNA 2026: 12TH - 17TH JULY



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Preface

The global information ecosystem is undergoing a profound revolution. Driven by rapid technological disruption, changing user demographics, and shifting socio-economic realities, the traditional boundaries of the library have dissolved. Today, libraries are no longer mere storehouses of books; they are dynamic innovation hubs, centers for community empowerment, and the vital infrastructure upon which the knowledge economy is built.

For centuries, libraries have served as the custodian of knowledge, the arbiters of information, and the vibrant hubs of community engagement. From the scrolls of Alexandria to the digital repositories of today, their fundamental mission has remained constant: to connect people with the information they need to learn, grow, and thrive. But as the 5th Industrial Revolution gather pace, the very definition of "information" and "service" is undergoing a radical re-evaluation in library and information profession. In response to the above, the Nigerian Library Association hosts her 64rd National Conference at Minna, Niger State from 12th to 17th July, 2026 culminating in this landmark two-volume book of proceedings with the Theme *"Our Future, Our Hope: The State of Libraries and Librarianship in Nigeria"*. It is a theme that is considered very apt in the face of rising competitiveness in the information market and the quest for professional identity and relevance among library and information professionals in Nigeria. This collection stands as a testament to the resilience, adaptability, and intellectual vigor of Nigerian information professionals at a defining moment in our history.

This book is an invitation to librarians, information professionals, educators, policymakers, and indeed, anyone invested in the future of knowledge, creation, access, and use to contemplate the profound implications of this new era. The proceedings provide a comprehensive reflection on contemporary developments, emerging trends, persistent challenges, and future directions for libraries and librarianship in Nigeria. It has also encouraged scholarly engagement with strategies for building resilient, innovative, and inclusive library systems. Collectively, the papers demonstrate that although libraries in Nigeria continue to face challenges associated with funding, infrastructure, technology adoption, policy implementation, and human capacity development, there are numerous opportunities for renewal through research, innovation, strategic partnerships, and professional collaboration.

The conference tagged "Minna 2026", attracted 292 papers on the various sub-themes of the conference theme. Each submission was reviewed by selected experts/professionals in the relevant areas of Librarianship and Information Science. After each paper was subjected to scrutiny by the reviewers, 220 papers were selected and presented at the Conference. The selected papers were assembled in this book of proceedings. The contributions span diverse thematic areas, including Artificial Intelligence and emerging technologies in libraries, the state and of school libraries, public library development in Nigeria, academic and special library services, information and knowledge management, digital preservation, information literacy, collection development, professional ethics, capacity building, library and information science education and the role of professional associations in promoting excellence and sustainability within the library profession. These themes underscore the multidisciplinary nature of Library and Information Science and highlight the evolving responsibilities of libraries in supporting education, research, innovation, lifelong learning, and national development.

We specially thank the participants of the 64th NLA National Conference 2026, for their unalloyed cooperation, loyalty, support and contributions over the years. Gratitude is also extended to the reviewers for their valuable time, expertise, and constructive evaluations, which ensured the academic quality and integrity of the published papers. Their collective efforts have contributed significantly to the success of this publication.

It is hoped that these proceedings will serve as an important resource for researchers, librarians, educators, students, policymakers, and other stakeholders in the information sector. Beyond documenting the scholarly contributions presented at the conference, the volumes are expected to stimulate further research, encourage professional dialogue, inform policy development, and inspire innovative practices that will strengthen libraries and librarianship in Nigeria and beyond

Dr. Juliet C. Alex-Nmecha
Vice President & Chairman, National Organizing Committee

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UTILIZATION OF HEALTH INFORMATION RESOURCES AND SERVICES FOR CLINICAL DECISION-MAKING AMONG HEALTHCARE PROFESSIONALS IN USMANU DANFODIYO UNIVERSITY TEACHING HOSPITAL SOKOTO, NIGERIA - Sylvia Sylvester JELANI BLS MLS CLN, Abdulmuta'all Oyedeji ABDULKADIR BLS & Romoke Opeyemi QUADIR BLS, MLS, PhD, PCCN CLN **850**

Academic Libraries as Catalysts for Climate Resilience and Security for Sustainable Development in South-South, Nigeria.

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Abstract

Climate change causes floods, droughts, and heat waves leading to food and water insecurity, displacement, economic losses, infrastructure damage, and health risks, particularly in South-South Nigeria. Climate awareness and engagement within the academic communities seems low, despite the vulnerability of the region, underscoring the need for reliable information resources, advocacy, digital platforms, and community engagement led by academic libraries. This paper investigates the role of academic libraries in promoting climate resilience and security for sustainable development in South-South, Nigeria. Four (4) specific objectives and four (4) research questions were formulated to guide this study. A descriptive survey design was adopted for the study. The population of the study consists of 185 academic librarians from twelve public universities across the six (6) states in the study area, comprising six (6) federal and six (6) state-owned universities. A Census sampling Technique was adopted. Data were collected using structured digital questionnaires of 20 items. Data were analysed using descriptive statistics of mean and Standard deviation. A benchmark score of 2.50 was used for decision making. The study found that access to climate-related information in academic libraries improved climate literacy among users. Librarians reported that advocacy and digital platforms increased awareness of climate risks, while community-focused services supported local adaptation and resilience. The findings indicate that academic libraries play a key role in addressing climate information gaps and promoting sustainable development. The study recommends adequate funding, greater institutional support, enhanced digital infrastructure, and increased community engagement to strengthen their contribution to climate resilience and security in South-South Nigeria.

Keywords: Academic Libraries; Climate Literacy; Climate Security; Sustainable Development; South-South Nigeria.

Introduction

Climate change poses serious risks to environmental stability, human security, and sustainable development worldwide. Its consequences are no longer distant or abstract. Climate resilience refers to the capacity of systems and institutions to anticipate, adapt to, and recover from climate-related disruptions. Climate security on the other hand is concerned with the protection of livelihoods and social stability from climate-induced threats. Climate literacy is the key to both, it helps to understand the knowledge, skills, and critical awareness required to make informed decisions about climate action (Saini, 2025). Universities are expected to cultivate this literacy. Academic libraries, as knowledge hubs within these universities, are strategically positioned to support that mandate. Academic libraries have moved beyond traditional collection management to become active contributors to sustainability discourse. Studies has identified academic libraries as important actors in climate action, sustainability advocacy, and climate literacy development. Academic libraries now support environmental awareness through climate information services, green library practices, digital engagement, and sustainability education initiatives (Appleton & Woolley, 2023; Ajani *et al.,* 2024). Studies have also shown that libraries contribute to climate communication and sustainable development by improving access to credible environmental information and supporting informed public participation in climate issues. Through credible information resources, digital platforms, research support, and advocacy initiatives, they strengthen institutional responses to climate challenges (Mensah & Eshun, 2022). Libraries provide access to climate research, policy documents, and data, while also promoting awareness through seminars, repositories, and online engagement tools. These functions enhance informed participation and build adaptive capacity within academic communities.

Conceptually, climate resilience refers to the ability for institutions and communities to adapt to climate-related disruptions, while climate security focuses on reducing threats to livelihoods and social stability caused by environmental change. Academic libraries contribute to both through climate literacy programmes, environmental information services, advocacy, and community engagement activities that strengthen awareness and adaptive capacity (Hamada *et al.*, 2024).

In South-South Nigeria, this role is especially urgent as the region faces recurrent flooding, coastal erosion, and environmental degradation associated with industrial activities. These realities threaten livelihoods, infrastructure, and educational continuity. Academic libraries in this context can strengthen climate literacy and promote climate security through improved information availability, advocacy, digital engagement, and community-focused services. Yet evidence indicates that climate-focused services remain insufficiently institutionalized in many developing settings, often constrained by infrastructure gaps, funding limitations, and weak strategic integration (Khan & Ayoade, 2024). Existing literature has focused largely on green library practices and sustainability awareness, with limited empirical attention to how academic libraries specifically promote climate resilience and climate security within vulnerable communities, particularly in developing regions (Adeyemi *et al*., 2024; Ayoung *et al*., 2025). Despite growing recognition of libraries within sustainability and climate action discussions, limited studies have examined how academic libraries in South-South Nigeria integrate information availability, advocacy, digital platforms, and community engagement to improve climate literacy and strengthen climate resilience and security. Empirical evidence on these relationships within environmentally vulnerable academic communities remains limited, thereby creating the need for this study. In particular, the combined influence of information availability, advocacy, digital platforms, and community engagement on climate literacy remains under-explored. This gap demands systematic investigation. Accordingly, this study examines academic libraries as catalysts for climate resilience and security for sustainable development in South-South Nigeria.

Statement of the Problem: South-South Nigeria continues to experience significant climate-related vulnerabilities that undermine sustainable development. Universities generate climate research, yet mechanisms for translating this knowledge into literacy and community resilience remain weak. Academic libraries provide access to diverse information resources, though the extent to which these resources advance climate literacy and security in the region is unclear. Advocacy initiatives, digital platforms, and community engagement programmes that could strengthen adaptive capacity are not consistently integrated into library services. Limited funding, technological constraints, and competing institutional priorities further restrict effectiveness. Recent studies and policy discussions continue to emphasize the growing role of libraries in climate communication and sustainability advocacy, yet evidence from developing regions shows that climate-related library services remain weakly institutionalized and under-researched (IFLA, 2024; Connaway *et al*., 2023). This lack of empirical evidence limits policy direction and institutional *commitment* toward integrating climate resilience initiatives into academic library services. Without empirical evidence on these dynamics, academic libraries' potential to promote climate resilience and security may not be fully utilized. This gap underscores the significance of the study; hence, it focuses on the following objectives.

Objectives of the Study: The purpose of this study is to examine academic libraries as catalysts for climate resilience and security for sustainable development in South-South Nigeria. Specifically, the study seeks to:

1. Determine the influence of information availability on climate literacy in academic libraries for sustainable development in South-South Nigeria.
2. Assess the effect of academic library advocacy and digital platforms on improving climate literacy for sustainable development in South-South Nigeria.
3. Investigate the contribution of community engagement to climate security through academic library services for sustainable development in South-South Nigeria.
4. Highlight the major challenges faced by academic libraries in advancing climate resilience and security in South-South Nigeria.

Research Questions

1. Does information availability on climate literacy influence academic libraries for sustainable development in South-South, Nigeria?
2. What is the effect of academic library advocacy and digital platforms on improving climate literacy for sustainable development in South-South, Nigeria?
3. How does community engagement contribute to climate security through academic library services for sustainable development in South-South, Nigeria?
4. What are the major challenges faced by academic libraries in advancing climate resilience and security in South-South Nigeria?

1.0 Literature

Theoretical Framework: This study adopted two theories; the Knowledge-to-Action (KTA) Framework by Graham *et al*. (2006) and the Diffusion of Innovations (DOI) Theory by Rogers (2003). Both the KTA Framework and DOI Theory

explain how academic libraries contribute to the translation and adoption of climate information in ways that promote climate literacy, resilience, and sustainable development in South-South Nigeria. The KTA Framework provides the basis for understanding the role of information in improving climate literacy for sustainable development. It shows how knowledge is generated, organised, and translated into practical use through services of academic libraries. Diffusion of Innovations theory on the other hand supports the KTA framework as it explains how climate information circulated through library advocacy and digital platforms is communicated and adopted by library users over time. The theory accounts for the influence of communication channels and social systems on users' acceptance to climate knowledge.

The Concept of Climate Literacy: Climate literacy refers to an understanding of climate, climate change, and the ability to use climate information to support sustainable development decisions. It involves knowledge about the climate system and its change processes, as well as the ability for individuals to critically select and use climate data to inform decision-making for sustainable responses to changes in climate (Leve *et al*., 2023). Climate literacy refers to the understanding of climate systems and the ability to apply climate knowledge in making informed and sustainable decision for society and the environment (OECD, 2025). It enables one to interpret climate information and use the knowledge for sustainability. The levels of civic climate knowledge are associated with more-informed and active responses to climate change, such as increased concern over issues related to climate change and support for policies in response, which underpins both how sustainable development progress is achieved (Pan *et al*., 2023). Academic libraries play an important role in promoting climate literacy by providing access to climate information and supporting learning through advocacy and digital platforms. The availability of information in academic libraries helps users to access current and credible climate-related resources. By offering access to information on climate change and educational materials, academic libraries help promote users' understanding of environmental challenges and the various dimensions of sustainability (Appleton & Meschede, 2023). Also, library advocacy initiatives facilitate climate literacy by promoting access and use of climate-related information. Databases, institutional repositories, and social media enable libraries to share climate knowledge beyond physical spaces.

Information Availability and Climate Literacy in Academic Libraries: The commitment with which climate-related information is recognized in academic institutions improves climate literacy. Empirical evidence demonstrates that academic libraries, whose resources on climate information are timely, credible, and diverse, significantly improve users' comprehension of climate-related risks and practices for sustainable development. Libraries' proactive provision of climate change and sustainability resources positively impacts users' climate-related challenges' awareness and comprehension (Appleton & Meschede, 2023). Likewise, access to information and availability of resources on the environment and sustainability in academic libraries, improves students' comprehension of the sustainability construct and drives climate adaptation (Ma & Shahzad, 2025).
The findings are consistent with Hamad *et al.* (2024), who stated that the provision of climate information and associated library services fosters sustainable development by helping people understand climate risks and strengthening community resilience. Taken together, these studies highlight that the availability of information is not simply about having it; it is also about the purposeful structuring and circulation of climate information. The majority of the available literature, however, has concentrated on general educational environments and has very little empirical evidence on the extent to which information availability affects climate literacy within academic libraries in South-South Nigeria. This discrepancy illustrates the need for contextual studies.

Advocating for Academic Libraries, Using Digital Tools, The Role of Libraries in Climate Education: Horsfall (2023) emphasizes that librarians must change and adapt their roles to remain effective change agents by ensuring that digital information services stay relevant and sustainable in a rapid technological society. Advocating for academic libraries has proved useful in the improvement of climate literacy, apart from the availability of information. According to Ajani, *et al.* (2024), academic libraries, for most of the time, undertake advocacy through partnerships and advocacy community seminars and workshops. The above-mentioned activities raise climate change and sustainability awareness among users. This transforming role means that libraries should not be regarded solely as information providers. The use of digital tools also supports this advocacy in relation to the libraries, as they make climate-related information available from outside the physical location of the libraries.
Hajj-Hassan *et al*. (2024) state that digital tools and online academic resources help students to engage in and understand climate and sustainability-related information. In support of this, Appleton and Woolley (2023) affirm that social media and other digital tools help users engage in discussions about climate change and also advocate for the use of tools to spread climate-related information (Saini, 2025). While these studies underscore the effectiveness of advocacy and digital platforms in promoting climate literacy, they largely reflect experiences from developed or generalized higher education contexts. There remains insufficient empirical evidence on how academic library advocacy and digital platforms influence climate literacy within academic libraries in South-South Nigeria, thereby justifying the focus of the present study. Although previous studies have established the importance of climate information, advocacy, and digital platforms in promoting climate literacy, most studies focus largely on general educational settings and developed countries. Few studies critically examine how academic libraries in developing regions, particularly South-South

Nigeria, integrate these strategies within local socio-economic and environmental realities. In addition, existing literature rarely connects climate literacy initiatives with resilience-building frameworks and SDG-driven sustainability practices in academic libraries. This gap highlights the need for more context-specific empirical studies.

Community Engagement and Climate Security through Academic Libraries

According to Carnegie Foundation for the Advancement of Teaching (2015), community engagement involves collaboration between higher education institutions and their larger communities for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity. Community engagement is crucial for climate security in south-south Nigeria, and academic libraries play a significant role in this effort. By partnering with local communities, libraries can promote sustainable development, enhance maintenance and enhance climate resilience (Okoye *et al.* 2024). Climate security refers to the link between climate change impacts and human or community stability including threat to food, water, livelihood security, social cohesion, and overall resilience.

In Nigeria (including the south-south geopolitical zone), climate change effects such as sea-level rise, coastal erosion, flooding, and changing rainfall patterns are documented challenges that affect livelihoods and development pathways, making climate security a pressing concern. Academic libraries can play a role in addressing this by building capacity and resilience through information, education and community partnership (UNDP, 2023). Academic libraries are centres of information access and community connectivity, and they can catalyse climate action in multiple ways:

1. **Climate Literacy and Awareness**: Academic libraries offer information resources, workshops, and awareness campaigns on climate change, enabling community members, students, and researchers to better understand climate risks and mitigation/adaptation strategies. This contributes to climate security by empowering communities to make informed decisions (Usang, *et al*., 2024).
2. **Sustainable Development Advocacy**: Academic libraries support knowledge dissemination linked to the United Nations Sustainable Development Goals (SDGs) especially SDG 13 (Climate Action), but also SDG 4 (Quality Education) and SDG 11 (Sustainable Communities) (Israel, 2024; David-West and Wali, 2024).

Major challenges faced by academic libraries in advancing climate resilience and security.

Despite these opportunities, several challenges limit the full potentials of community engagement via academic libraries in South-South Nigeria and they include the following:

1. **Inadequate Climate Change and Disaster Preparedness Policies:** Nigerian academic libraries lack climate security in strategic plans. There are no tailored policies for climate change preparedness, limiting resource allocation and sustained action. This gap affects disaster risk management for floods, heat and humidity, threatening collections and services. Without formal policies, libraries struggle to provide climate data, education, and resilient services for local adaptation.
2. **Funding Constraints and Financial Limitation:** Funding shortages challenges Nigerian academic libraries, especially in the South-South zone. Limited budgets restrict resilient infrastructure, climate programs, and IT investments. Libraries struggle to acquire digital resources and climate data and this limits research, climate education, and community engagement.
3. **Limited Technology Infrastructure and Digital Capacity:** libraries need robust digital services to advance climate security, climate education, data sharing, and remote access to research. However, Nigerian libraries face inadequate ICT infrastructure, unstable internet, and equipment deficits. These challenges hinder adoption of emerging technologies and digital services.
4. **Lack of Professional Expertise and Capacity Building:** Climate security needs librarians trained in climate information and sustainability. Staff training on climate change impacts and eco-friendly operations is inadequate, hence limited climate literacy weakens research support and resources curation. It also reduces engagement with climate action stakeholders.
5. **Limited Research Focus on Climate Security Roles of Libraries:** Nigerian library studies rarely address climate security. South-South Nigeria lacks region-specific strategies for climate risks and very few studies explore libraries' roles in climate action. Without local research, policymakers lack guidance for climate-responsive services.
6.

3.0 Methodology

A descriptive survey design was adopted for this study which was conducted in South-South Nigeria. Two (2) states and two (2) federal universities were selected from each of the six (6) state in the region making it a total of twelve (12) academic libraries. Hence the population of the study comprised 185 professional librarians drawn from the 12 academic libraries in the region as shown below in the table:

TABLE 1: Population of the study

SN	University	State	Type	Population
1	University of Uyo (UNIUYO),	Akwa Ibom	Federal	24

2	Akwa Ibom State University (AKSU)	Akwa Ibom	State	9
3	Federal University, Otuoke (FUO)	Bayelsa	Federal	11
4	Niger Delta University (NDU)	Bayelsa	State	13
5	University of Calabar (UNICAL)	Cross River	Federal	13
6	University of Cross River State	Cross River	State	9
7	Federal University of Petroleum Resources (FUPRE)	Delta State	Federal	13
8	Delta State University, Abraka (DELSU),	Delta State	State	9
9	University of Benin (UNIBEN)	Edo state	Federal	41
10	Ambrose Ali University, Ekpoma (AAU)	Edo State	State	13
11	University of Port Harcourt (UNIPORT)	Rivers State	Federal	18
12	Rivers State University (RSU).	Rivers State	State	12
TOTAL POPULATION				**185**

Census sampling was adopted to collect responses from all the population of the study, this sampling was appropriate for this study since the total population is well defined and controllable. A digital questionnaire was designed for data collection. A total of 159 questionnaires were Completed and valid. Data collected were analysed using mean and standard deviation. Mean scores from 2.50 and above for any item were accepted, while scores below 2.50 were rejected. The questionnaire items were developed from the objectives of the study. The instrument was examined by experts in Library and Information Science and research methodology, and their corrections were effected before administration to ensure validity. A pilot test was also carried out to confirm the reliability of the instrument. Ethical considerations were properly observed. Only descriptive statistics were used in this study as it was considered suitable because the study focused on describing respondents' views rather than testing hypotheses.

4.0 Data analysis and Discussion of Findings:

TABLE 2: Does information availability on climate literacy influence academic libraries for sustainable development in south-south Nigeria?

S/N	Items	SA	A	D	SD	$\overline{X}$	σ	Decision
1	My library provides adequate books, journals, and reports on climate change for academic use.	55	78	8	18	3.1	1.75	Agree
2	My Library Patrons can easily access up-to-date digital resources on climate and environmental security in our library.	48	67	16	28	2.8	1.69	Agree
3	How the climate-related resources in our library are shelved makes it easy to locate and use.	63	54	10	32	1.9	1.17	Disagree
4	Availability and use of climate-related information in the library helps patrons' understanding of climate issues.	58	57	17	27	2.9	1.71	Agree
5	My library regularly updates its climate-related collections to support research and teaching.	18	61	41	39	2.4	1.54	Disagree

Table 2 shows that the availability of climate-related information resources in academic libraries improves climate literacy for sustainable development in South-South Nigeria. Respondents agreed that libraries provide books, journals, and digital resources that enhance understanding of climate issues. However, the low rating on regular updating of collections suggests that many libraries still operate with outdated environmental resources due to funding and institutional limitations. This finding supports the Knowledge-to-Action (KTA) framework, which stresses that relevant and current knowledge is necessary for informed action. The result agrees with Appleton and Meschede (2023); Ma and Shahzad (2025), although the present study further shows that resource availability alone is insufficient without continuous updating and institutional support.

TABLE 3: What is the effect of academic library advocacy and digital platforms on improving climate literacy for sustainable development in South-south Nigeria academic libraries?

S/N	Items on Services rendered.	SA	A	D	SD	$\overline{X}$	σ	Decision

1	My library conducts awareness programs or workshops on climate change for staff and students.	45	55	14	45	2.6	1.62	Agree
2	My library website or social media are used to disseminate climate information.	42	58	21	38	2.7	1.63	Agree
3	Library advocacy initiatives have increased patrons' engagement with climate change issues.	51	49	19	40	2.7	1.64	Agree
4	The use of e-resources, online guides, and databases improves patrons' climate knowledge.	56	56	21	26	2.9	1.7	Agree
5	Our library collaborates with other institutions to promote climate literacy through digital channels.	49	54	19	37	2.7	1.65	Agree

Table 3 indicate that advocacy initiatives and digital platforms strengthen climate literacy among library users. E-resources, online databases, websites, and social media platforms were positively rated because they expand access to climate information beyond the physical library space. This supports the Diffusion of Innovation (DOI) framework, which explains how digital channels encourage the spread and adoption of knowledge. The finding aligns with Ajani, Tella and Enakrire (2024) and Hajj-Hassan, Chaker and Cederqvist (2024), but the present study highlights that digital advocacy is becoming increasingly important in Nigerian academic libraries where physical access to information may be limited. The implication is that libraries and policymakers should prioritize digital sustainability education and ICT investment.

TABLE 4: How does community engagement contribute to climate security through academic library services for sustainable development in south-south Nigeria?

S/N	Items	SA	A	D	SD	$\overline{X}$	σ	Decision
1	My library organizes outreach programs to educate academic communities on climate change.	58	53	12	36	2.8	1.68	Agree
2	Climate-related information resources from my library are shared with schools, NGOs, and community groups.	47	14	50	48	2.4	1.54	Disagree
3	Community-focused library activities have improved awareness of climate risks among the public.	54	57	18	30	2.8	1.69	Agree
4	Library staff participate in initiatives that strengthen local climate adaptation and resilience.	39	16	56	48	2.3	1.51	Disagree
5	Academic library services play a role in supporting community-level responses to climate-related challenges.	56	58	13	32	2.9	1.69	Agree

Table 4 reveal that community engagement contributes to climate security through academic library services. Outreach programmes and awareness activities improved public understanding of climate issues, showing that libraries can support community resilience. However, weak collaboration with schools, NGOs, and environmental groups limits the broader impact of these efforts. This suggests that climate literacy initiatives in many academic libraries remain institution-based rather than community-driven. The finding agrees with Okoye, Peter and David (2024), who noted that partnerships improve environmental awareness and local adaptation efforts. Greater collaboration with external stakeholders is therefore necessary for sustainable climate action in Nigeria.

TABLE 5: What are the major challenges faced by academic libraries in advancing climate resilience and security in South-South Nigeria?

S/N	Items	SA	A	D	SD	$\overline{X}$	σ	Decision
1	Inadequate funding limits my library's ability to acquire climate-related information resources and support climate resilience initiatives.	65	50	22	22	3	1.73	Agree

2	Lack of regular training and capacity-building opportunities for librarians affects effective delivery of climate change and sustainability information services.	64	54	27	14	3.1	1.75	Agree
3	Poor ICT infrastructure in my institution constrains access to digital climate-related information resources and platforms.	52	53	17	37	2.8	1.66	Agree
4	Insufficient institutional and policy support reduces my library's effectiveness as a hub for climate resilience, security, and sustainable development initiatives.	56	57	17	29	2.9	1.7	Agree
5	Weak partnerships with government agencies, NGOs, research institutions, and local communities limit the library's contribution to climate security and sustainable development.	60	60	18	21	3	1.73	Agree

Table 5 show that lack of librarian training, inadequate funding, weak partnerships, and poor ICT infrastructure hinder academic libraries from promoting climate resilience. These barriers reduce the effectiveness of climate information services and slow the adoption of innovative practices. From the KTA and DOI perspectives, institutional and technological support are essential for translating climate knowledge into practice and encouraging wider adoption of sustainability initiatives. The finding supports Khan and Ayoade (2024) and further demonstrates that climate literacy programmes in Nigerian academic libraries require stronger policy commitment, professional training, and infrastructural development to remain effective.

4.0 Conclusion

Academic libraries contribute significantly to climate literacy and resilience through the provision of climate information resources, awareness programmes, and community engagement initiatives. This study establishes the strategic relevance of academic libraries in advancing climate awareness and sustainable development in South-South Nigeria, thereby contributing to Library and Information Science scholarship on climate-focused information services. Despite this potential, inadequate funding, weak ICT infrastructure, and limited professional training constrain effective service delivery. Future research and policy should therefore prioritize innovative climate information services, stronger institutional support, and collaborative frameworks that will enhance the capacity of academic libraries to support long-term climate resilience and sustainable development.

6.0 Recommendations

The following are observed about academic libraries as catalysts for climate resilience and security for sustainable development in South-South Nigeria.

1. University management and relevant government agencies should provide adequate funding for academic libraries to strengthen the availability and currency of climate-related resources. Expanding collections across print and digital formats will support better access to reliable information and, in turn, enhance climate literacy among users.
2. Library management should increase advocacy efforts through seminars, workshops, and targeted awareness programmes. At the same time, greater use of library websites, institutional repositories, and social media should be encouraged to widen the reach of climate information and sustain engagement within academic communities.
3. Academic libraries should deepen their involvement in community-based activities by organizing outreach programmes and forming active partnerships with government agencies, Non-Governmental Organizations (NGOs), and community groups. Such collaboration will improve public awareness of climate risks and support broader climate resilience efforts.
4. Efforts should be made to tackle key constraints like inadequate funding, limited professional training, weak ICT infrastructure, and low institutional support. Investing in staff capacity development, improving technological facilities, and building stronger institutional and external partnerships will position academic libraries to contribute more effectively to climate resilience and security.

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Academic Library Advocacy and Marketing Practices for Sustainable Development Goals in Nigeria: A Study of Federal Universities

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Abstract
Academic libraries play a vital role in promoting sustainable development goals by supporting teaching, learning, research, and community engagement. This study examined the role of academic library advocacy and marketing practices in promoting the achievement of Sustainable Development Goals (SDGs) in federal universities in Nigeria. A descriptive survey research design was adopted. The population comprised 77 federal universities across Nigeria's six geopolitical zones, from which 18 universities were selected. The study involved 1,850 librarians in the sampled universities, with 270 librarians selected using disproportionate stratified random sampling. Data were collected through a structured questionnaire and analyzed using frequencies and percentages. The findings revealed that academic libraries in Nigerian federal universities engage in advocacy and marketing practices through collaborative, interactive, and technology-based strategies. Social media campaigns, departmental collaborations, outreach programmes, and library events were identified as the most effective approaches. These practices contribute to the promotion of SDGs, particularly SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 9 (Industry, Innovation and Infrastructure), SDG 10 (Reduced Inequalities), and SDG 16 (Peace, Justice and Strong Institutions). However, inadequate funding, poor infrastructure, limited awareness, and weak collaboration were identified as major challenges hindering effective advocacy and marketing efforts. The study concludes that strengthening advocacy and marketing practices through policy support, capacity building, managerial commitment, and effective use of digital platforms is essential for improving the visibility, relevance, and sustainability of academic libraries in Nigeria.
Keywords: *Academic libraries, library advocacy, library marketing, Sustainable Development Goals, federal universities, Nigeria*

Introduction

Academic libraries have evolved from traditional repositories of knowledge to strategic partners in teaching, research, innovation, and community engagement. Driven by technological advancements and changing user needs, they increasingly support digital services, information literacy, research activities, open access initiatives, and sustainable development goals (Bangani & Dube, 2024). Their contribution extends beyond providing information resources to promoting knowledge access, capacity building, and sustainable development.

In Nigeria, academic libraries play a vital role in higher education by providing access to information resources and services that support teaching, learning, and research. However, their effectiveness depends not only on resource availability but also on their visibility and recognition within the university system. Consequently, advocacy and marketing have become essential for demonstrating library value, increasing awareness of services, strengthening institutional support, and demonstrating library contributions to university goals (Okuonghae & Igbinovia, 2019).

Despite ongoing efforts to improve service delivery through digitization, online platforms, and user-centered services, federal university libraries continue to face challenges such as inadequate funding, limited infrastructure, and insufficient staffing (Odunlade & Ojo, 2023). Strategic advocacy and marketing can help address these challenges by enhancing library visibility, promoting resource utilization, and strengthening stakeholder engagement. These activities also support SDGs by improving access to knowledge, promoting quality education, encouraging innovation, and strengthening inclusive development (Adekoya et al., 2023).

Although advocacy, marketing, and sustainable development have gained attention in academic librarianship, limited empirical evidence exists on how these elements intersect in Nigerian federal universities. This study therefore examines academic library advocacy and marketing practices for sustainable development goals in federal universities in Nigeria, focusing on existing strategies, their effectiveness, challenges, and opportunities for strengthening the role of academic libraries in sustainable development.

Statement of the Problem

Academic libraries in Nigerian federal universities support teaching, learning, research, and national development through information services. However, they face challenges such as low resource utilization, limited visibility, inadequate recognition, weak collaboration, poor networking, and insufficient staff development, partly due to ineffective advocacy and marketing practices (Okuonghae & Igbinovia, 2019; Obi, 2023). With the adoption of the Sustainable Development Goals (SDGs), academic libraries are expected to promote quality education, innovation, access to information, and lifelong learning. Despite this role, limited empirical evidence exists on how advocacy and

marketing practices are used by federal university libraries in Nigeria to advance the SDGs, creating the need for this study.

Research Objectives

The main objective of this study is to examine the role of academic library advocacy and marketing practices in promoting the achievement of Sustainable Development Goals (SDGs) in federal universities in Nigeria.

The specific objectives are to:

1. Identify the advocacy strategies used by academic libraries in federal universities in Nigeria to promote Sustainable Development Goals
2. Assess the marketing practices used by academic libraries in federal universities in supporting Sustainable Development Goals.
3. Examine the role of academic libraries in federal universities in supporting sustainable development goals in Nigeria.
4. Determine the challenges encountered by academic libraries in implementing advocacy and marketing practices to support Sustainable Development Goals.
5. Propose strategies for improving advocacy and marketing practices in academic libraries in federal universities in Nigeria.

Review of Related Literature

Conceptual Overview of Advocacy and Marketing Practices in Academic Libraries

Advocacy and marketing are strategic functions that enhance the visibility, relevance, and sustainability of academic libraries in higher education. Advocacy involves deliberate efforts to influence policies, secure funding, demonstrate library value, and engage stakeholders in support of institutional goals (Mariano, 2023). Marketing focuses on identifying user needs and promoting library services through channels such as websites, email, and social media, with digital transformation enabling more targeted and personalized approaches (Hauminlun & Singh, 2024; Odunlade & Ojo, 2023).

Both practices are interconnected, as marketing provides evidence of library impact through usage data and engagement, while advocacy helps secure resources and institutional support. They promote knowledge access, educational equity, sustainable development, and improved service delivery. Despite challenges such as limited funding and expertise, integrating advocacy, marketing, digital tools, and stakeholder engagement strengthens academic libraries' institutional relevance (Acharya & Vagdal, 2023).

Advocacy Strategies Used by Academic Libraries

Empirical studies from both developed and developing countries reveal that academic libraries employ a variety of advocacy strategies to enhance visibility, demonstrate institutional value, and secure stakeholder support. For instance, Thorpe & Gunton (2022) observed that academic libraries across several developed countries, including the USA, the UK, Ireland, and the Netherlands, increasingly adopt strategic collaboration, stakeholder engagement, and institutional alignment initiatives to strengthen their relevance within higher education institutions. Nguyen (2023) found that academic libraries in Australia actively use Twitter, Facebook, blogs, and other digital communication platforms to engage users, promote services, and communicate library achievements.

Similarly, Rabatseta et al. (2021), in a study conducted in South Africa, found that Facebook, Twitter, YouTube, and blogs were the most widely used social media platforms for library promotion and advocacy, while emerging platforms included Instagram, Skype, WhatsApp, Dropbox, and RSS. These digital advocacy strategies were found to improve user interaction and enhance the visibility of academic library services.

Marketing Practices in Academic Libraries

Marketing practices in academic libraries refer to the systematic activities used by librarians to promote their resources, services, and value to users. These practices aim to increase awareness, improve service utilization, and demonstrate the library's contribution to teaching, learning, research, and institutional goals. According to Tomar (2024) marketing practices in academic libraries include user orientation programmes, publicity and promotion of library services, social media engagement, library websites, exhibitions, newsletters, user education, feedback mechanisms, and collaboration with academic departments.

Ihejirika et al. (2021) found that Nigerian academic libraries use social media platforms as marketing tools to promote library services and engage users. However, the study revealed that many libraries lack clear marketing objectives, strategic planning, and structured approaches for managing social media engagement.

In Kenya, studies have shown that digital marketing approaches, particularly the use of institutional websites and electronic communication platforms, improved awareness and accessibility of library services in university libraries (Mutula & Wamukoya, 2019). Likewise, Rabatseta et al. (2021) reported that academic libraries in South Africa that adopted social media and integrated online communication strategies experienced improved user engagement and increased awareness of electronic resources.

Role of Academic Libraries in Supporting Sustainable Development Goals

Academic libraries play a significant role in supporting sustainable development goals by facilitating **equitable access to information, promoting lifelong learning, and supporting research and innovation.** Academic libraries contribute to the achievement of the Sustainable Development Goals (SDGs), particularly in areas such as **quality education, reduced inequalities, and innovation** (International Federation of Library Associations and Institutions (International Federation of Library Associations, 2021).

Evidence from developed countries further reinforces the role of academic libraries in sustainable development goals. In the United States and other developed nations, Connaway et al. (2023) reported that libraries support sustainability through digital inclusion initiatives, open access services, community engagement, and partnerships that promote equitable access to information. Similarly, studies in the United Kingdom and Canada have shown that academic libraries contribute to sustainable development goals through green library practices, research data management services, and collaborative learning environments that foster innovation and lifelong learning.

Empirical evidence from Africa demonstrates the growing contribution of academic libraries to sustainable development initiatives. A recent study by Odede & Unachukwu (2025) found that academic libraries in Nigeria support sustainable development goals through **digital literacy programmes, open access initiatives, and research support services.** However, the extent of this contribution is often limited by systemic challenges such as **inadequate funding, outdated infrastructure, and low awareness of the SDGs among library staff and users** (Mashroofa, 2022).

In Ghana, Odoom et al. (2024) found that academic libraries support the attainment of Sustainable Development Goal 4 through information literacy instruction, provision of electronic resources, and support for teaching and learning activities. Furthermore, Bangani and Dube (2024), in South Africa, observed that academic libraries contribute to the realization of several SDGs through research support services, sustainability awareness programmes, and equitable access to information resources.

Challenges in Implementing Advocacy and Marketing Practices for Sustainable Development Goals

Empirical studies have identified several challenges affecting the implementation of advocacy and marketing practices in academic libraries, particularly in developing countries such as Nigeria. One of the major challenges is inadequate funding, which limits the ability of libraries to organize promotional activities, acquire modern technologies, and sustain effective user engagement programmes. Studies have shown that insufficient financial support negatively affects library visibility and service delivery (Adeogun, 2022; Obi, 2023).

Another significant challenge is poor information and communication technology (ICT) infrastructure, including unstable internet connectivity and inadequate digital facilities, which hinder the effective use of online marketing platforms and electronic library services (Obi, 2023).

Human resource challenges also affect advocacy and marketing implementation. Many librarians possess limited skills in marketing, public relations, and digital communication, thereby reducing their ability to effectively promote library resources and services. Obi (2023) observed that inadequate training and low technological competencies among librarians constrain innovative service promotion and outreach efforts. These challenges collectively reduce awareness, patronage, and the overall impact of academic libraries within their institutions and communities.

Methodology

Research Design

This study adopted a descriptive survey research design. This design is considered appropriate because it enables the collection of data from a defined population to describe existing conditions, opinions, and practices relating to advocacy and marketing strategies. The practices enhance the role of academic libraries in achieving sustainable development goals in Nigerian federal universities.

Table 1: Population and Sample of the Study

S/N	**Geopolitical Zone**	**University (Population)**	**University (Sample Size)**	**Librarians (Population)**	**Librarians (Sample Size)**
1	North Central	13	3	266	45
2	North East	9	3	204	45
3	North West	19	3	641	45
4	South East	7	3	414	45
5	South-South	15	3	182	45
6	South West	14	3	143	45
	Total	**77**	**18**	**1,850**	**270**

Sources: Preliminary Survey, 2026

The study population consisted of 77 federal universities in Nigeria, with 18 universities selected as the sample. From a total of 1,850 librarians in the sampled universities, 270 librarians were selected using disproportionate stratified random

sampling. The universities were stratified into six geopolitical zones, with three universities randomly chosen from each zone, and 15 librarians selected from each sampled university to ensure representation across all zones. The disproportionate approach ensured adequate representation of all geopolitical zones despite variations in the number of universities and librarians across the strata. According to Creswell and Creswell (2018), stratified sampling is suitable when a population contains distinct subgroups requiring representation.

Instrument for Data Collection

The instrument for data collection was developed using Google Form and it was titled "Advocacy and Marketing Practices for Sustainable Development Goals in Academic Libraries Questionnaire (AMPSDGALQ)". The questionnaire was structured based on the objectives of the study. The instrument was subjected to face and content validation by two experts in Library and Information Science and three practicing librarians. Their observations, corrections, and suggestions were incorporated to enhance the clarity, relevance, and adequacy of the instrument. This process was guided by established procedures for assessing content validity and ensuring that research instruments adequately measure the intended constructs. The questionnaire designed in Google Form was administered electronically to research assistants in each of eighteen selected universities for sharing with respondents. Data collected were analyzed using descriptive statistics, including frequencies and percentages.

Results and Discussion

Background Information of Respondents

The response rate of 15 responses were retrieved from each of eighteen (18) universities selected, totaling two hundred and seventy (270) responses. The background data of the 270 respondents provides useful insight into the demographic and professional composition of respondents involved in the study.

Table 1: Background information of respondents

1	**Gender**	**Frequency**	**Percentage**
	Male	145	**53.7%**
	Female	125	**46.3%**
	Total	**270**	**100%**
2	Role		
	Academic Librarian	182	67.4%
	Non-Academic Librarian	76	28.2%
	System Staff	12	4.4%
	Total	**270**	**100%**
3	Experience		
	Less than 2 years	12	4.4%
	2-5 years	34	12.6%
	6-10 years	40	14.8%
	More than 10 years	184	68.2%)
	Total	**270**	**100%**

The gender distribution shows that 145 respondents (53.7%) were male, while 125 (46.3%) were female, indicating a slightly higher representation of males, although both genders were adequately represented.

Regarding respondents' roles, the majority were Academic Librarians, accounting for 182 respondents (67.4%), suggesting that the study was largely informed by professionals directly involved in library service delivery, advocacy, and marketing practices. Non-Academic Librarians constituted 76 respondents (28.2%), while System Staff recorded the lowest representation with 12 respondents (4.4%).

The distribution by years of experience reveals that most respondents were highly experienced, with 184 (68.2%) having more than 10 years of professional experience. Respondents with 6–10 years of experience accounted for 40 (14.8%), those with 2–5 years were 34 (12.6%), and only 12 (4.4%) had less than 2 years of experience.

The demographic profile indicates that the study was largely informed by experienced academic librarians, enhancing the credibility and reliability of the findings.

Advocacy Strategies Used by Academic libraries to support Sustainable Development Goals

The data presents respondents' views on the use of various advocacy strategies in academic libraries to support sustainable development goals.

Table 2**: Advocacy Strategies Used**

S/N	Item	Frequency (Yes)	%	Frequency (No)	%
1	Social media promotion	240	88.9	30	11.1
2	Library events and programs	250	92.6	20	7.4

3	Outreach to faculty and students	256	94.8	14	5.2
4	Collaborations with other departments	258	95.6	12	4.4
5	Newsletter	195	72.2	75	27.8
6	Library webpage	246	91.1	24	8.9

The findings reveal that collaborations with other departments and outreach to faculty and students were the most widely used advocacy strategies, each recording 258 responses (95.6%) and 256 responses (94.8%) respectively. This was followed by library events/programs with 250 responses (92.6%), library webpage with 246 responses (91.1%), and social media promotion with 240 responses (88.9%). These results indicate that academic libraries largely rely on collaborative, outreach-based, and digital engagement strategies to promote their services and increase visibility among users.

Newsletter publication was the least utilized strategy, with 195 responses (72.2%) indicating use and 75 respondents (27.8%) indicating less-use. This comparatively lower adoption suggests that newsletters are less preferred than faster and more interactive communication channels such as social media and institutional web platforms.

The findings show that academic libraries in Nigerian federal universities predominantly employ collaborative, interactive, and technology-driven advocacy approaches. The declining relevance of traditional tools like newsletters indicates a transition toward digital platforms that promotes sustainable library services and development.

Frequency of Advocacy Activities in Academic Libraries

The data presents the frequency with which various advocacy activities are carried out in academic libraries, categorized into daily, weekly, monthly, quarterly, and occasionally.

Table 3: Frequency of Advocacy Activities

S/N	Item	Daily	Weekly	Monthly	Quarterly	Occasionally
1	Library orientation programmes	14	7	25	31	193
2	Information literacy training	15	21	22	22	190
3	Workshops and seminars	2	6	37	28	197
4	Library exhibitions	8	8	37	17	200
5	Library week	3	11	28	20	208
6	Collaboration with faculty	17	16	87	19	131
7	Social media advocacy	169	24	25	12	40
8	Advocacy through professional association	19	19	39	13	180
9	Library new arrivals display	65	17	105	9	74

The Table shows that social media advocacy recorded the highest daily engagement with 169 responses and weekly use with 24 responses, indicating that libraries increasingly rely on digital platforms for continuous communication and outreach. Library new arrivals display also showed relatively consistent use, particularly monthly (105) and daily (65), reflecting efforts to promote newly acquired resources. Collaboration with faculty was mostly occasional (131) and monthly (87), suggesting moderate but irregular engagement. Information literacy training was mainly occasional (190), with monthly and quarterly responses each recording 22, while library orientation programmes were largely occasional (193) and quarterly (31), indicating that user education activities are often event-based.

Workshops and seminars were mostly occasional (197) and monthly (37), while library exhibitions (200) and library week (208) were predominantly occasional activities, confirming that they are largely tied to special events. Advocacy through professional associations also showed moderate participation, with occasional responses (180) and monthly responses (39).

The findings indicate that academic libraries in Nigerian federal universities rely on a mixed but largely irregular pattern of advocacy activities. While digital advocacy and resource promotion are conducted more frequently, most traditional advocacy programmes remain occasional and event-driven, although the growing use of social media reflects a shift toward more continuous and technology-driven advocacy practices.

Marketing Practices in Academic Libraries

The data presents respondents' views on the marketing practices adopted in academic libraries, highlighting both mainstream strategies and a few emerging or alternative approaches.

Table 4: **Marketing Practices**

S/N	Item	Response
1	Social media marketing	230
2	Email marketing	189
3	Print materials (posters, brochures, etc.)	225
4	Library website	233
5	Collaborations with other departments	228
	Other	
6	Physical enlightenment	1
7	Information visualization techniques	1
8	Games, light reading	1
9	Dissemination QR codes on notice boards	1

The findings show that academic libraries predominantly rely on digital and institutional marketing channels, particularly the library website (233 responses), social media marketing (230 responses), collaborations with other departments (228 responses), and print materials such as posters and brochures (225 responses). This indicates that libraries adopt a blended marketing approach that combines digital platforms with traditional promotional tools. Email marketing recorded 189 responses, making it the least utilized among the major marketing strategies, suggesting that it is less preferred compared to websites and social media platforms.

Under the "Other" category, innovative practices such as physical enlightenment, information visualization techniques, games and light reading, and dissemination of QR codes on notice boards each recorded only 1 response, indicating minimal adoption.

The findings suggest that academic libraries in Nigerian federal universities rely heavily on digital platforms and institutional collaboration as their primary marketing strategies, while innovative approaches such as QR codes and gamified engagement remain at an early stage of adoption.

Effectiveness of Marketing Practices in Academic Libraries

The data presents respondents' perceptions of the effectiveness of various marketing practices in academic libraries using a four-point scale: Very effective, Somewhat effective, Not very effective, and Not at all effective.

Table 5: Effectiveness of Marketing Practices

S/N	Item	Very effective	Somewhat effective	Not very effective	Not at all effective
1	Social media marketing	225	31	7	7
2	Email marketing	100	142	18	10
3	Print materials (posters, brochures, etc.)	210	45	10	5
4	Library website	210	40	16	4
5	Collaborations with other departments	199	51	11	9

The Table shows that social media marketing is the most highly rated strategy, with 225 respondents (very effective) and 31 (somewhat effective), totaling 256 positive responses (94.8%). The library website is also highly effective, with 210 (very effective) and 40 (somewhat effective), giving 250 positive responses (92.6%). Print materials performed strongly as well, with 210 (very effective) and 45 (somewhat effective), totaling 255 positive responses (94.4%).

Collaboration with other departments recorded 199 (very effective) and 51 (somewhat effective), totaling 250 positive responses (92.6%), though with 11 "not very effective" and 9 "not at all effective" responses. Email marketing recorded the lowest effectiveness, with 100 (very effective) and 142 (somewhat effective), but also higher negative ratings of 18 "not very effective" and 10 "not at all effective," indicating weaker overall impact (10.4% negative responses).

The findings show that academic library marketing is most effective when it combines digital platforms especially social media and websites with print materials and institutional collaboration, while email marketing appears comparatively less effective due to lower user engagement.

Sustainable Development Goals (SDGs) Supported by Academic Libraries

The data presents respondents' perceptions of the Sustainable Development Goals (SDGs) that academic libraries contribute to, with multiple responses indicating areas of impact.

Table 6: **Sustainable Development Goals (SDGs) Supported**

S/N	**Sustainable Development Goals (SDGs)**	Response
1	Quality Education (SDG 4)	255
2	Gender Equality (SDG 5)	226
3	Industry, Innovation and Infrastructure (SDG 9)	232
4	Reduced Inequalities (SDG 10)	227
5	Peace, Justice and Strong Institutions (SDG 16)	228
6	Partnerships for the goals (SDG 17)	201

The findings show that academic libraries are most strongly associated with SDG 4 (Quality Education), with 255 responses, indicating near-universal recognition of their central role in supporting teaching, learning, research, and information literacy.

Several SDGs recorded relatively similar and moderate recognition levels: Gender Equality (SDG 5) with 226 responses, Industry, Innovation and Infrastructure (SDG 9) with 232 responses, Reduced Inequalities (SDG 10) with 227 responses, and Peace, Justice and Strong Institutions (SDG 16) with 228 responses and Partnerships for the Goals (SDG 17) with 201 responses. This suggests that libraries are also perceived as contributing to broader social and institutional development through access to information, research support, and inclusive learning environments.

The strong association with SDG 4 (Quality Education) highlights the effectiveness of library advocacy in promoting teaching, learning, research support, and information literacy services. The moderate recognition of SDGs such as Gender Equality (SDG 5), Industry, Innovation and Infrastructure (SDG 9), Reduced Inequalities (SDG 10), and Peace, Justice and Strong Institutions (SDG 16) indicates that academic libraries' marketing and advocacy efforts also promote inclusive access to information, innovation, and institutional development.

Challenges Facing Library Advocacy and Marketing in Academic Libraries

The data presents respondents' views on the key challenges affecting the implementation of advocacy and marketing practices in academic libraries.

Table 7: **Challenges**

S/N	Item	Response
1	Inadequate funding	249
2	Poor technological infrastructure	227
3	Inadequacy of Digital Skilled Personnel	220
4	Limited access to information resources and databases	210
5	Low awareness and perception of library advocacy and marketing	227
6	Inadequate collaboration with stakeholders	225
	Other:	
7	Poor sponsorship to acquire more skills in marketing and advocacy	1
8	Internet access	1
9	Inadequate interest and motivation by library and university management	1

The findings show that inadequate funding, with 249 responses, is the most critical challenge affecting advocacy and marketing in academic libraries, as it limits staffing, training, technology acquisition, and promotional activities, thereby reducing service visibility and effectiveness.

Other major challenges include poor technological infrastructure (227 responses) and low awareness and perception of library advocacy and marketing (227 responses). Inadequate collaboration with stakeholders recorded 225 responses, while inadequacy of digital skilled personnel recorded 220 responses, indicating combined infrastructural, human capacity, and institutional support limitations. Limited access to information resources and databases, with 210 responses, also emerged as a significant challenge, affecting research support and user engagement.

The "Other" category recorded minimal issues such as poor sponsorship for skills development (1), internet access problems (1), and inadequate management support and motivation (1).

The findings show that structural, technological, and institutional challenges particularly inadequate funding, infrastructure, awareness, and collaboration limit effective advocacy and marketing practices in academic libraries for supporting sustainable development goals.

Strategies for Enhancing Library Advocacy and Marketing Practices to Support Sustainable Development Goals

The data presents respondents' views on strategies for improving advocacy and marketing practices in academic libraries.

Table 8: **Strategies for improvement**

S/N	Item	Response
1	Increased funding for library resources and services	256
2	Improvement of technological infrastructure	240
3	Training and capacity building for library staff in digital skills	242
4	Expansion of access to information resources and databases	228
5	Awareness campaigns on the importance of library advocacy and marketing	240
6	Strengthening collaboration with stakeholders (faculty, administration, partners)	238
	Other	
7	Increased sponsorship of staff	1
8	Show of more interest and motivation by library leadership and university management	1

The findings in Table 8 show that increased funding for library resources and services (256 responses**)** is the most supported strategy for improving library advocacy and marketing, highlighting funding as the key driver of effective service delivery and consistent with the earlier identified challenge of inadequate funding. This is followed by training and capacity building for library staff in digital skills (242 responses), indicating the importance of strengthening staff competencies in digital literacy and modern marketing tools.

Improvement of technological infrastructure (240 responses) and awareness campaigns on library advocacy and marketing (240 responses) are jointly ranked next, showing equal emphasis on ICT development and stakeholder awareness as essential for improving visibility, communication, and support for library services. Strengthening collaboration with stakeholders (238 responses) also received strong support, reflecting the importance of partnerships in integrating library services into academic activities and enhancing their relevance and usage.

In contrast, expansion of access to information resources and databases (228 responses) received comparatively lower support, suggesting that respondents prioritize funding, infrastructure, skills development, and awareness over resource expansion. The "Other" category, including increased sponsorship of staff (1 response) and improved leadership motivation and interest (1 response), was minimally represented but highlights the influence of institutional commitment on overall effectiveness.

The results indicate that improving library advocacy and marketing requires a multi-dimensional approach focused on funding, infrastructure, staff development, awareness creation, and stakeholder collaboration, reflecting a clear alignment between identified challenges and proposed solutions.

Discussion of Findings

Advocacy Strategies Used in Academic Libraries

The findings indicate that academic libraries in Nigerian federal universities increasingly rely on collaborative, interactive, and technology-based advocacy strategies, with social media campaigns, departmental collaboration, outreach programmes, and library events emerging as the most effective approaches. This aligns with Rabatseta et al. (2021), who reported that social media adoption in academic libraries enhances communication, user engagement, and the visibility of library services. Similarly, Rehman et al. (2022) emphasized that integrating social media into marketing communication improves audience reach, interaction, and institutional branding.

Marketing Practices in Academic Libraries

The findings indicate that academic libraries in Nigerian federal universities adopt a combination of digital platforms, traditional promotional tools, and institutional collaborations to market their services, with newer approaches such as QR codes, gamification, and visualization techniques still developing. This supports Horsfall (2020), who highlighted that effective library marketing in the digital age requires the integration of innovative technologies and diverse promotional strategies to enhance service visibility and user awareness.

Effectiveness of Marketing Practices in Academic Libraries

The findings reveal that academic library marketing is most effective when digital and traditional approaches are combined, with social media, library websites, print resources, and institutional collaborations contributing significantly to service awareness and user engagement. This supports Okusaga et al. (2021), who found that social media applications enhance the promotion of library and information services by improving communication and interaction with users in tertiary institutions.

Sustainable Development Goals (SDGs) Supported by Academic Libraries

The findings demonstrate that academic libraries contribute significantly to the achievement of multiple Sustainable Development Goals (SDGs), with the strongest contribution associated with Quality Education through support for teaching, learning, research, and information access. This supports Onwubiko (2021), who identified librarians and libraries as important contributors to SDG implementation through access to reliable information and community empowerment.

Challenges Facing Library Advocacy and Marketing in Academic Libraries

The findings reveal that library advocacy and marketing challenges are influenced by funding limitations, inadequate technological infrastructure, limited digital skills, low awareness, and weak stakeholder collaboration. This aligns with Annan-Aggrey et al. (2021), who identified resource constraints, capacity gaps, and institutional challenges as major barriers to effective SDG implementation in African contexts.

Strategies for Enhancing Library Advocacy and Marketing

The findings indicate that enhancing library advocacy and marketing requires a combination of improved funding, digital innovation, staff capacity building, stakeholder collaboration, and increased awareness creation. This aligns with Odede and Unachukwu (2025), who emphasized that strengthening academic libraries' contributions to sustainable development requires adequate resources, effective partnerships, and improved service visibility. The findings also support Horsfall (2020), who highlighted that successful marketing of library services in the digital age depends on the adoption of appropriate technologies, skilled personnel, and user-focused promotional strategies. Therefore, addressing these strategic areas is essential for improving library advocacy, increasing user engagement, and enhancing the overall impact of academic library services.

Conclusion

The findings demonstrate that academic libraries in Nigerian federal universities are increasingly adopting digital, collaborative, and user-centred advocacy and marketing approaches to improve visibility, service awareness, and engagement. While strategies such as social media, library websites, departmental collaborations, and direct user outreach have proven effective, challenges including inadequate funding, poor technological infrastructure, limited digital skills, and low stakeholder awareness continue to constrain their impact. The study further confirms that academic libraries contribute significantly to sustainable development goals, particularly through supporting quality education, research, innovation, and equitable access to information. Strengthening advocacy and marketing therefore requires coordinated efforts in funding, technology adoption, staff development, and institutional support.

Recommendations

1. Increase funding support: University management and relevant stakeholders should provide adequate financial resources to support library advocacy, marketing activities, technology acquisition, and service improvement.
2. Enhance digital infrastructure: Academic libraries should invest in modern ICT facilities, digital platforms, and innovative communication tools to strengthen online engagement and service promotion.
3. Develop staff digital competencies: Continuous training should be provided for library staff in digital marketing, social media management, data analytics, and emerging technologies.
4. Strengthen stakeholder collaboration: Libraries should establish stronger partnerships with academic departments, university management, student bodies, and external organizations to improve awareness and support.
5. Adopt integrated marketing approaches: Libraries should combine digital strategies (social media, websites, and online campaigns) with traditional methods (posters, exhibitions, and outreach programmes) to reach diverse user groups effectively.
6. Promote SDG-focused library initiatives: Academic libraries should align advocacy and marketing programmes with Sustainable Development Goals to highlight their contributions to education, innovation, inclusion, and research development.

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Access to Law, Access to Hope: Reframing the Role of Law Libraries in Legal Information Acquisition and Use in Nigeria

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Abstract

Access to legal information is fundamental to legal literacy, legal empowerment, and access to justice. Despite the important role of law libraries in organising and disseminating legal knowledge, structural and technological barriers continue to limit their effectiveness in Nigeria. This study examines the role of law libraries in the acquisition and use of legal information and analyses their contribution to legal empowerment and access to justice. Drawing on Access to Justice and Information Behaviour Theories, the study explores how access to legal information conditions legal participation. The study adopted a qualitative, doctrinal, and analytical approach. Data were obtained mostly from peer-reviewed journal articles, institutional repositories, and electronic databases. Literature published between 2010 and 2025 was reviewed, while earlier studies were included to provide a theoretical base. The relevant materials were systematically analysed in relation to the role of law libraries, barriers to access, and emerging models of legal information delivery. Findings reveal that inadequate funding, weak digital infrastructure, limited resource-sharing mechanisms, and restrictive access policies continue to constrain the effectiveness of law libraries in Nigeria. These limitations affect legal research, legal education, judicial decision-making, and broader access to justice. The study argues that law libraries should progress beyond their traditional custodial role and function as active mediators of legal information. Through digital innovation, collaborative networks, public legal information services, and integration with legal aid initiatives, law libraries can strengthen legal empowerment and expand access to justice. The study contributes to debates on legal information management, law librarianship, and inclusive justice delivery in Nigeria.

Keywords: Law Libraries; Legal Information; Access to Justice; Legal Empowerment; Nigeria.

Background to the Study

Access to legal information is a fundamental component of access to justice. Beyond its legal significance, access to legal information may, to a great extent, imply access to hope. For many persons, the ability to locate, understand, and use legal information represents the first step towards seeking redress, protecting rights, and participating meaningfully in the judicial process. Across both developed and developing societies, access to reliable legal information supports informed decision-making and participation in legal processes. In Nigeria, however, institutional, technological, economic, and geographical barriers continue to limit equitable access to legal information. Law libraries have traditionally served as the principal institutions for organising, preserving, and disseminating legal knowledge. Through their collections of statutes, law reports, textbooks, journals, and electronic resources, they support legal education, legal research, judicial decision-making, and legal practice. Their role extends beyond the preservation of legal materials to facilitating access to legal knowledge that enables effective engagement with the law.

Despite their importance, Owushi (2024) observed that many law libraries in Nigeria face significant challenges, including inadequate funding, outdated collections, weak digital infrastructure, inconsistent access to electronic databases, and limited resource-sharing arrangements. These constraints affect the quality of legal research, legal education, and access to justice. In some instances, Mundi (2022) argues that limited access to legal information restricts the ability of individuals to understand, assert, and protect their rights.

Against this background, this study examines the role of law libraries in the acquisition and use of legal information in Nigeria. It moves beyond questions of availability to consider how legal information is accessed, used, and facilitated by law libraries. Drawing on access-to-justice and lnformation behaviour theories, the study argues that law libraries should be reconceptualised as active agents of legal participation, inclusion, and access to justice.

Objectives of the Study

More specifically, the study has the following objectives:

1. To examine the current role of law libraries in legal information acquisition and use in Nigeria.
2. To identify structural, technological, and institutional barriers affecting access to legal information.
3. To analyse how these limitations impact legal practice, education, and access to justice.
4. To propose a re-conceptualised framework for law libraries as agents of legal empowerment and inclusive access.

Methodology

This study adopted a qualitative doctrinal and analytical approach. Data were obtained from peer-reviewed journal articles, books, policy documents, institutional reports, and electronic databases including Google Scholar, HeinOnline, and JSTOR. Relevant materials were analysed thematically in relation to the role of law libraries, barriers to access, legal empowerment, and access to justice.

Conceptual and Theoretical Framework

Legal information extends beyond statutes and case law to include the full range of materials through which law is interpreted, applied, and contested such as commentaries, law digests, statute books, law reports, and increasingly, digital databases. The usability of these materials is paramount as it answers the question of location, interpretation, and application. In this context, access is multifaceted as it involves physical availability, intellectual comprehension, and increasingly, digital connectivity (Mitee, 2017). Law librarianship, then, can be understood as the professional practice that intersects these layers, organising legal knowledge while also facilitating its effective use. Also, legal empowerment connotes the ability of ordinary citizens to understand and use the law to protect their rights and interests (Golub, 2003).

This study draws on Access to Justice (Garth & Cappelleti, 1978) and information behaviour theories (Wilson, 1999) in expatiating on how access to legal information frames user capability and justice outcomes. Traditionally associated with legal aid and procedural fairness, access to justice has evolved to include informational dimensions. Without access to legal information, the formal right to justice remains futile. Finally, information behaviour theory helps to explain why the mere presence of resources does not guarantee their use. It draws attention to cognitive, institutional, and technological factors that shape how individuals seek and apply information. This study highlights the fact that improving access to legal information requires more than expanding collections; it demands attention to how users interact with those collections.

Literature Review

Access to legal information occupies a critical position at the intersection of law, librarianship, and social justice. Legal information supports legal education, judicial decision-making, legal practice, and citizens' understanding of their rights and obligations. In Nigeria, however, access remains constrained by institutional, technological, and socio-economic challenges. Within this background, law libraries serve as key institutions for organising, preserving, and disseminating legal knowledge. Previous studies generally focused on four interconnected themes: legal information use, structural and technological constraints, access to justice, and information behaviour. A significant body of literature examines the role of law libraries in legal information acquisition and use, particularly within academic environments. Studies consistently demonstrate that access to well-organised legal resources enhances legal research, teaching, and scholarly productivity (Olorunfemi, 2015; Umoh, 2011; Uluocha & Mabawonku, 2014).

Although electronic legal resources have expanded significantly as shown by Ezema and Chizoba (2018), any users continue to rely heavily on print materials due to familiarity, accessibility concerns, and infrastructural limitations. Research further suggests that the effectiveness of legal information services depends not only on resource availability but also on the organisation of collections, research support services, and user guidance provided by librarians. The literature also identifies persistent structural, technological, and institutional barriers affecting access to legal information in Nigeria. Challenges frequently reported include inadequate funding, poor internet connectivity, weak digital infrastructure, limited staff capacity, inconsistent subscriptions to electronic databases, and the absence of effective resource-sharing frameworks (Ali, Owoeye, & Anasi, 2010; Amusa & Atinmo, 2016; Owushi, 2024; Olorunfemi 2015). These limitations reduce the effectiveness of law libraries and contribute to uneven access to legal information across institutions.

While digital technologies have expanded opportunities for information dissemination, existing studies indicate that technological advancement has not eliminated inequalities in access, particularly where digital literacy and infrastructure remain inadequate.

Studies further demonstrate that restricted access to legal information affects legal participation, legal empowerment, and access to justice, particularly among vulnerable populations (Bamgbose, 2018, 2020; Mitee, 2017). However, existing research focuses largely on institutional performance rather than the role of law libraries as agents of legal empowerment.

Studies on information behaviour provide additional insight into the factors influencing legal information use. Research suggests that access alone does not guarantee effective utilisation. Cognitive, technological, and environmental factors influence how users identify, retrieve, evaluate, and apply legal information (Olorunfemi, 2015). This perspective highlights the importance of legal information literacy and the role of librarians as intermediaries who facilitate meaningful engagement with legal resources.

A combined reading of the literature recognises the central role of law libraries within the legal information ecosystem in Nigeria while also documenting significant financial, technological, and institutional constraints. Although growing attention has been paid to issues of legal information access and digital transformation, relatively few studies has examined law libraries as agents of legal empowerment and access to justice. Existing studies largely emphasise resource availability and institutional operations, leaving insufficient attention to the broader societal role of law libraries

in bridging the gap between legal knowledge and social need. It is this conceptual gap that the present study seeks to address.

Law Libraries, Legal Information and Access to Justice in Nigeria

Traditionally, law libraries have served as the principal institutions for the collection, organisation, preservation, and dissemination of legal information. Their core responsibility has been to provide access to statutes, law reports, textbooks, journals, government publications, and other legal materials that support legal education, legal research, judicial decision-making, and legal practice. In this regard, law libraries have remained indispensable to the development and continuity of the Nigerian legal system (Owushi, 2024).

Academic law libraries play a particularly important role in legal education. They provide students and lecturers with access to authoritative legal resources and support the development of legal research skills. The quality of legal education is often linked to the strength and relevance of library collections, since legal research depends heavily on access to current legal information and established legal authorities (Uluocha & Mabawonku, 2014). Beyond maintaining collections, librarians assist users in locating, evaluating, and utilising legal materials, thereby facilitating effective research and information literacy.

Law libraries whether academic, judicial, private, or specialised, share a common objective of facilitating access to legal information. They also support judicial administration and legal practice. Mundi (2022) observed that court libraries provide judges and court personnel with access to legal authorities necessary for informed decision-making, whereas institutional and private law libraries serve the information needs of legal practitioners, government agencies, and specialised legal organisations (Owushi, 2024). These functions are reinforced by technical processes such as cataloguing, indexing, classification, and reference services, which ensure that legal information can be efficiently retrieved and utilised (Lawal et al., 2013). Historically, their services have been directed primarily towards legal professionals, academics, judges, and students. Consequently, the broader legal information needs of the public have received comparatively less attention.

Despite their enduring importance, many law libraries in Nigeria face significant structural, technological, and institutional challenges that limit their effectiveness. Studies consistently identify inadequate funding, outdated collections, poor internet connectivity, weak digital infrastructure, insufficient staffing, and limited access to electronic databases as major constraints affecting legal information services (Ali, Owoeye & Anasi, 2010; Amusa & Atinmo, 2016; Mundi 2022; Owushi, 2024). These challenges undermine legal research, legal education, and judicial efficiency while contributing to uneven access to legal information across institutions and regions. More significantly, these limitations reveal a deeper disconnect between legal information systems and access to justice. While legal information is widely recognised as a prerequisite for legal participation, access remains uneven and often restricted to those already within the legal system.

As Mitee (2017) argues, meaningful access to legal information is an essential component of human rights because individuals cannot effectively assert, protect, or enforce their rights without understanding the legal framework within which those rights operate.

The consequences of this disconnect are particularly evident among vulnerable and marginalised groups. Bamgbose (2018), for example, demonstrates that limited access to legal information within correctional institutions restricts inmates' ability to understand their legal status, pursue appeals, and seek available remedies. Similar challenges confront many members of the public who lack both legal literacy and access to reliable legal information resources. In such circumstances, the law remains formally available but practically inaccessible.

The issue, therefore, extends beyond the existence of legal materials. Access to justice fundamentally depends on the ability of users to locate, understand, and apply that information effectively.

Where legal resources remain difficult to navigate, inaccessible to non-lawyers, or confined within professional institutions, access to legal information does not necessarily translate into meaningful access to justice. This gap constitutes the missing link between the traditional functions of law libraries and their broader societal relevance.

Emerging research increasingly suggests that law libraries should embrace a more active role in promoting legal empowerment and legal inclusion. This move requires viewing law libraries as institutions that facilitate meaningful engagement with legal information. It involves expanding access beyond traditional user groups and developing services that support legal understanding, information literacy, and informed participation in legal processes. (Singh, 2025).

Several developments point towards this broader conception of law librarianship. These include public legal information services, legal information literacy programmes, collaborative resource-sharing networks, and law library-based legal clinics designed to support marginalised populations (Ali, Owoeye & Anasi, 2010; Bamgbose, 2020).

Collectively, these initiatives demonstrate that law libraries can contribute directly to legal empowerment by helping individuals navigate legal information and understand their rights and obligations. Viewed from this perspective, the value of law libraries should equally be assessed by their capacity to facilitate access, understanding, and meaningful use of legal information. This emerging perspective provides the basis for reconceptualising law libraries as active agents of legal empowerment and access to justice.

Reframing the Role: From Access to Law to Access to Hope

The continued existence of legal information barriers suggests that access to legal materials alone does not guarantee meaningful engagement with the law. The critical question, therefore is whether individuals can understand, use, and apply it in ways that advance their legal interests and protect their rights. It is at this point that access to law begins to assume a broader meaning. Where legal information enables individuals to understand their options, challenge injustice, and pursue legal remedies, access to law becomes access to hope; thereby showcasing the possibility of achieving meaningful participation and redress through legal processes.

At the core of this reframing is the recognition that legal information is a form of social power. Accessing it enables individuals to understand their rights, navigate legal processes, challenge unlawful actions, and participate more effectively in civic life. Conversely, where legal information remains inaccessible or difficult to understand, human rights may exist only on paper.

As Mitee (2017) argues, access to legal information is fundamental to the enjoyment of other rights because individuals cannot effectively exercise rights of which they are unaware.

This perspective aligns closely with the concept of legal empowerment. Legal empowerment extends beyond formal access to legal institutions and focuses on the capacity of individuals to understand and use the law to advance their interests. Access to justice, particularly for disenfranchised groups, depends also on the availability of mechanisms that enable people to recognise, interpret, and act upon their rights (Bamgbose, 2020). Within this framework, law libraries possess significant but often underutilised potential. They already manage the resources through which legal knowledge is communicated; the challenge is to ensure that these resources are accessible and meaningful to a broader range of users.

Reframing the role of law libraries therefore requires a shift from resource-centred service delivery to user-centred engagement.

Law libraries should increasingly operate as facilitators of legal understanding. This involves providing public legal information services, supporting legal information literacy, producing simplified legal guides, and assisting users in navigating complex legal resources. Such services recognise that meaningful access requires interpretation and guidance as much as physical or digital availability (Uwaechina & Eze-Onwuzuruike, 2021).

This shift also redefines the role of the law librarian. Traditionally viewed as custodians of legal collections, law librarians are increasingly positioned as mediators of legal knowledge. Their responsibilities as reiterated by Akanbiemu (2024) extend beyond organising information to supporting users in locating, evaluating, and applying legal resources effectively. Experience from academic law libraries demonstrates that guided engagement with legal information improves research competence and user confidence (Cadmus, 2021). Wijerathne (2024) observed that law libraries play a significant role in strengthening legal research competencies among users. Extending this approach beyond academic environments offers important opportunities for strengthening public legal awareness and legal capability.

Technology further expands the possibilities for this transformation. Digital repositories, open-access legal databases, online legal information services, and emerging technology-driven platforms have significantly increased opportunities to access legal information beyond geographical delineations. However, the benefits of digital access remain unevenly distributed. Limited digital literacy, poor internet connectivity, and infrastructural deficiencies continue to restrict effective use of electronic resources, particularly in under-represented communities (Bano & Peerzada, 2026; Bamgbose, 2020). Consequently, technological innovation must be accompanied by user education and inclusive service design if it must contribute meaningfully to legal empowerment.

The transformation of law libraries also requires stronger institutional collaboration. As components of the broader justice ecosystem, law libraries can extend their impact through partnerships with courts, universities, legal aid providers, civil society organisations, and community-based institutions. Such collaborations create opportunities for outreach programmes, legal information clinics, community education initiatives, and other interventions that connect legal information directly with public needs. Evidence increasingly suggests that libraries can contribute to civic participation, governance, and social inclusion when they actively engage with the communities they serve (Bamgbose, 2020). It is within this broader framework that the idea of access to law as access to hope becomes significant. Hope, in this context, being a practical consequence of legal empowerment.

When individuals are able to understand their rights, identify available remedies, and engage confidently with legal institutions, the law becomes a meaningful instrument for participation and redress. Law libraries that facilitate such engagement move beyond their traditional custodial function and become active contributors to legal inclusion, empowerment, and access to justice. In this sense, access to law is transformed into access to possibility, participation, and ultimately, hope.

Innovative Models and Emerging Practices in Law Librarianship

The changing information environment has encouraged law libraries to adopt more responsive and user-centred models of service delivery. These developments reflect a growing recognition that legal information must also be accessible, understandable, and usable if it has to contribute meaningfully to legal empowerment and access to justice. Emerging practices in law librarianship increasingly emphasise technological innovation, institutional collaboration, public engagement, and integration with legal support services.

Table 1: Emerging Models in Contemporary Law Librarianship

Emerging Model	Contribution to Legal Information Access and Use
Digital Libraries and Electronic Resources	Expand access beyond physical collections and improve information availability.
Artificial Intelligence (AI) Tools	Enhance legal research through automated retrieval, analysis, and citation support.
Library Consortia and Resource Sharing	Improve access to legal resources while reducing acquisition costs.
Public Legal Information Services	Promote legal awareness and legal literacy among non-lawyers.
Legal Aid and Clinical Partnerships	Connect legal information directly to legal assistance and justice outcomes.
Mobile and Community-Based Services	Extend legal information services to under-represented and remote communities.

Source: Author

Digital transformation remains one of the most significant developments in contemporary law librarianship. The increasing use of electronic databases, institutional repositories, and online legal information platforms has expanded access to legal materials beyond the physical confines of the library. Studies indicate that digital legal resources improve the speed, scope, and efficiency of legal research, particularly where users possess the skills necessary to navigate digital environments effectively (Bano & Peerzada, 2026). In recent times, the adoption of artificial intelligence tools introduced new possibilities for legal information retrieval, case analysis, citation management, and legal research support; (Owushi, 2024), While these technologies offer significant opportunities, their effectiveness depends on adequate infrastructure, professional oversight, and user competence.

Collaborative models, including consortia and resource-sharing initiatives, improve access to specialised legal resources and reduce duplication, particularly within resource-constrained environments (Folorunso & Mabawonku, 2025).

A further development is the increasing emphasis on public-oriented legal information services. Information desks, community outreach programmes, and legal information literacy initiatives reflect a shift towards broader public engagement (Bilson, Lowenberger, & Sharp, 2018). These services recognise that access to legal information is meaningful only when users can understand and apply it effectively. Partnerships between law libraries, legal aid organisations, and clinical legal education programmes represent another important innovation. Such collaborations connect legal information resources with practical legal assistance, creating opportunities for both experiential learning and enhanced access to justice. Similarly, mobile and community-based legal information services have demonstrated potential for extending access to legal knowledge to populations that may not ordinarily engage with formal library institutions (Akidi & Igbinovia, 2026)

Collectively, these innovations illustrate a gradual shift from traditional custodial models towards more participatory, technology-enabled, and socially responsive forms of law librarianship. Their significance lies in their capability to connect legal information more directly with user needs, which would in turn strengthen legal empowerment and contribute more effectively to access to justice.

Implications for LIS Education and Practice

The reconceptualisation of law libraries as instruments of legal empowerment and access to justice carries important implications for Library and Information Science (LIS) education and professional practice in Nigeria. If law libraries are to move beyond their traditional custodial role, corresponding changes are required in the training, competencies, and professional orientation of law librarians.

1. **Curriculum Reform and Practice-Oriented Education**

Contemporary law librarianship requires a broader range of competencies than those traditionally emphasised in many LIS programmes. While rudimentary areas such as cataloguing, classification, and collection management remain important, emerging realities demand greater attention to legal information systems, digital resource management, legal research support, and user-centred service delivery. LIS curricula should therefore incorporate specialised training in legal information management alongside practical learning opportunities such as internships, clinical placements, and field experiences within law libraries, courts, and legal aid institutions. Such approaches would strengthen the connection between professional education and the realities of legal information practice.

2. **Digital Competencies and Legal Informatics**

The increasing digitisation of legal information has transformed legal research and information delivery. Consequently, law librarians require competencies that extend beyond traditional library operations to include digital legal research, database management, advanced search strategies, data literacy, and familiarity with emerging technologies. The growing relevance of artificial intelligence and legal informatics further highlights the need for professionals who can engage effectively with technology-driven legal information systems. Developing these competencies will enable law librarians to support users more effectively in increasingly complex information environments.

3. Professional Identity and User Engagement

The evolving role of law libraries also requires a redefinition of professional identity. Law librarians are increasingly expected to serve as educators, information mediators, and facilitators of legal knowledge. Their contribution extends beyond resource management to supporting legal literacy, research competence, and informed participation in legal processes. This broader understanding of professional responsibility aligns closely with the emerging view of law libraries as active participants in promoting legal inclusion and access to justice.

4. Continuing Professional Development and Information Ethics

Rapid technological change and evolving user expectations make continuous professional development essential. Law librarians must regularly update their knowledge of legal information resources, digital technologies, and emerging research tools in order to remain effective in contemporary practice. At the same time, increasing reliance on digital information systems raises important ethical concerns relating to information quality, privacy, intellectual property, and equitable access. These considerations underscore the importance of integrating information ethics into both LIS education and professional practice.

At a glance, these developments suggest that the future effectiveness of law libraries depends significantly on the preparation and adaptability of those who manage them. A reformed LIS education system that combines legal information expertise, technological competence, user engagement skills, and ethical awareness will better position law librarians to contribute meaningfully to legal empowerment and access to justice in Nigeria.

Conclusion

This study argued that although law libraries remain essential to legal education, research, and judicial administration in Nigeria, their traditional custodial orientation limits their broader contribution to legal inclusion and access to justice. Persistent challenges, including inadequate funding, weak digital infrastructure, restrictive access practices, and uneven user capacity, continue to restrict the effective acquisition and use of legal information. At the same time, emerging developments such as digital legal information systems, collaborative networks, public legal information services, and partnerships with legal aid initiatives demonstrate the potential for a more responsive and socially engaged model of law librarianship. Drawing on access to justice, legal empowerment, and information behaviour dimensons, the paper contends that the value of law libraries should be measured primarily by their ability to facilitate meaningful engagement with legal information. Repositioning law libraries as active mediators of legal knowledge can strengthen legal literacy, expand access to justice, and bridge the gap between legal systems and the everyday realities of citizens. It is only then, that law libraries can evolve to become institutions through which legal knowledge is translated into practical opportunity; By enabling individuals to understand, navigate, and utilise the law, they transform access to law into access to participation, empowerment, and hope.

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ACCESSIBILITY AND UTILIZATION OF SCHOOL LIBRARY INFORMATION RESOURCES FOR ACADEMIC PREPAREDNESS AMONG FINAL-YEAR SECONDARY SCHOOL STUDENTS IN OFFA LOCAL GOVERNMENT, KWARA STATE

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Abstract

School library information resources play a critical role in supporting students' learning outcomes and academic preparedness. However, concerns persist regarding the adequacy, accessibility and effective utilisation of these resources in secondary schools, particularly in developing contexts. This study examined the accessibility and utilisation of school library information resources as well as their perceived impact on students' academic preparedness in secondary schools in Offa Local Government Area, Kwara State. A descriptive survey research design was adopted. Population comprised of 505 final-year secondary school students of Offa Grammar School (OGS) and Moremi Secondary School. Sample size of 132 was derived using Taro-Yamane method and randomly selected. A structured questionnaire was used as the instrument for data collection but out of 132 questionnaire distributed, 130 were correctly filled. Data were analysed using frequency counts, percentages and weighted mean to determine trends in responses. Findings revealed that the availability of school library resources was generally low with respect to current textbooks, reference materials and digital resources. Accessibility was high as students reported ease of locating materials, supportive library staff and conducive learning environments. Utilisation of library resources was also high, particularly for academic study, assignments and examination preparation; however, the use of digital resources was low. Major constraints identified include inadequate and outdated materials, limited electronic resources and insufficient user orientation. Despite these challenges, students perceived that library resources positively support their academic preparedness by enhancing understanding, improving examination readiness and fostering effective study habits. The study concludes that although school libraries are accessible and actively utilised, their impact is constrained by insufficient and outdated resources. It is recommended that school management and government authorities improve resource provision, invest in digital facilities and strengthen user education programmes to enhance students' academic preparedness.

Keywords: Academic preparedness, accessibility, library information resources, school library, utilization

Introduction

In secondary education, the school library serves as a strategic academic support system that enhances curriculum delivery, promotes independent learning and fosters information literacy skills. For final year secondary school students who are at a critical transition stage between secondary and tertiary education, the accessibility and utilisation of library information resources become even more essential. School libraries are designed to provide organized collections of print and non-print materials that support teaching and learning (Ochogwu, 2020). These print and non-print materials range from textbooks, reference materials, audio-visual resources and digital information systems. Academic engagement and learning outcomes are opportunities for self-directed study and research offered by school libraries (George, 2020). In Nigeria, school libraries are also expected to align the collections with curricular requirements and

examination standards set by bodies such as the West African Examinations Council (WAEC) and the National Examinations Council (NECO). Academic preparedness among final-year students encompasses examination readiness as well as the development of critical thinking, research skills and independent learning abilities (Prout, 2020). The effectiveness of school libraries in supporting this preparedness depends largely on three interrelated factors: availability, accessibility, and utilisation of information resources. A functional school library supports curriculum delivery by providing access to textbooks, reference materials, digital databases, past examination papers and other instructional resources. When such resources are available and accessible, students are better positioned to engage in self-directed learning and develop independent research skills. These skills that are essential for success in tertiary education.

Education remains a fundamental instrument for national development, social transformation and individual advancement. The quality of an educational system is significantly influenced by the extent to which learners have access to relevant, current and diverse information resources. Therefore, the library widely recognized as a professionally organized collection of print and non-print materials designed to meet the informational, educational and recreational needs of users (Ochogwu, 2020). Beyond being a repository of books, contemporary libraries provide access to journals, government publications, audio-visual materials, digital databases, e-books, and internet-based resources. Ekule and Ogbomo (2024) conceptualizes the library as a dynamic learning institution managed by trained personnel for continuous education, intellectual development and self-improvement. Within the school environment, this definition underscores the library's role as an instructional partner in achieving educational objectives.
Availability refers to the adequacy and relevance of resources, accessibility relates to the ease with which students can locate and obtain them, while utilisation reflects the extent to which students actively engage with these resources for academic purposes. For final-year secondary school students whose academic success largely depends on performance in external examinations, the school library should function as a vital resource centre for revision, research and examination preparation, the impact of a school library on students' academic success is contingent upon three critical and interrelated variables: availability, accessibility and utilisation of information resources (Fakunle, 2023; Ugah, 2022; Oyediran, 2023).

As recognized as the importance of school libraries discussed above are, several challenges persist in secondary schools especially government-owned secondary schools which include inadequate funding, outdated collections, limited digital infrastructure and insufficient professional staffing (Braimol, 2020). These constraints can significantly affect final-year students who depend on library resources for examination preparation and academic advancement. This gap underscores the need for a more integrated analysis. This study therefore investigates the accessibility and utilisation of school library information resources on the relationship with academic preparedness among final-year secondary school students in Offa Local Government, Kwara State with the aim of providing evidence to inform policy and improve school library services.

Statement of the Problem

School libraries are designed to function as instructional support centres that enhance teaching, promote independent learning and foster information literacy among students. At the secondary school level especially among final-year secondary school students access to relevant and current information resources is essential for academic success and preparation for tertiary education. Ideally, library information resources should be sufficiently available, easily accessible and effectively utilized to support curriculum delivery and lifelong learning competencies. Accessibility and utilisation of school library resources by secondary school students is a matter of serious concern to every stakeholder in the secondary school system. It must be bore in mind that the degree of usefulness of any school library resources depends on its maximum utilisation by students otherwise it is as good as wasted. However, empirical evidence (Bankole, 2024) from Nigerian secondary schools suggests persistent deficiencies in the provision and functioning of school libraries. Studies (Nwafor, 2025; Obadiora, 2024) have shown that many secondary schools either lack functional libraries or operate below recommended standards in terms of infrastructure, staffing and resource provision. Oyekale (2017) found that many public secondary schools in Osun State lacked purpose-built library facilities and where libraries existed, these libraries are poorly equipped and inadequately accessible to students. Similarly, Yashim and Odunayo (2025) reported that school libraries in Rivers State were either absent or stocked with scanty and poorly organized materials, thereby limiting effective information service delivery.

Further evidence (George, 2020; Hassan, Emmanuel and Owoeye, 2024) indicate that even where library facilities exist, utilization remains suboptimal due to structural and systemic constraints. Fakunle (2023) identified inadequate collections, lack of modern learning technologies, erratic power supply and insufficient professional staff as significant barriers to effective utilization of school library resources in Osun State. In Ogun State, Udoh (2024) observed low levels of student engagement with available school library resources, attributing this to limited awareness and insufficient integration of library services into classroom instruction. Similarly, Oyedipe, Okewale and Adekunnisi

(2020) reported disparities between resource provision and actual usage patterns in secondary schools in Ogun State, suggesting that availability does not automatically translate into meaningful utilization.
Ndidiamaka, Okonkwo and Alor (2023) found significant deficiencies in the availability of library materials and services in secondary schools in Onitsha North Local Government Area. Additionally, Hassan, Emmanuel and Owoeye (2024) demonstrated that utilization of library information resources significantly influences students' lifelong learning capacity, underscoring the importance of effective library engagement during the secondary school stage. Within Kwara State specifically, Omosibi, Atolagbe and Ajao (2021) identified variations in the availability and utilization of educational resources across public and private secondary schools suggesting possible inequalities in learning environments.
Senior Secondary Class 3 represents a critical educational stage: transitioning from structured secondary education to more independent tertiary-level learning. If senior secondary school graduating students lack adequate access to and engagement with functional library information resources, their preparedness for higher education and lifelong learning may be shaky. Addressing these issues would significantly improve students' academic performance, research skills and overall intellectual development as well as informing policy decisions, guiding school library development strategies and ensuring equitable access to quality information resources for secondary school learners.

Objectives of the Study
The main objective of this study is to investigate accessibility and utilization of school library information resources and their influence on academic preparedness among final-year secondary school students in Kwara State, Nigeria.
Specifically, the study seeks to:

1. determine the level of accessibility of available school library information resources to final-year secondary school students for academic preparedness.
2. ascertain the extent of utilisation of school library information resources for academic preparedness.
3. examine constraints influencing utilisation including infrastructural, technological, administrative and user-related factors for academic preparedness.
4. assess the impact of library on academic preparedness of students.

Literature Review
Adequate provision of library resources remains the foundation upon which effective school library services are built, yet this foundation is often weak in many secondary schools. Inadequate availability of school library information resources remains a recurring issue in secondary education in Nigeria. In practice, the issue is not simply the presence of materials but their relevance, currency and diversity. Libraries are still largely dependent on outdated print collections with limited integration of digital resources needed for contemporary learning (Fakunle, 2023). This limitation is reinforced by findings that inadequate electronic resources and poor internet connectivity reduce students' engagement with information beyond prescribed textbooks (Idhalama, Oredo and Makori, 2025). Similar observations by Agyekum and Filson (2024) suggest that when resources are insufficient or outdated, students' capacity for independent learning and deeper academic exploration is significantly constrained. These patterns indicate that availability, in its practical sense, remains a critical but unresolved challenge.
Even where resources exist, their value is determined by how easily students can access them. Accessibility reflects the extent to which library systems enable or restrict students' interaction with available materials. When library collections are well organized and supported by responsive staff, students are more likely to locate and use relevant information efficiently (Yashim & Odunayo, 2025). In contrast, poorly structured cataloguing systems, limited guidance, and restrictive access conditions can discourage use, regardless of resource availability (Ibenne & Durodolu, 2024). This suggests that accessibility is not a passive attribute of the library but an outcome of deliberate service design, shaping how effectively resources are translated into learning support.
The extent to which students actually engage with library resources provides a more direct indication of their educational value. Utilisation reflects students' study behaviours and their reliance on library materials for academic tasks. Regular use of library resources has been associated with improved study habits, greater academic engagement, and stronger learning outcomes (Bankole et al., 2024). However, patterns of use are uneven. While print materials tend to be more frequently consulted, digital resources remain underutilised due to infrastructural constraints and limited digital competencies (Idhalama et al., 2025). This disparity highlights a disconnect between the expansion of information formats and students' ability to effectively engage with them.
The contribution of library resources to academic preparedness lies in how these factors: accessibility and utilization interact in practice. Academic preparedness extends beyond examination success to include critical thinking, independent learning and effective information use. Access to relevant and well-utilised resources has been linked to improved comprehension and readiness for academic tasks (Agyekum & Filson, 2024; Bankole et al., 2024). However, this relationship is not automatic. Where resources are limited, difficult to access or underutilised, their potential impact on students' preparedness is significantly reduced (Ibenne & Durodolu, 2024). This underscores the need to consider these variables collectively rather than in isolation.

Research methodology

This study used descriptive survey study research design with data collected via questionnaires. The population comprised 505 final year students of Offa Grammar School (OGS) and Moremi Secondary School in SS3. This SS 3 classes are divided into three categories (Science, Arts and Business) with arms of each category running from A-F totaling 465 in OGS and a single arm per each category in Moremi yielding 40. Using Taro-Yamane method to determine the sample size, the sample of 132 was derived and a random sampling method was employed for selection. However, out of the 132 questionnaires distributed, 130 were returned fully completed and usable. Simple frequency, percentage and weighted mean were used to analyse the collected data with the average weighted mean as the benchmark. The study was based on two theories: Uses and Gratifications Theory and the Technology Acceptance Model (Davis, 1989).

Table 1: Level of Accessibility of Available School Library Information Resources for Academic Preparedness

S/N	Items	SA Freq (%)	A Freq (%)	D Freq (%)	SD Freq (%)	Total	Weighted Mean (WM)	Decision
1	I can easily locate the materials I need in the library.	52 (40.0)	46 (35.4)	20 (15.4)	12 (9.2)	130 (100)	3.06	Agree
2	The library is open at convenient times for students.	54 (41.5)	43 (33.1)	22 (16.9)	11 (8.5)	130 (100)	3.08	Agree
3	The library environment is conducive for reading and studying.	38 (29.2)	41 (31.5)	24 (18.5)	27 (20.8)	130 (100)	2.69	Agree
4	Library staff are available to assist students when needed.	46 (35.4)	43 (33.1)	25 (19.2)	16 (12.3)	130 (100)	2.92	Agree
5	There are minimal restrictions when accessing library resources.	50 (38.5)	44 (33.8)	22 (16.9)	14 (10.8)	130 (100)	3.00	Agree
6	The organization of the library makes finding materials easy.	60 (46.2)	42 (32.3)	18 (13.8)	10 (7.7)	130 (100)	3.17	Agree
7	Sufficient time is given to use library facilities.	41(31.5)	53(40.8)	18(13.8)	18(13.8)	130 (100)	2.91	Agree
	Average Weighted Mean						**2.98**	**Agree**

The results in this table shows accessibility of school library resources. The grand weighted mean of 2.98 indicates that respondents agreed with all the items, including ease of locating materials (WM = 3.06), convenient library opening hours (WM = 3.08), conducive reading environment (WM = 2.69), availability of library staff for assistance (WM = 2.92), minimal restrictions in accessing resources (WM = 3.00), proper organization of the library (WM = 3.17) and sufficient time allocated for library use (WM = 2.91). This suggests that despite limited resources available in school libraries, the library services and organization of the collections facilitate access effectively for a better academic preparedness. Also, this indicates a functional library environment where structural and administrative factors do not significantly hinder access.

Table 2: Extent of Utilisation of School Library Information Resources for Academic Preparedness

S/N	Items	SA Freq (%)	A Freq (%)	D Freq (%)	SD Freq (%)	Total Freq (%)	Weighted Mean (WM)	Decision
1	I frequently use the library for academic study.	65 (50.0)	43(33.3)	13 (10.0)	9 (6.9)	130 (100)	3.27	Agree
2	I use the library to complete assignments and projects.	60 (46.2)	46(35.4)	16 (12.3)	8 (6.2)	130 (100)	3.20	Agree
3	I consult library materials when preparing for tests and examinations.	52 (40.0)	48(36.9)	18 (13.8)	12 (9.2)	120 (100)	3.09	Agree
4	I use digital library resources for my studies.	13 (10.0)	16(12.3)	44 (33.8)	57 (43.8)	130 (100)	1.89	Disagree
5	I visit the library regularly during my free time.	47(36.2)	50(38.5)	22 (16.9)	11(8.5)	130 (100)	3.02	Agree
6	I rely on library resources to support classroom learning.	38(29.2)	41(31.5)	27(20.8)	24(18.5)	130 (100)	2.72	Agree
	Average Weighted Mean						**2.87**	**Agree**

Table 2 shows the weighted mean responses on the utilisation of school library information resources. The results indicate that respondents agreed that they frequently use the library for academic study (WM = 3.27), use it for assignments and projects (WM = 3.20), consult library materials when preparing for examinations (WM = 3.09), visit the library during their free time (WM = 3.02) and rely on library resources to support classroom learning (WM = 2.72). However, respondents disagreed on the use of digital library resources (WM = 1.89). This indicates that utilization is high for traditional resources but low for digital resources due to limited availability. The pattern implies that utilisation is influenced not only by student needs but also by digital resource availability.

Table 3: Constraints Influencing Utilisation for Academic Preparedness?

S/N	Items	SA Freq(%)	A Freq(%)f	D Freq(%)	SD Freq(%)f	Total	Weighted Mean (WM)	Decision
1	The library lacks enough current and relevant books for students' use.	54(41.5)	41 (31.5)	22 (16.9)	13 (10.0)	130 (100)	3.05	Agree
2	Insufficient seating and reading space discourage me from using the library frequently.	24(18.5)	14(10.8)	49(37.7)	43(33.1)	130 (100)	2.14	Disagree
3	The library opening hours are not convenient for most students.	24 (18.5)	14 (10.8)	52 (40.0)	40 (30.8)	130 (100)	2.17	disagree
4	There is inadequate provision of electronic resources such as computers and internet access in the library.	52(40.0)	40 (30.8)	24 (18.5)	14 (10.8)	130 (100)	3.00	Agree
5	Poor attitude of some library staff discourages students from visiting the library.	18(13.8)	21 (16.2)	48(36.9)	43(33.1)	130 (100)	2.11	Disagree

6	Noise and distractions in the library environment make it difficult to concentrate.	24(18.5)	30(23.1)	43(33.1)	33(25.4)	130 (100)	2.35	Disagree
7	Lack of proper library orientation limits students' knowledge of available resources and how to use them.	56 (43.1)	41 (31.5)	22 (16.9)	11(8.5)	130 (100)	3.09	Agree
	Average Weighted Mean						**2.56**	**Agree**

Table 3 shows the weighted mean responses on the constraints to the use of school library information resources. The results indicate that respondents agreed that the library lacks current and relevant books (WM = 3.05), that there is inadequate provision of electronic resources (WM = 3.00), and that lack of proper library orientation limits effective use of resources (WM = 3.09). However, respondents disagreed that insufficient seating space (WM = 2.14), inconvenient library opening hours (WM = 2.17), poor staff attitude (WM = 2.11), and noise and distractions (WM = 2.35) do not significantly hinder library use. This suggests that while some constraints exist, they are mainly related to resource adequacy, electronic facilities and user orientation rather than environmental or operational factors.

Table 4: Impact of Library on Academic Preparedness

S/N	Items	SA Freq (%)	A Freq(%)	D Freq(%)	SD Freq(%)	Total Freq(%)	Weighted Mean (WM)	Decision
1	Access to library resources improves my understanding of subjects	54 (41.5)	49 (37.7)	16 (12.3)	11 (8.5)	130 (100)	3.12	Agree
2	The school library helps me prepare better for examinations	52 (40.0)	48 (36.9)	20 (15.4)	10 (7.7)	130 (100)	3.08	Agree
3	Using library resources enhances my academic performance	50(38.5)	49 (37.7)	21 (16.2)	10 (7.7)	120 (100)	3.06	Agree
4	Library facilities support my independent learning	48(36.9)	50 (38.5)	20 (15.4)	12 (9.2)	130 (100)	3.03	Agree
5	The use of library resources has improved my study habits	46 (35.4)	51 (39.2)	22 (16.9)	11 (8.5)	130 (100)	3.00	Agree
	Average Weighted Mean						**3.06**	**Agree**

Table 4 shows the weighted mean responses on the influence of library information resources on academic preparedness. The results indicate that respondents agreed with all the items, including that access to library resources improves their understanding of subjects (WM = 3.12), helps them prepare better for examinations (WM = 3.08), enhances academic performance (WM = 3.06), supports independent learning (WM = 3.03), and improves study habits (WM = 3.00).The consistency of positive responses across items suggests that, despite identified limitations, the library continues to function as an important academic support system. However, the strength of this influence appears to be moderated by the adequacy and quality of available resources, indicating that improvements in resource provision could further enhance students' academic preparedness.

Discussion of Findings

On the level of accessibility of school library Information resources, the results show that accessibility is not limited. Students were generally able to locate materials and make use of library services suggesting that organisational systems and staff support are relatively effective. This supports the position that accessibility enhances user interaction with available resources (Yashim & Odunayo, 2025). However, accessibility is reinforced with adequate content yields limited academic value.

The pattern of utilisation further reveals a selective engagement with printed materials more than digital resources where students rely heavily on traditional materiials due to unavailability of digital resources. High usage for assignments, examination preparation and general study indicates that students recognize the practical value of the library. This is consistent with findings that link frequent library use to improved study habits and academic engagement (Bankole et al., 2024). However, the low utilisation of digital resources suggests underlying constraints related to infrastructure and user competence which affirms observations that technological gaps continue to limit the integration of digital learning tools in school libraries (Idhalama et al., 2025). This imbalance points to a broader issue of uneven adaptation to evolving information environments.

The presence of resource-related constraints further reinforces the central role in shaping library effectiveness. Students identified inadequate materials, limited digital resources and sufficient orientation as key barriers indicating that both structural and user- related factors influence engagement. While environmental factors such as seating arrangements, noise and opening hours were not perceived as major constraints, the prominence of resource deficiencies shows that material provision remains the dominant challenge. This is consistent with broader observations that funding limitations and poor infrastructure continue to undermine library services in many secondary schools (Braimol, 2020).

On the impact of library to academic preparedness, students still perceive library resources as contributing positively to their academic preparedness. This suggests that even within constrained conditions, the library retains its role as an important academic support system. The positive perception of its influence particularly in enhancing understanding, supporting examination preparation and improving study habits aligns with studies that link library use to improved academic outcomes (Agyekum & Filson, 2024; Bankole et al., 2024). However, the strength of this influence is conditional, depending on the extent to which resources are adequate, accessible and effectively utilised.

Overall, the findings point to a disconnect between potential and performance. While accessibility and utilisation levels are relatively encouraging, limitations in resource availability especially in digital formats reduce the overall effectiveness of school libraries in supporting academic preparedness. This underscores the need to move beyond isolated improvements and adopt a more integrated approach that strengthens all three dimensions simultaneously.

Conclusion

The study concludes that school library information resources positively influence students' academic preparedness, but the magnitude of this influence depends largely on the accessibility and utilisation of such resources. While students generally have access to and make use of library services for academic purposes, inadequacies in the provision of current and digital resources limit the full realization of library benefits. The findings therefore suggest that the effectiveness of school libraries as academic support systems is strengthened when information resources are not only accessible and utilised but also adequate, relevant and up-to-date.

Recommendations

1. Since accessibility was found to be relatively high, it is recommended that school authorities should maintain and further improve existing access conditions including proper organization of materials, conducive reading environments and continued availability of library staff to assist students.
2. In view of the low utilisation of digital resources, it is suggested that schools should invest in digital library facilities such as computers and internet access, while also encouraging students to integrate these resources into their academic activities.
3. The study recommended that school management should regularly update library collections and implement structured library orientation programmes to improve students' awareness and effective use of available resources.
4. The state government and school authorities should increase funding and institutional support for school libraries to maximize their role in enhancing students' learning outcomes.

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Adoption and Use of the Nigeria Education Repository and Databank (NERD) for Research by Academic Staff of Universities in Jigawa State, Nigeria

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Abstract

Despite the recognized potential of the Nigeria Education Repository and Databank (NERD) to enhance institutional research visibility, promote scholarly synergy, and democratize access to indigenous academic outputs, the actual adoption rate and practical utility of this platform among academic staff in universities located in Jigawa State, Nigeria, remain largely unexplored. This study investigates the level of awareness, extent of adoption, and frequency of use of the NERD repository among academic staff, while examining the specific factors that influence its adoption for further research and identifying the critical challenges hindering its effective utilization. The study adopts a descriptive survey research design, utilizing a structured questionnaire instrument developed and validated within the framework of the Technology Acceptance Model (TAM). A stratified random sample of 312 academic staff was drawn from three federal and state universities in Jigawa State. Data were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (Pearson Product Moment Correlation). Findings reveal a low level of NERD awareness (38.1%), marginal adoption (22.6%), and infrequent use attributable to technical barriers, inadequate institutional training, and a prevailing preference for established global databases. Perceived usefulness and institutional support were found to significantly influence adoption intentions. The study recommends targeted training programs, improved technical infrastructure, and robust policy frameworks by university management, library professionals, and the Federal Ministry of Education to drive meaningful NERD adoption across Nigerian universities.

Keywords: Nigeria Education Repository and Databank (NERD), digital repositories, Technology Acceptance Model (TAM), academic staff, repository adoption, Jigawa State universities

1. Introduction

1.1 Background to the Study

The spread of digital repositories has fundamentally transformed the landscape of academic research and knowledge dissemination. Globally, universities and research institutions have embraced open-access platforms and institutional repositories as strategic tools for preserving, organizing, and amplifying scholarly outputs. In advanced economies, platforms such as JSTOR, PubMed Central, ERIC, and institutional repositories hosted on DSpace and EPrints infrastructure have become integral components of research workflows, supporting discovery, collaboration, and evidence-based decision-making (Bankole & Babalola, 2023; Enakrire & Onyenania, 2024).

In the African context, the shift toward digital knowledge infrastructure has grown considerably over the past decade, driven by continental frameworks such as the African Open Science Platform, African Joarnal Online (AJOL) and national open-access policies. Countries like South Africa, Ghana, and Kenya have established robust national research repositories that aggregate and disseminate locally produced knowledge. However, sub-Saharan Africa continues to battle with persistent infrastructural shortages, capacity gaps, and policy inconsistencies that limit the transformative potential of these systems (Mutula, 2023; Ocholla & Odera, 2024).

Nigeria, as Africa's most populous nation and largest economy, has made notable shifts toward establishing a sound national research infrastructure. The establishment of the Nigeria Education Repository and Databank (NERD) by the Federal Ministry of Education represents a landmark initiative in this direction. NERD was designed to serve as a centralized digital platform for archiving, accessing, and disseminating research outputs generated by Nigerian scholars across tertiary institutions. By aggregating research data, theses, dissertations, journal articles, and academic reports, NERD aspires to position Nigeria as a knowledge economy and reduce the over-reliance of Nigerian researchers on foreign databases (Federal Ministry of Education [FME], 2022).

In Jigawa State, a state in the Northwest geopolitical zone of Nigeria with four universities: Sule Lamido University (SLU), Kafin Hausa; Federal University Dutse (FUD), Jigawa State University of Medical and Allied Science, Majia (JSUMAS) and Federal University of Technology, Babura (FUTB) online research productivity remains critical to institutional accreditation, regional development, and national knowledge advancement. Despite the availability of NERD and the growing awareness of open-access scholarship globally, observations indicated that academic staff in these institutions demonstrate limited awareness and usage of the platform. This situation raises substantive concerns about the effectiveness of NERD's outreach, the state of digital literacy among academic staff, and the adequacy of institutional support structures.

1.2 Overview of Digital Repositories and NERD

Digital repositories are organized, searchable collections of digital objects, including research papers, datasets, multimedia content, and administrative records, managed by institutions or consortia to facilitate open access and long-

term preservation. Institutional repositories (IRs) represent a specific category of repositories hosted and maintained by academic or research institutions for the purpose of capturing and preserving the intellectual output of their communities (Bankole & Babalola, 2023).

NERD, established under the Federal Ministry of Education's Digital Education Transformation Strategy, functions as Nigeria's national educational repository. It aggregates scholarly outputs from accredited tertiary institutions, providing a searchable interface for researchers, policymakers, and students. Its mandate includes ensuring that research produced by public institutions remains publicly accessible, supporting the visibility of Nigerian scholarship globally, and enabling inter-institutional research collaboration (NERD Policy, 2025).

1.3 Statement of the Problem

Despite the institutional mandate and design features of NERD, empirical evidence on its actual adoption and utilization by academic staff remains scarce. Preliminary observations and informal consultations with academic staff at universities in Jigawa State reveal low awareness and marginal use. The factors underlying this gap, whether attributable to technical barriers, inadequate training, poor internet infrastructure, or preference for alternative global databases have not been systematically investigated. This gap in knowledge limits the ability of university administrators, library professionals, and policymakers to design effective interventions to improve NERD adoption.

1.4 Objectives of the Study

The specific objectives of this study are to:

1. Determine the level of awareness of NERD among academic staff of universities in Jigawa State.
2. Assess the level of adoption of NERD for further research among academic staff.
3. Examine the frequency of NERD utilization among academic staff.
4. Identify the factors influencing the adoption of NERD for research purposes.
5. Identify the challenges hindering effective utilization of NERD.

1.5 Research Questions

The study is guided by the following research questions:

RQ1: What is the level of awareness of NERD among academic staff of universities in Jigawa State?
RQ2: To what extent have academic staff adopted NERD for further research?
RQ3: How frequently do academic staff of universities in Jigawa State use NERD?
RQ4: What factors influence the adoption of NERD for research by academic staff?
RQ5: What challenges hinder the effective use of NERD by academic staff?

1.6 Research Hypotheses

H_{01}: Perceived usefulness does not significantly influence the adoption of NERD for research by academic staff of universities in Jigawa State.

H_{02}: Perceived ease of use does not significantly influence the adoption of NERD for research by academic staff of universities in Jigawa State.

H_{03}: Institutional support does not significantly influence the frequency of NERD utilization among academic staff of universities in Jigawa State.

2. Literature Review

2.1 Digital Repositories in Academic Research

Digital repositories have emerged as indispensable pillars of modern academic research infrastructure. By providing open, organized access to research outputs, repositories reduce duplication of effort, promote interdisciplinary collaboration, and enhance the global visibility of institutional scholarship. Lynch (2003), in a foundational conceptualization, described institutional repositories as a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution. Contemporary scholars have expanded this conceptualization to include not only document archiving but also research data management, digital preservation, and knowledge analytics (Bankole & Babalola, 2023; Mohammed & Sani, 2024).

In Nigerian academic contexts, digital repository adoption has been examined in relation to academic staff awareness, policy frameworks, and technological infrastructure. Studies consistently identify awareness deficits and inadequate internet connectivity as primary barriers to adoption (Enakrire & Onyenania, 2024; Nwosu & Ugwu, 2023).

2.2 Adoption of Institutional Repositories

The adoption of institutional repositories by academic communities is a complex, multifactorial process. Key determinants identified in the literature include system usability, perceived benefits, institutional policy, training availability, and peer influence (Okello-Obura & Kigongo-Bukenya, 2023). Research in sub-Saharan Africa highlights the additional dimensions of infrastructure reliability, power supply, and digital literacy as critical contextual moderators of adoption decisions (Mutula, 2023; Adeyinka & Oyediran, 2024).

2.3 NERD and National Research Databases

NERD represents Nigeria's most ambitious effort to establish a unified national educational knowledge infrastructure. Launched under the Federal Ministry of Education's digital transformation agenda, NERD aggregates research outputs from accredited Nigerian tertiary institutions, providing open access to theses, dissertations, journal articles, conference papers, and research data. Its architecture aligns with global standards for interoperability, metadata management, and open-access protocols (NERD Policy, 2025). Despite this mandate, scholarly attention to NERD's adoption and utility at the grassroots institutional level remains low, emphasizing the relevance of the present study.

A substantial body of recent empirical work informs this study's conceptual and contextual positioning. Bankole and Babalola (2023) investigated digital repository utilization among academic staff of Nigerian federal universities and found that while awareness was moderate (52.3%), active regular use was low (18.7%), attributing this disparity to inadequate training and system downtime. Mohammed and Sani (2024), in a study of repository adoption in Northwest Nigeria, found that perceived usefulness was the strongest predictor of academic staff adoption intentions, a finding consistent with TAM predictions.

Enakrire and Onyenania (2024) examined open-access repository use among academic staff in selected South-South Nigerian universities, reporting that institutional policy support and library-led training significantly moderated the TAM-adoption relationship. Nwosu and Ugwu (2023) found that poor internet infrastructure and low digital literacy were the primary barriers to institutional repository use in Southeast Nigerian universities, with younger academic staff demonstrating significantly higher adoption rates than senior colleagues.

At the continental level, Mutula (2023) conducted a systematic review of digital repository adoption across East and West African universities, identifying institutional commitment, technical capacity, and national policy frameworks as the three most critical enablers of sustained adoption. Ocholla and Odera (2024) applied TAM to the analysis of national research database usage in Kenya, finding that perceived ease of use exerted a stronger influence on adoption than perceived usefulness, contrary to findings from more developed contexts.

Okello-Obura and Kigongo-Bukenya (2023), in a comparative study of Uganda and Ghana, demonstrated that peer influence and administrative mandates significantly amplify the behavioral intention component of TAM in repository adoption contexts. Adeyinka and Oyediran (2024) extended TAM with self-efficacy variables in a study of South-West Nigerian academics, finding that digital self-efficacy mediated the PEOU-adoption relationship. Saliu and Abubakar (2024), in a study closely aligned with the current inquiry, investigated repository awareness in Kano State universities, geographically closed to Jigawa and reported that only 31% of academic staff were aware of NERD's existence.

International comparative literature provides additional context. Alzahrani and Gould (2023) applied TAM in Saudi Arabian universities, demonstrating that institutional incentives significantly boosted repository adoption beyond what TAM's core variables alone could explain. Kumah and Osei-Bonsu (2023) reported that library orientation programs tripled repository usage rates among Ghanaian academic staff within one academic session. Finally, Dike and Okonkwo (2025) found that disciplinary differences significantly moderated NERD adoption patterns, with social science academic staff demonstrating higher adoption than STEM academic staff due to differences in publication culture and database preference.

Notwithstanding the foregoing body of literature, a critical empirical gap persists regarding the specific adoption dynamics of NERD in the universities in Jigawa State. Extant studies have focused predominantly on South-South, South-West, and Southeast Nigeria, with the Northwest geopolitical zone remaining significantly underrepresented in the empirical literature. The distinctive socio-economic, infrastructure, and institutional characteristics of Jigawa State universities including lower average research productivity, limited library resource budgets, and greater dependence on mobile internet necessitate a dedicated empirical inquiry. The present study addresses this gap directly.

2.4 Theoretical Framework: Technology Acceptance Model (TAM)

This study is anchored in the Technology Acceptance Model (TAM), originally developed by Davis (1989) and subsequently elaborated by Davis, Bagozzi, and Warshaw (1989) as an adaptation of Ajzen and Fishbein's Theory of Reasoned Action. TAM proposes that an individual's behavioral intention to use a technology system is primarily determined by two core cognitive perceptions: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU).

Perceived Usefulness refers to the degree to which a user believes that employing a particular system will enhance their work performance or research productivity. In the context of NERD, this encompasses beliefs about the platform's capacity to provide relevant research materials, save research time, and facilitate access to indigenous Nigerian scholarship. Perceived Ease of Use captures the extent to which the user believes using the system will be free of mental and physical effort, encompassing interface navigability, search functionality, and accessibility across devices and connectivity conditions.

TAM further posits that PEOU directly influences PU, as a system perceived as easy to use is more likely to be evaluated as useful. Together, PU and PEOU shape the user's Attitude toward Use, which in turn predicts Behavioral Intention to Use, ultimately leading to Actual System Use. Several extensions of TAM have incorporated additional variables including social norms, self-efficacy, and facilitating conditions, to better capture adoption dynamics in

complex organizational contexts (Venkatesh & Bala, 2008; Adeyinka & Oyediran, 2024). The present study operationalizes TAM within the NERD adoption context, incorporating institutional support as an external variable moderating the TAM pathways.

3. Methodology

3.1 Research Design

This study adopts a descriptive survey research design, which is appropriate for systematically gathering information about the characteristics, attitudes, behaviors, and perceptions of a defined population at a particular point in time (Creswell & Creswell, 2023). The descriptive survey design is well suited to the current inquiry because the study seeks to describe and explain the adoption patterns, awareness levels, and usage behaviors of academic staff regarding NERD, rather than manipulate variables experimentally.

3.2 Population of the Study

The target population comprises all academic staff of four universities in Jigawa State: Sule Lamido University, Kafin Hausa (SLU); Federal University Dutse (FUD); Jigawa State University of Medical and Allied Science, Majia (JSUMAS) and Federal University of Technology, Babura (FUTB). Based on data from institutional registrars and the 2023/2024 academic staff registers, the total population is 1,247 academic staff: SLU (427), FUD (518), JSUMAS (113) and FUTB (189).

3.3 Sample Size and Sampling Technique

Using Krejcie and Morgan's (1970) sample size determination table, a minimum sample of 297 respondents was indicated for a population of 1,247. The study increased this to 380 to account for potential non-response, yielding a final usable sample of 312 questionnaires (response rate: 82.1%). Proportionate stratified random sampling was employed, allocating respondents across institutions and faculties in proportion to their share of the total population, ensuring adequate representation of all academic departments and ranks.

3.4 Instruments for Data Collection

The primary data collection instrument was a structured questionnaire titled the 'NERD Adoption and Use Questionnaire,' developed by the researchers based on validated TAM scales from Davis (1989), Venkatesh and Bala (2008), and adapted items from Bankole and Babalola (2023). The questionnaire comprises six sections: (A) demographic information; (B) awareness of NERD; (C) adoption level; (D) frequency of use; (E) factors influencing adoption (TAM variables: the PU, the PEOU, Attitude, Institutional Support); and (F) challenges of utilization. Sections B–F used a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

3.5 Validity and Reliability

Content and face validity were established through expert review by an information science scholar and instructional technologist, whose feedback was incorporated into the final instrument. Construct validity was assessed through exploratory factor analysis, confirming the five-factor structure hypothesized by TAM. Reliability was determined through a pilot study involving 40 academic staff from Kano State University of Science and Technology. Cronbach's alpha coefficients ranged from 0.81 to 0.91 across subscales, exceeding the 0.70 threshold recommended by Pallant (2020).

3.6 Data Collection Procedure

Questionnaires were administered through a mixed-mode approach: physical copies distributed through departmental contact persons and a Google Forms version disseminated via institutional email lists and WhatsApp groups. Data collection spanned Seven weeks (February-April 2025). Reminders were sent after two weeks to non-respondents. All respondents provided informed consent, and confidentiality of responses was assured.

3.7 Methods of Data Analysis

Completed questionnaires were coded and entered into IBM SPSS Statistics Version 27. Descriptive statistics including frequencies, percentages, means, and standard deviations were used to address RQ1 through RQ5. Inferential analysis using Pearson Product Moment Correlation (PPMC) was conducted to test the three research hypotheses at the 0.05 level of significance. A mean score ≥ 3.00 on the 5-point scale was adopted as the benchmark for a positive response.

4. Results

4.1 Demographic Profile of Respondents

Table 1: Demographic Characteristics of Respondents (N = 312)

Variable	Frequency	Percentage (%)
Gender: Male	258	82.7
Gender: Female	54	17.3
Academic Rank: Lecturer II/I	141	45.2
Academic Rank: Senior Lecturer	98	31.4
Academic Rank: Reader/Professor	73	23.4
Years of Experience: <5 years	87	27.9
Years of Experience: 5–15 years	163	52.2
Years of Experience: >15 years	62	19.9

4.2 Level of NERD Awareness (RQ1)

Respondents were asked whether they had previously heard of or used NERD. Only 119 (38.1%) indicated awareness of NERD's existence, while 193 (61.9%) had no prior knowledge of the platform. Among those aware, the primary sources of awareness were colleagues/peers (42.0%), library-organized workshops (28.6%), internet searches (19.3%), and formal institutional communication (10.1%).

Table 2: Level of NERD Awareness Among Academic Staff

Awareness Indicator	Yes (%)	No (%)
Aware that NERD exists	38.1	61.9
Visited the NERD website	22.6	77.4
Attended NERD-related training	11.2	88.8
Downloaded content from NERD	16.3	83.7

4.3 Level of Adoption and Frequency of Use (RQ2 & RQ3)

Table 3: Adoption Level and Frequency of NERD Use

Usage Pattern	Frequency (n)	Percentage (%)
Never used NERD	193	61.9
Used once or twice (trial only)	48	15.4
Use occasionally (<once/month)	43	13.8
Use regularly (weekly/monthly)	21	6.7
Use very frequently (daily)	7	2.2

4.4 Factors Influencing Adoption (RQ4)

Table 4: Mean Ratings of TAM Variables as Factors Influencing NERD Adoption

TAM Factor / Statement	Mean	SD	Decision
NERD would improve my research productivity	3.87	0.71	Agreed
NERD provides access to relevant Nigerian scholarship	3.74	0.83	Agreed
NERD interface is easy to navigate	2.61	1.02	Disagreed
Learning to use NERD requires minimal effort	2.49	1.11	Disagreed
My institution encourages use of NERD	2.33	0.98	Disagreed
Library staff have informed me about NERD use	1.97	0.87	Disagreed
I feel positively disposed to using NERD regularly	3.12	0.94	Agreed

4.5 Challenges Hindering NERD Utilization (RQ5)

Table 5: Challenges Hindering Effective NERD Utilization

Challenge	Mean	SD	Rank
Poor internet connectivity	4.41	0.62	1st
Lack of awareness and sensitization	4.28	0.71	2nd
No institutional training on NERD	4.17	0.79	3rd
Preference for global databases (e.g., Scopus, Web of Science)	3.98	0.88	4th
Difficult NERD interface/navigation	3.84	0.91	5th
Infrequent content updates on NERD	3.71	0.97	6th
No institutional policy mandating NERD use	3.59	1.04	7th

4.6 Hypothesis Testing Results

Table 6: Pearson Correlation Analysis of TAM Variables and NERD Adoption

Hypothesis	r	p-value	Sig. Level	Decision
H_{01}: PU → NERD Adoption	0.673	0.000	0.05	Rejected
H_{02}: PEOU → NERD Adoption	0.521	0.000	0.05	Rejected
H_{03}: Institutional Support → Frequency of Use	0.588	0.000	0.05	Rejected

All three null hypotheses were rejected at the 0.05 significance level ($p < .001$). Perceived Usefulness demonstrated the strongest positive correlation with NERD adoption ($r = 0.673$), followed by Institutional Support ($r = 0.588$) and Perceived Ease of Use ($r = 0.521$). These results are statistically significant, confirming that PU, PEOU, and institutional support are significant determinants of NERD adoption among academic staff in Jigawa State universities.

5. Discussion of Findings

5.1 Awareness and Adoption Levels

The finding that only 38.1% of academic staff in the universities in Jigawa State are aware of NERD, and that a mere 22.6% have visited the platform, represents a stark adoption deficit that aligns with the broader pattern of underutilization documented across Nigerian university contexts. This result corroborates Saliu and Abubakar (2024), who reported similarly low NERD awareness (31%).

The finding that most awareness was generated through informal peer channels (42%) rather than institutional communication underscores the failure of formal dissemination mechanisms, a pattern also noted by Enakrire and Onyenania (2024) in their South-South Nigeria study on digital repository. This has important implications for library outreach strategy: informal social networks appear to be the dominant channel through which repository awareness percolates in these contexts, suggesting that structured peer-ambassador or library-liaison programs could leverage existing social dynamics to accelerate awareness.

5.2 Factors Influencing Adoption and TAM Validation

The rejection of all three null hypotheses confirms the predictive validity of TAM within the NERD adoption context. The finding that Perceived Usefulness ($r = 0.673$) is the strongest predictor of adoption aligns consistently with TAM's central propositions (Davis, 1989) and corroborates Mohammed and Sani (2024), who similarly found PU to be the dominant TAM predictor in their Northwest Nigeria institutional repository study. Interestingly, the mean ratings on the PEOU subscale were below the threshold of 3.00 (means of 2.61 and 2.49), suggesting that while academic staff recognize the potential value of NERD, they do not find the platform sufficiently easy to use, a contradiction that creates an adoption intention-behavior gap.

This finding stands in contrast to Ocholla and Odera (2024), who found PEOU to be the stronger predictor in their Kenyan sample, suggesting that the relative influence of TAM variables may be moderated by cultural, infrastructural, and platform-specific contexts. The strong correlation between Institutional Support and Frequency of Use ($r = 0.588$) is particularly significant in light of the very low mean score for institutional support indicators ($\bar{x} = 2.33$), demonstrating that the absence of institutional scaffolding directly constrains actual use behavior. This finding echoes Okello-Obura and Kigongo-Bukenya (2023), who found administrative mandates to be critical adoption enablers.

5.3 Challenges of NERD Utilization

Poor internet connectivity emerged as the most critical challenge ($\bar{x} = 4.41$), a finding consistent with Nwosu and Ugwu (2023) and Mutula's (2023) systematic review. In Jigawa State, where internet penetration remains low and power supply is irregular, this structural barrier effectively negates the platform's potential value for a significant proportion of academic staff. The high ranking of 'preference for global databases' (4th; $\bar{x} = 3.98$) reflects a deeply instilled scholarly culture in which global citation indices serve as proxies for research quality, a cultural barrier that no amount of technical improvement alone can overcome without complementary policy interventions such as NERD-compatible research evaluation frameworks.

6. Conclusion

This study set out to investigate the adoption and use of the Nigeria Education Repository and Databank (NERD) among academic staff of universities in Jigawa State, Nigeria. The findings reveal a worrying pattern of low awareness (38.1%), limited adoption (22.6%), and infrequent utilization, driven by a confluence of technical, institutional, and cultural barriers. However, the findings also laid a foundation of latent positive disposition: academic staff who are aware of NERD generally acknowledge its potential usefulness, and perceived usefulness is the strongest predictor of adoption intention, providing a lever for targeted interventions. The Technology Acceptance Model provides a robust and empirically validated framework for understanding these dynamics, confirming the importance of perceived usefulness, perceived ease of use, and institutional support in shaping ways for NERD adoption. Addressing NERD's low adoption in Jigawa State universities is not merely a matter of technical improvement; it requires a coordinated, ecosystem-level response involving institutional leadership, library professionals, and national education policy.

7. Recommendations

Based on the findings of this study, the following recommendations are offered:

7.1 For Universities Managements

Develop and implement formal institutional policies that mandate or motivate NERD use as part of research evaluation and promotion criteria, thereby converting awareness into behavioral obligation.

Invest in dedicated institutional internet bandwidth and digital infrastructure that supports consistent, high-speed access to online repositories, including NERD.

Establish NERD coordinators in each faculty to facilitate peer-led adoption and provide frontline technical assistance.

7.2 For Library Professionals

Design and implement structured, faculty-specific NERD orientation and training programs both in-person and online, integrated into the academic calendar to address the awareness and low PEOU identified in this study.

Develop NERD usage guides, tutorial videos, and infographics tailored to disciplinary communities, recognizing the differential adoption patterns across faculties.

Use informal peer networks identified in this study as the dominant awareness channel by training peer library ambassadors at the departmental level.

7.3 For the Federal Ministry of Education

Launch a sustained national awareness campaign for NERD, incorporating partnerships with the National Universities Commission (NUC), the Tertiary Education Trust Fund (TETFund), and state ministries of education to ensure comprehensive reach.

Invest in upgrading NERD's technical architecture by improving interface usability, search functionality, mobile optimization, and content currency to address PEOU barriers identified in this and related studies.

Develop an NERD integration policy that links repository deposit and utilization to TETFund research grant applications, institutional accreditation reviews, and academic staff appraisal frameworks.

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ADOPTION OF INSTITUTIONAL REPOSITORY IN NIGERIAN HIGHER EDUCATION: A SYSTEMATIC REVIEW

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Abstract
Institutional open-access repositories play an important role in higher education, offering unrestricted access to deposited intellectual outputs that democratize knowledge and expand access to relevant information without discrimination or paywalls. Using Okoli's systematic review framework, this research analyzes studies from JSTOR, IEEE Xplore, and Google Scholar to determine publication patterns, research communication channels, and the rate of implementation of institutional open access repositories in Nigeria between 2018 and 2025. The review indicates a thematic decline in research on open access repositories, as the available studies do not reflect diversity in research communication. Although the analysis discovered a 29% increase in the adoption of open access repositories in Nigeria, considering the adoption rate between 2024 and 2025, the following factors are generally agreed to inhibit the adoption rate: inadequate power supply, poor network connectivity, lack of awareness, inadequate research grants, and insufficient advocacy for the open access initiative. To improve repository sustainability in Nigeria, the study suggests that subsequent studies should prioritize longitudinal research to track open access policies. Institutional and governmental support through relevant infrastructure and sufficient funding should be provided. Additionally, various institutions with repositories should develop clear guiding policies, repositories should be prioritized as part of NUC accreditation requirements, and more studies should be conducted to investigate institutional repository practices in Nigeria.
Keywords: Institutional repositories, open access, Nigeria, higher education, research archive, librarians

INTRODUCTION

Open access has emerged as one of the most transformative developments in scholarly communication. The term has been widely used over the last two decades by various researchers, considering its ability to provide free access to academic publications. The Budapest Open Access Initiative defined the term as the unrestricted online access to academic publications, allowing users to read, download, and distribute content without financial, legal, or technical barriers. (BOAI, 2017). As valuable digital resources, institutional open-access repositories provide free and unrestricted access to submitted manuscripts or publications, making them accessible to users without subscription or financial obligation (Baro & Eze, 2017). This relieves the burden of exorbitant journal subscriptions, enhancing access to relevant resources (Jrose, 2024). An institutional open access repository (IOAR) archives theses, dissertations, lecture notes, conference proceedings, review articles, and other forms of grey literature, making it useful to both academic and non-academic staff of the institution. The presence of IOAR can enhance institutional visibility and webometric rankings, encouraging its wider adoption across various institutions, serving as a digital archive for scholarly output. (Ajibade, 2022)

Despite the adoption of IOAR across various higher institutions around the globe, implementation in Africa is slow due to limited funding. Although Nigeria adopted a national institutional open access policy for higher education in 2017, before the second World Open Educational Resource Congress (Tlili et.al. 2022), Aghoghovwia and Ekereuche (2023) reported that as of 2023, no college of education or polytechnic in Nigeria has an IOAR, while only 20 academic libraries out of 272 approved universities in Nigeria have implemented it. Other reported challenges include insufficient knowledge of open-access publishing, inefficient internet access, inadequate technological infrastructure, and a lack of sustainable policies.

Although Institutional Open Access Repositories (IOARs) are widely accepted, they remain at an early stage of development in many developing countries. This has contributed to an ongoing debate about whether repository adoption necessarily translates into effective utilization. While there is broad consensus regarding the benefits of IOARs in higher education, scholars disagree on the extent to which repository adoption leads to efficient use. Some studies argue that the development of repositories improves access to scholarly information and increases research visibility (Ajibade, 2022), whereas utilization-focused studies report that academics and students continue to underutilize repository resources (Temim et al., 2025). This suggests that the mere availability of repositories does not necessarily guarantee active participation in scholarly communication.

This study synthesized existing research on IOAR in Nigeria between 2018 and 2025, as studies in the field remain largely fragmented and predominantly descriptive. While existing systematic reviews have examined repository utilization and the role of institutional repositories in promoting digital inclusion, none have comprehensively

synthesized the adoption, implementation, growth, institutional readiness, and policy-related factors influencing the development of institutional repositories in Nigerian higher education institutions. Therefore, the study provides a comprehensive review of the adoption and growth of IOAR in Nigeria, while highlighting the gap between repository availability and its actual use for scholarly communication.

METHODS

This section specifies the search process for the systematic review, using inclusion and exclusion criteria for the selection process. Table 1 presents the details of the reviewed literature, following Okoli's (2015) systematic review framework. The study also adopted the PRISMA 2020 reporting guidelines to document the study selection process, from the identification and screening of records to the final inclusion of eligible studies. In addition, the PRISMA flow diagram was utilized to provide a transparent representation of the study selection procedure.

Table 1: Systematic Literature Review Framework (Okoli, 2015)

SLR Steps	Activity
Step 1 Identify the purpose	The researcher sought to investigate the adoption of institutional open access repositories (IOAR) in higher education in Nigeria by reviewing the available literature published in JSTOR, IEEE Xplore, and Google Scholar between 2018 and 2025.
Step 2 Draft protocol	1. The study made use of the following research objectives: • To examine publication trends, methodology and the platforms used to publish research on institutional repositories in Nigeria between 2018 and 2025. • To evaluate the adoption, growth, and performance of institutional repositories in Nigerian higher education between 2018 and 2025. 2. The researcher used a guiding protocol to execute the objectives of the research
Step 3 Apply practical screening measures	To be included, articles have to meet the following criteria: I. must focus on open access initiatives such as institutional repositories, digital repositories, and research archives in Nigeria II. must be written in the English Language III. must be a peer-reviewed journal article, conference papers, or theses; Studies published between 2018 and 2025. IV. must be focused on higher education
Step 4 Search for literature	A comprehensive literature search was conducted across three academic databases: Google Scholar, Jstor, and IEEE Xplore. Using advanced search, Boolean operators, and the following keywords: "institutional repository" OR "open access repository" OR "digital repository" OR "research archive" AND Nigeria OR Nigerian AND "higher education" OR university OR polytechnic OR "college of education" to acquire relevant articles from the databases.
Step 5 Extract Data	The researcher extracted the necessary information that is consistent with the criteria identified in Step 3.
Step 6 Appraise quality	The researcher reviewed all articles that are consistent with the criteria identified in Step 3 to evaluate their quality. Moreover, the concept of quality is subjective. Therefore, the researcher used the conditions outlined as established quality appraisal.
Step 7 Synthesize studies	The author aggregated information from the selected articles, highlighting the findings
Step 8 Write the review	The discussion of findings and implications of the study was provided

IEEE Xplore returned 1,866 articles, Google Scholar returned 14,100 articles, and Jstor returned 842 articles. Given that Google Scholar ranks search results in the order of relevance, and this study sought to include the most applicable literature, the titles of the first 300 retrieved articles were reviewed. From these, 200 articles were selected for further screening based on the researcher's perceived relevance to the study. Also, the advanced search criteria were utilized for JSTOR and IEEE Xplore to filter unrelated material. After applying the inclusion criteria, the search results were reduced to 54 records from JSTOR and 212 records from IEEE Xplore, consisting only of peer-reviewed journal articles, theses, and conference papers, after inaccessible (non-open-access) and inconsistent materials, such as reports, book chapters, and magazines, were removed. Thereafter, the inclusion and exclusion criteria presented in Table 1 (Step 3) were applied, and duplicate records were removed. As a result, a total of 36 studies were retained for the review (see Figure 1).

A data extraction form was utilized to obtain relevant data from the selected studies in order to guarantee consistency and transparency. Important details were recorded on the form, including the author(s), year of publication, study's goals,

methodology, and the main research. Using the inclusion and exclusion criteria, the researcher carried out the data extraction procedure.

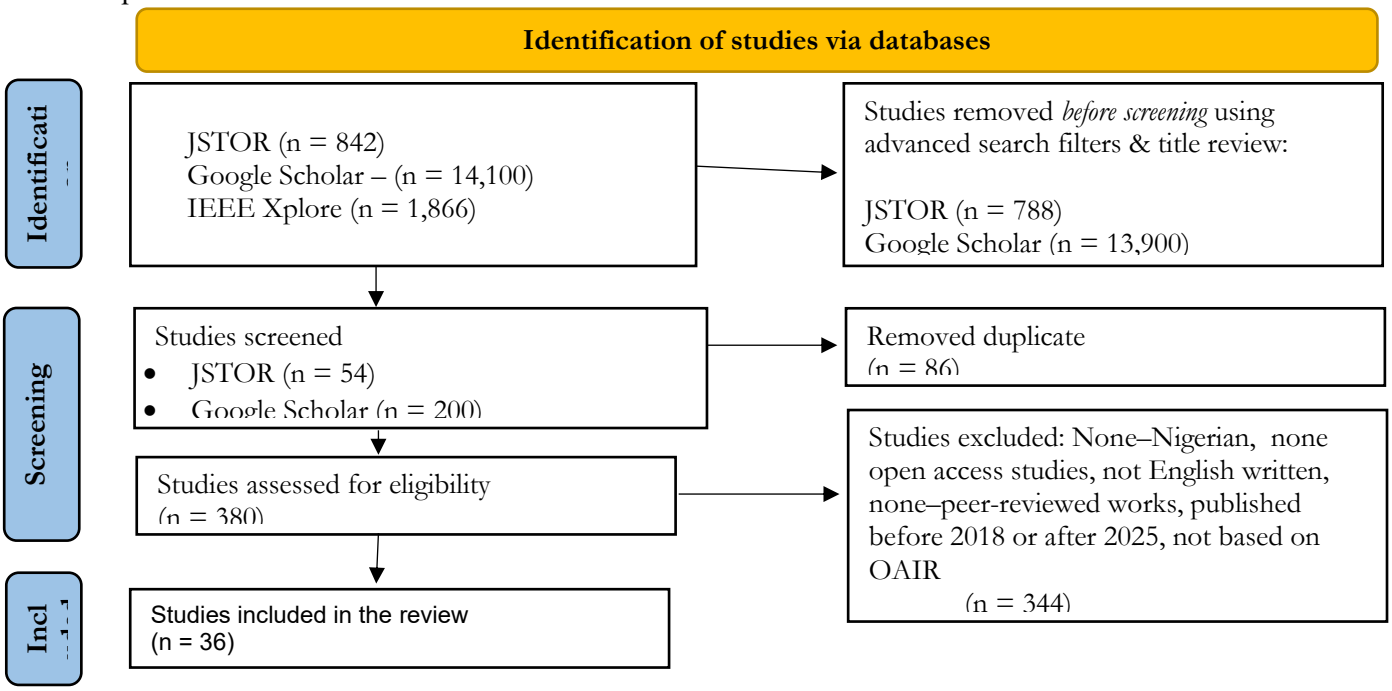


Fig. 1: PRISMA publications flowchart
Source: The researchers

RESULT

This section discusses findings in relation to previous studies on IOAR in Nigeria. 36 studies were found applicable to the selection criteria and formed the basis for achieving the research objectives. Table 2 presents the list of selected studies on IOAR in Nigeria.

Table 2: List of Relevant Studies

SN	Research Title	Author(s)
1.	A study of Institutional Repository Development, Policies and Challenges in University Libraries in Nigeria	Posigha, E. & Idjai, C. (2022)
2.	A Survey of Open Access Institutional Repositories in Nigerian University Libraries: The Current State	Idiedo, O. et al. (2024)
3.	Access and Use of Open Access Resources by Undergraduate Students in Federal Universities in South East Nigeria	Ukwoma, S. & Onyebinama, C. (2020)
4.	An Analytical Study of Open Access Institutional Repositories in Nigerian Universities	Adewole-Odeshi, E. & Ezechukwu, O. (2020)
5.	Assessing Determinants of Perceived Ease of Use of Institutional Repositories by Lecturers in Nigerian Universities	Alice A. & Airen E. (2020)
6.	Assessment of the Impact of Nigerian Universities' Institutional Repository Policies and Practices on Lecturers' Publications Output and Online Visibility: Focus on South-East & South-South, Nigeria	Joke Fatimoh Okeowo Bilikis Adefunke Babarinde & Abdulahi Mayowa Olaniyi (2025)
7.	Awareness, knowledge, and attitude of lecturers towards institutional repositories in university libraries in Nigeria	FN Okoroma (2018)
8.	Challenges and Strategies to the Use of Institutional Repository among Academic Staff in University Libraries in South-West, Nigeria	S. A. Saliu, O. V. Ngozi, & A. M. Lawal (2022)
9.	Effect of gender on lecturers' submission and retrieval of research output in institutional repositories in Private Universities in Southern Nigeria	C Onyebinama, CV Anunobi Dr - 2020
10.	Empirical evidence of the practice of Institutional Repository in Nigeria	U. A. Adam & K. Kaur (2019)
11.	Enhancing scholarly communication through institutional repositories: salient issues and strategies by libraries in Nigeria	NB Ukachi (2018)
12.	Establishment of institutional repository (IR) in a developing country: Lessons from Landmark University, Nigeria	Idiegbeyan-ose, J. et al. (2020)

13.	Fostering Cybersecurity in Institutional Repositories: A Case of Nigerian Universities	I. S. Njoku, B. C. Njoku & A. J. Chukwu (2023)
14.	Global Visibility through the Use of Institutional Repositories: The Struggles of Local Content Resources in Selected Nigerian Tertiary Institutions in South-East Geo-political Zone.	Ebubechukwu E. Uba & Ebubechukwu A. Okonkwo (2021)
15.	Information and communication technology skills as determinants of utilization of institutional repositories by lecturers in two universities in Nigeria	G Eromosele – 2019
16.	Institutional Digital Open Access Repositories in Nigerian Universities: Issues and Challenges	Olubiyo, P. & Olubiyo, L. (2023)
17.	Institutional Repositories and Libraries in Nigeria: Interrogating the Nexus	Goodluck, I. (2018)
18.	Institutional repository awareness amongst library and information science students of Federal Polytechnic Offa, Kwara State, Nigeria	AB Elaturoti, VO JATTO - 2021 -
19.	Institutional Repository Development in Nigerian Universities: Benefits and Challenges	Anene, I., Ozor, E. & Baro, E. (2020)
20.	Management of institutional repositories (IR) from a higher education perspective	SC Ukwoma, NE Osadebe (2019)
21.	Management of Institutional Repositories for Effective Service Delivery in Selected Agricultural Research Institutes in North-Western States, Nigeria: An Overview of Selection Policy	Auwal Magaji Abubakar, Adamu Jibrin & Maifata, Nurudeen Mu'azu (2025)
22.	Obstacles to the Utilization of Institutional Repositories by Academics in Higher Education in Nigeria	Ukwoma, S. & Ngulube, P. (2019)
23.	Organizational Culture and Management of Institutional Repositories of University Libraries in Southwest Nigeria	Sirajudeen Femi BAKRIN & Sunday TUNMIBI (2025)
24.	Perceived Effect of Open Access Institutional Repositories on the Research Activities of Academic Staff in Some Selected Federal Universities in North-East Nigeria	Idris, I., Chukwueke , C. & Mohammed, I, (2023)
25.	Performance of the Nigerian Open Access Repositories	Abdu, A.H., Farouk, B.L. & Maisango, K.I. (2025)
26.	Promoting Institutional Repositories in Nigerian Research Institutes: The Research Librarians' Roles	John-Okeke, R. & Anasi, S. (2022)
27.	Promotional Strategies for Open Access Resources Discovery and Access	Anunobi, V. & Ape, R. (2018)
28.	Staff Use of Institutional Repositories for Academic Purposes in Nigerian University Libraries: the Librarians' Perspective.	Chiegonu, N. & Nkechi, I. (2021)
29.	Stakeholders' awareness and willingness to submit scholarly works to the institutional repository towards research visibility: a case of the University of Lagos	OC Okiki, OA Osedo, B Okpah - 2020 -
30.	Synopsis of Institutional Repositories in the Nigerian University System: Advantages and Challenges	Samson, A., Dolapo, P. & Opeyemi F. (2022)
31.	The Current State and Building of Institutional Repository in the Library of Alex Ekwueme Federal University Ikwo, Nigeria	EC Onwubiko - 2020 - scholarworks.sjsu.edu
32.	The Potentials of Open Access Initiative and the Development of Institutional Repositories in Nigeria: Implications for Scholarly Communication	Ejikeme, N., & Ezema, J. (2019).
33.	The state of institutional repositories and scholarly communication in Nigeria (Global Knowledge, Memory, and Communication)	David Oguche (2018)
34.	Towards a Reliable Metadata: Enhancing Data Integrity of Institutional Repositories in the Era of Information Explosion in Nigeria	Enenche, J. et.al (2024)
35.	Utilization of Open Access Repositories for Visibility of Academic Publications by Lecturers in South-East, Nigeria	Orsu, E. (2019)
36.	Sustaining the Relevance of Institutional Repository in Academic Libraries in Nigeria: A University of Jos Perspective	Igboechesi G.P., Adigun T.A., Pobish P.S., and Angulu R.K. (2023)

Research Objective One: To examine publication trends, methodology and platforms used to publish research on institutional open access repositories in Nigeria between 2018 and 2025.

Publication Trend

To determine publication trends, articles published each year were analyzed. Findings reported that most articles were published in 2020 (8), 2019 (6), and 2018 (5). The research momentum showed a steady increase from 2018 to 2020, with each year recording one or two additional studies on institutional repositories in Nigeria. While 2020 recorded the highest number of publications, there was a decline in subsequent years: 2021 (4), 2022 (4), 2023 (4), and 2024 (2), through 2025 (4). This rise could be linked to the increase in the adoption of technology in Education during the COVID-19 period, when access to electronic resources became more crucial, and the growing awareness of open-access efforts. The decrease seen after 2020, however, suggests that the momentum of research was not maintained. This tendency indicates that even while institutional repositories have garnered scholarly interest, the discipline has not yet grown into a sophisticated and consistently growing area of study within Nigerian higher education(Igboechesi. et.al 2023; Anene, Ozor & Baro 2020). It can also be admitted that the prevalence of studies largely focusing on the challenges has reduced the novelty in research quality, limiting possible research trajectories.

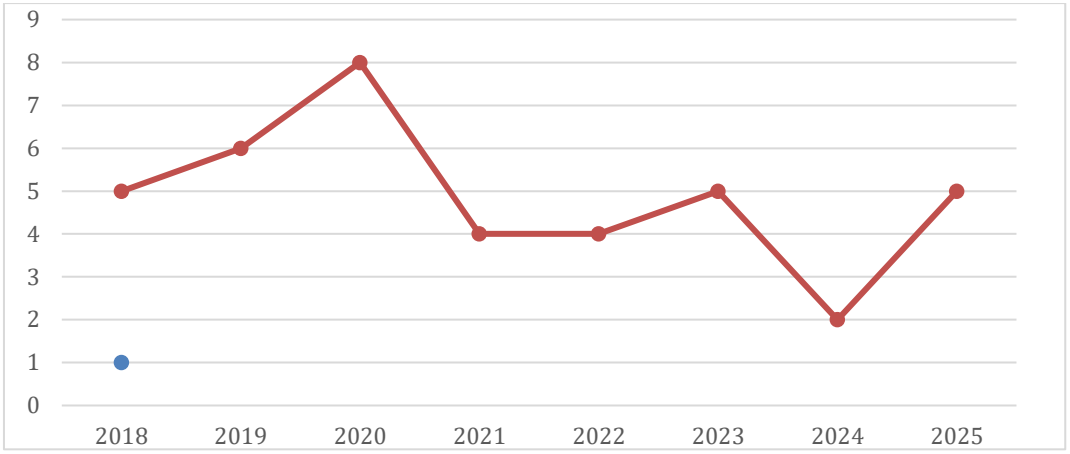


Fig 1: Publication trend of open access research in Nigeria

Publication Platforms

The articles were analyzed to determine publication outlets. The findings revealed that most publications were journal articles, comprising 94% (34) of the entire studies, while the remaining 6% (2) were conference proceedings. This implies limited diversity in research communication, as researchers in the field tend to prefer journal publications to disseminate their findings because of the credibility and visibility these platforms provide (Creswell, 2018). Meanwhile, these findings reveal the inadequate use of grey literature and other alternative channels of research communication, such as IOAR for archiving theses and dissertations, and conference proceedings. These platforms could serve as inclusive avenues for early-career researchers, yet they remain underutilized. The results also showed that most researchers prefer publishing in foreign journals, as reflected in the higher prevalence of foreign publications compared to local journals. About 81% (29) of the studies were published in foreign outlets, while only 19% (7) appeared in local publications. It is also noteworthy that Library Philosophy and Practice recorded the highest number of publications on IOAR in Nigeria. This result is consistent with other research showing that African academics prefer international journals for their global visibility, credibility, and broader distribution of research findings (Ambaka, 2023; Ezechukwu et al., 2024). Table 3 presents the list of journals in which these studies were published.

Table 3: Types of Publication

Publication Type	Outlet Name	No of Article	Outlet Status
Journal Article	Niger Delta Journal of Library and Information Science	2	Local Journal
Journal Article	International Journal of Knowledge Content Development & Technology	2	Foreign Journal
Journal Article	Library Philosophy and Practice	11	Foreign Journal
Journal Article	The International Information & Library Review	1	Foreign Journal
Journal Article	International Journal of Applied Technologies in Library and Information Management	**1**	Foreign Journal
Journal Article	Digital Library Perspectives	1	Foreign Journal
Journal Article	Abrarka Humanity Review	1	Local Journal
Conference Paper	Conference: Proceedings of the 7th International Conference on Libraries, Information and Society 2019 (ICoLIS 2019)	1	Foreign Presentation
Conference Paper	Conference: IFLA WLIC	1	Foreign Presentation

Journal Article	African Journal of Library, Archives and Information Science, 2023•ajlais.com	1	Local Journal
Journal Article	Journal of Cases on Information Technology	1	Foreign Journal
Journal Article	Library Management	1	Foreign Journal
Journal Article	Nasarawa Journal of Library and Information Science (Najlis),	1	Local Journal
Journal Article	Webology	2-	Foreign Journal
Journal Article	Lead City International Journal of Library, Information & Communication Sciences [Lcijlics]	1	Local Journal
Journal Article	NAU Journal of Library and Information Science	1	Foreign Journal
Journal Article	Journal of Librarianship and Scholarly Communication	1	Foreign Journal
Journal Article	UNIZIK Journal of Research in Library and Information Science	1	Local Journal
Journal Article	Journal of Applied Information Science and Technology.	1	Foreign Journal
Journal Article	Publishing Research Quarterly	1	Foreign Journal
Journal Article	Global Knowledge, Memory, and Communication	1	Foreign Journal
Journal Article	DC paper	1	Foreign Journal
Journal Article	International Journal of Library and Information Science Studies	1	Foreign Journal

Research methodology

The research methods used in the 36 studies were categorized as quantitative, qualitative, and mixed methods. Table 4 presents this in detail, showing the frequency of each method. Evidently, the quantitative method is the most commonly used, accounting for 67% (24) of the studies, followed by qualitative methods at 19% (7) and mixed methods at 14% (5). This demonstrated the significance of the quantitative approach in IOAR research, as it provides statistical support for research findings. When measuring factors influencing IOAR research in Nigeria, such as user engagement, learning outcomes, and technology adoption rates, the quantitative approach is commonly used (Traxler, 2018). The substantial gap indicates the need for an additional qualitative study to offer deeper insights beyond the general descriptions of IOAR use in Nigeria, even though the quantitative approach is crucial.

Table 4: Results classified by research methods

Research Objective Two: To evaluate the adoption, growth, and performance of institutional open access repositories in Nigerian higher education institutions

Method	Number of times used	Frequency
Quantitative	24	67%
Qualitative	7	19%
Mixed Method	5	14%

The researcher thematically reviewed all 36 articles, revealing several related terms to "IOAR" such as Institutional Repositories (IR), Institutional Open Access Initiative (IOAI), and Institutional Repository Resources (IRR). Nevertheless, IOAR are generally regarded as digital platforms that provide unrestricted access to institutional scholarly outputs. Several studies investigated the adoption rate of IOAR in Nigeria. Idiedo et al. (2024) stated that only a few higher institutions have successfully adopted a repository to preserve and manage their intellectual outputs. Haven consulted the OpenDOAR database, the authors identified the following 21 institutions with IOAR in Nigeria as at 2024: Ahmadu Bello University – Zaria; Afe Babalola University; Ambrose Alli University – Ekpoma; American University of Nigeria; Covenant University, Ota; Federal University Ndufu-Alike, Ikwo; Elizade University; Ebonyi State University; Federal University of Technology, Akure; Federal University Dutsinma; Federal University Lokoja; Federal University Oye-Ekiti; Federal University of Technology, Minna; Landmark University; Nassarawa State University, Keffi; Usmanu Danfodiyo University, Sokoto; University of Ibadan; University of Jos; University of Lagos; University of Ilorin; and University of Nigeria Nsukka. Meanwhile, 86% (18) of the institutions use DSpace software, while the remaining 14% (3) make use of EPrint software (Idiedo et al., 2024). This resonated with the findings of Ukwuoma, Madumere, and Iwundu (2021), who established that there were thirty functional repositories in Nigeria as of 2021. These 30 repositories were hosted by 21 higher institutions in Nigeria, including the University of Ibadan, Covenant University, University of Nigeria Nsukka, Landmark University, etc., which have two or more open repositories on DOAR. The most recent study identified in the review was conducted by Abdu, Farouk, and Maisango (2025), who reported a steady increase in adoption in Nigeria. Their findings showed that 27 institutions had adopted institutional repositories by 2025, thereby updating the earlier reports of Idiedo et al. (2024) and Ukwuoma, Madumere, and Iwundu (2021), which identified 21 institutions. Of the six additional institutions, four are higher education institutions — Ajayi

Crowther University, Benue State University, Bingham University, and Federal University of Technology, Owerri — while the others are the Central Bank of Nigeria and the National Library of Nigeria. This represents approximately 29% growth in IOAR adoption within two years.

Regarding performance and contributions, Ukwuoma, Madumere, and Iwundu (2021) identified the major contents of IOAR in Nigeria to include journal articles, theses, dissertations, and conference proceedings produced by staff and students across different disciplines. This was confirmed by Abdu, Farouk, and Maisango (2025), who stated that articles are the most popular resources in IOAR, followed by theses/dissertations and conference/workshop papers. Samson, Dolapo, and Opeyemi (2022) further highlighted that IOAR enhance the visibility, accessibility, and dissemination of scholarly outputs, thereby increasing institutional prestige and research impact. Remarkably, it is a game-changer for early-career research, providing a more accessible and cost-effective alternative to traditional subscription-based publishing systems.

Despite various advantages, the reviewed studies identified several challenges hindering the adoption and effective performance of IOAR in Nigeria. Research has shown that the rate of repository adoption among Nigerian higher institutions remains relatively slow (Olubiyo & Olubiyo, 2023). This resonated with the studies of Idiedo et al. (2024) and Ukwuoma, Madumere, and Iwundu (2021), who consulted the OpenDOAR database at two different time frames and reported a limited number of IOAR despite Nigeria's large number of higher institutions. Also, Orsu, E. (2019) researched the utilization of open access repositories for the visibility of academic publications by lecturers. His findings revealed that instead of archiving in IOAR, most lecturers prefer to archive their scholarly outputs on Google Scholar, Academia, and ResearchGate. In addition to this, Samson, Dolapo, and Opeyemi (2022, p.1) similarly identified that "inadequate advocacy for the open access initiative, copyright issues, low preparedness of academic librarians to acquire and apply digital knowledge, non-existence of institutional repository policies, narrow technological expertise, insufficient funding, inadequate ICT infrastructure, insufficient internet bandwidth, and erratic electricity supply" are major barriers. Ultimately, Abdu, Farouk, and Maisango (2025) observed that Nigerian IOAR still lag behind those of several other countries in terms of visibility, accessibility, and performance.

LIMITATIONS AND IDENTIFIED GAPS

There are notable limitations to the study. Firstly, after an extensive search across three broad high-quality databases— Google Scholar, JSTOR, and IEEE Xplore- while there were more materials available, only 36 studies met the inclusion criteria: focusing on IOAR in Nigeria, written in English, and published between 2018 and 2025. More relevant studies are recommended due to the lack of sustained momentum in publishing studies in the field. Similarly, only a few studies examined the state of IOAR in Nigeria using qualitative methods, which could have provided deeper insights into the experiences and challenges.

There is limited diversity in research communication. Most researchers preferred peer-reviewed journals to other possible outlets. While this is acceptable given the credibility and visibility such platforms provide, the use of IOAR for archiving theses/dissertations and conference proceedings should also be encouraged to ensure inclusivity. Journal articles are often brief, sidestepping most findings that could easily have been featured in thesis/dissertation uploaded to the IOAR.

The available studies identified the following challenges as factors inhibiting the adoption and growth of IOAR in Nigeria higher education system: Inadequate power supply; Poor network connectivity; Lack of awareness; Inadequate research grants; Inadequate advocacy for the open access initiative; Low preparedness of academic librarians (who are managers of IOAR) to acquire and apply digital knowledge; Non-existence of institutional repository policies; Inadequate technological expertise; Insufficient funding; Inadequate ICT infrastructure; Insufficient internet bandwidth; Nigeria lagging behind its counterparts in repository performance. Researchers in the field can pick up interest in conducting studies that address these specific challenges.

RECOMMENDATION

1. More qualitative research should be conducted to investigate the state of IOAR in Nigeria, focusing on the in-depth experiences, and provide further recommendations that would positively affect the research landscape.
2. Relevant policies should be developed to guide the implementation and the trajectory of IOAR from the early stage of adoption, consistently providing guiding protocols for continuity and efficiency.
3. IOAR should also be prioritized in academic libraries as a critical requirement for accreditation by the Nigerian Universities Commission (NUC). This will further enhance implementation
4. Institutional management and relevant government policymakers should provide the necessary support by ensuring the availability of relevant infrastructural resources and adequate funding for effective implementation

CONCLUSION

Open access democratizes knowledge in order to achieve unbiased dissemination of information. As a valuable digital resource, an IOAR provides unrestricted online access to submitted manuscripts of academic publications, making them freely accessible on the internet. The findings identified that there is a lack of sustained momentum in publishing studies on open access repositories in Nigeria, and available studies do not embrace diversity in research communication, as

researchers prefer peer-reviewed journals over other possible ways of communicating their findings. Also, the findings identified that in the last one to two years, there has been an approximately 29% growth in the adoption of institutional open access repositories in Nigeria, considering the adoption rate between 2024 and 2025. Among many others, the following challenges are considered factors inhibiting the adoption rate of open access repositories in Nigeria: inadequate power supply, poor network connectivity, lack of awareness, inadequate research grants, and inadequate advocacy for the open access initiative. It is recommended that subsequent studies look into user participation, sustainability methods, policy execution outcomes, repository effectiveness, and comparative experiences of IOAR across various higher institutions. Such research will enhance deeper understanding of the factors influencing growth and long term impact of IOAR in Nigeria is proposed.

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ADOPTION OF LIBRARY APPLICATION SOFTWARE PACKAGES FOR LIBRARY OPERATIONS IN COLLEGE OF EDUCATION LIBRARIES IN KATSINA STATE, NIGERIA

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Abstract

This study examined the adoption of library application software packages for library operations in Colleges of Education libraries in Katsina State, Nigeria. The study was designed to investigate the level of automation of library operations in these institutions. Four objectives were formulated, alongside four corresponding research questions. A descriptive survey research design was adopted for the study. The population consisted of 61 librarians, and a total enumeration sampling technique was employed due to the manageable size of the population. Data were collected using a structured questionnaire and analyzed using frequency counts, percentages, mean, and standard deviation. The findings revealed that KOHA and E-LIB are the most widely adopted and currently used software packages in the libraries studied. However, the analysis also indicated low utilization of these software packages, as core library functions such as cataloguing and classification, circulation management, overdue fines management, and RFID/barcode-based tracking are underutilized. The study further identified several challenges, including the high cost of software, poor network and internet access, erratic power supply, and lack of after-sales maintenance and technical support. The study concluded that college librarians should promote the adoption and effective use of library application software packages to enhance service delivery and improve operational efficiency. Based on these findings, the study recommended that college libraries adopt widely supported and flexible software such as KOHA, implement awareness programs to encourage the acceptance and use of library technologies, and ensure adequate funding by government and institutional authorities for the acquisition and maintenance of modern library software.

Keywords: library software packages, adoption, library operations, college libraries

Introduction

Rapid advances in information and communication technologies (ICTs) are moving libraries all over the world to undergo significant transformation. A library can benefit from this underlying universal force that drives inventions, ideas, and tactics by consciously working to improve the library experience for patrons and employees equally. Automated systems are increasingly supporting or replacing traditional manual library operations, such as cataloguing, classification, circulation, acquisition, and serials management. Library automation has become crucial for improving the speed, accuracy, efficiency, and accessibility of information services.

Library application software packages are essential tools for modern library management, streamlining a variety of tasks to improve efficiency and enhance user experience. These software systems typically encompass integrated library systems (ILS) or library management systems (LMS), which automate library functions such as cataloguing, circulation, acquisitions, and inventory management. One of the critical benefits of these software packages is their ability to manage vast amounts of data seamlessly, ensuring that library resources are accurately catalogued and easily accessible to patrons and staff alike (Breeding, 2021).

A primary feature of library application software is its cataloguing capability, which organizes library materials using metadata standards like MARC (Machine-Readable Cataloguing). This standardization facilitates data sharing between libraries and enhances resource discoverability through online public access catalogues (OPACs). Another vital function is circulation management, which tracks the borrowing and returning of library items. This feature not only improves the efficiency of these processes but also integrates with patron management modules to monitor user activity and manage fines and fees. Advanced systems can offer automated notifications for due dates and overdue items, fostering better communication between the library and its patrons (Johnson, 2019). This automation reduces the workload on library staff, allowing them to focus on more personalized services and community engagement.

Research shows that availability and utilization of library oriented software packages are achieved with little or no fund via open source software initiative. The advent of development of library application software packages in this dispensation has made the transition from “traditional” to technological services which give room for the provision of more efficient services in a cost effective manner, hence the adoption of the packages by libraries in their services such as acquisition, processing, storage and dissemination (Sambe, 2015). The use of library software is progressively spreading throughout Nigeria, especially in higher education institutions. Effective library systems are crucial to the teaching, learning, and research of tertiary institutions. In order to satisfy information needs, comply with national

academic standards, and stay current in an ICT-driven learning environment, these libraries in Katsina State are expected to use dependable library management software.

These software solutions differ in terms of cost, features, technical requirements, and level of support; however, their adoption across Nigerian academic institutions appears inconsistent, while some institutions still heavily rely on manual processes due to issues like insufficient funding, lack of ICT expertise, and inadequate infrastructure. Understanding the adoption level, influencing factors, and challenges is crucial for improving library operation within the college libraries in Katsina State.

Statement of the Problem

Library Application software are effective means of carrying out library functions and services and new ways of organizing information and publishing it on the internet. Library Application software enable libraries to efficiently organize and deliver information for easy dissemination to users. Proper and effective utilization of the packages may give institution libraries an edge over other information service institutions. This is because they will enable them to build and manage their institutional resources, offer efficient services as well as provide quick and open access to information resources which may support teaching, learning, and research and community services.

Despite global progress in library automation, college libraries in Katsina State continue to operate manually. Manual operations are slow, prone to errors, and often lead to difficulties in accessing and retrieving information. Although several library software packages exist, their adoption and utilization remain limited or inconsistent. Egunjobi and Awoyemi (2021) maintain that manual handling of cataloguing, circulation, acquisitions, and inventory management processes often leads to inefficiencies, errors, and delays, which can impede academic progress and research activities. College libraries in Katsina State are expected to offer timely, accurate, and user-friendly services. However, problems like poor ICT infrastructure, inadequate staff training, unstable power supplies, and a lack of management support make it difficult for library software to be adopted and used effectively. This raises questions about the quality of library services and operations and the ability of these libraries to meet academic standards. As a result, it is necessary to assess the degree of library application software packages adoption, the difficulties encountered, and potential solutions.

Objectives of the Study

The main objective of this study is to examine the adoption of library application software packages for library operations in College of Education libraries in Katsina State, Nigeria. The specific objectives are to:

1. Identify the types of library application software packages adopted for library operations in College of Education Libraries in Katsina State.
2. Evaluate the extent to which the software packages adopted are utilized for library operations in College of Education Libraries in Katsina State.
3. Identify the challenges affecting the effective use of library application software packages for library operations in College of Education Libraries in Katsina State.
4. Suggest strategies for improving the use of library application software for library operations in College of Education Libraries in Katsina State.

Research Questions

The following research questions guide the study:

1. What types of library application software packages adopted for library operations in College of Education Libraries in Katsina State?
2. To what extent are these software packages adopted are utilized for library operations in College of Education Libraries in Katsina State?
3. What challenges hinder the effective utilization of library application software packages for library operations in College of Education Libraries in Katsina State?
4. What strategies can enhance the effective utilization of library application software packages for library operations in College of Education Libraries in Katsina State?

Literature Review

Library operations in academic libraries have undergone significant transformation due to advances in information technology. According to Breeding (2025), library operations are increasingly managed through integrated cloud-based platforms that support acquisitions, cataloguing, circulation, and electronic resource management. Library operations have expanded significantly to encompass research support services, scholarly communication initiatives, and digital resource management, reflecting the changing information needs of higher education institutions. In the African context, Tella and Issa (2024) reported that ICT adoption has enhanced the efficiency of library operations through automation and improved access to information resources.

Library application software packages are veritable tools introduced by the emergence of information and communication technology (ICT) to achieve efficiency in library functions and services. Library software packages are specialized systems that automate cataloguing, circulation, acquisitions, serials management, and reporting. Egunjobi

& Awoyemi (2021) defined library application software as a sequence of instructions that tells the computer what to do, how to manipulate data and how to relate to users. It normally addresses one aspect of computing need or the other. However, Dhanavandan and Tamizhchelvan (2012) defined library application software as the application of automatic and semi-automatic data processing machines to perform functions such as acquisition, circulation, cataloguing, reference service and serial control. Thomas (2012) defined library application software as computer programs that are written individually to operate specific, tailor made procedures and systems such as library housekeeping, words processing, database management, text retrieval, expert systems.

There are generally two categories of library application software: Proprietary and Open source. Proprietary Software refers to any computer software that has restrictions on any combination of the usage, modification, copying or distributing modified versions of the software. Proprietary software may also be called closed –source software. Open-Source Software (OSS) is computer software whose source code is made publicly available and distributed under a license that grants users the right to study, modify, use, and redistribute the software to anyone for any purpose, while respecting the terms and conditions specified by the copyright holder. Open Source Software movement accelerated the development of compatible open source library software, partly to provide an alternative to the sometimes highly prohibitive cost of the Proprietary Software. Examples of Library application software are; Alice for Windows, GLASS, CDS/ISIS, Strategic Library Automation and Management (SLAM), Liberty, Tin-Lib, and X-Lib, Libsys, Virtua, E-Lib, Libra, Greenstone, Evergreen, Dspace, Fedora, KOHA, Millennium mi, Alexandria among others.

Researchers have conducted studies on the use of software packages in some universities in Nigeria. Some of the software packages used in libraries in universities in Nigeria include TINLIB, ALICE, X-LIB, GLAS, CDS/ISIS, KOHA, SLAM, Liberty 3, Docuware etc (Adogbeji, Onohwakpor and Sylvester, n.d; Okewale and Adetimirin, 2011; Udoh-Ilomechine and Idiegbeyan-ose, 2011; Obajemu, Osagie, Akinade and Ekere, 2013). These studies were however carried out in universities in Nigeria. The current study sought to fill this gap by conducting the study in college libraries in Katsina State to establish the software packages adopted in library operations.

Furthermore, Obajemu et al (2013) conducted a study on the use of library software products in Nigeria. The study covered 50 libraries in Nigeria including 22 federal, state and private universities; 11 polytechnic libraries; 3 colleges of education libraries, and 14 research institutions' libraries. The researchers reported in their findings that "some of the respondents are quite aware of the various types of software being paraded in Nigerian markets." This study did not establish the specific software packages adopted by these 50 libraries as it merely established whether or not the librarians are aware of the existence of such software packages. The present study focused on the academic institutions and sought to identify the specific software packages adopted by college libraries in Katsina State.

In a study on library automation and virtual library development in four academic Libraries in Oyo State, Gbadamosi (2011) reported that none of the four libraries investigated was fully automated. The academic libraries used for the study included those of Emmanuel Alayande College of Education, Oyo; Federal College of Education (Special), Oyo; Federal School of Surveying, Oyo; and Ajayi Crowther University, Oyo. This finding presents yet another justification for a similar study to be conducted to establish the extent of application of library software in tertiary institution libraries in Katsina State.

Kari and Baro (2015) conducted a study aimed to look at the library software in use in Nigerian university libraries, and the challenges and frustrations experienced in their automation projects. The study adopts a descriptive survey method and covers university libraries in Nigeria. A questionnaire was used to collect data from 32 university libraries in Nigeria. The study revealed that university libraries in Nigeria widely use library software such as KOHA, SLAM and VIRTUA for their library operations. Challenges such as lack of skilled manpower, lack of fund, absence of modern systems (computers) and erratic power supply were identified as the major problems university libraries in Nigeria encountered while using library software. Librarians recommended the use of KOHA, SLAM or VIRTUA library software for use by university libraries that are in search for library software to use. These studies were however expanded in scope as they involved a large number of sampled universities in Nigeria while the current study sought to fill this gap by limiting the scope to a smaller number of college libraries in Katsina State.

Methodology

This study adopts a descriptive survey research design, with a population of sixty one (61) professional and paraprofessional librarians. The population comprises 23 librarians from Federal College of Education Library Katsina (FCELK), 22 librarians from Isah Kaita College of Education Library Dutsin-Ma (IKCELD) and 16 librarians from Yusuf Bala Usman College of Education Daura (YBUCELD). Total enumeration sampling technique was used for the study due to the fact that the number of respondents is manageable. Structured questionnaire was used as instruments for data collection. Questionnaire containing forty (40) items were administered to respondents in their respective institutions and collected by the researcher with the help of two trained research assistants. Data collected through questionnaire was analyzed using frequencies, percentages, mean and standard deviation. Any percentage of above 50 was accepted and used while any one below 50 was rejected and not used. Similarly, the researcher considered the mean of 2.5 and above as accepted while any mean below 2.5 was considered as rejected.

Results and Discussion of Findings

Table 1: Response Rate by University

Institutions	Expected Respondents (N = 61)	Actual Respondents (N = 57)	Percentage of Actual Respondents (%)
FCELK	23	20	32.78
IKCELD	22	21	34.42
YBUCELD	16	16	26.22
Total	**61**	**57**	**93.42**

Table 1 reveals that 61 copies of questionnaire were distributed, out of which 57 (93.42%) copies were completed and retrieved with valid information for the analysis. A further breakdown shows that 23 copies distributed to the respondents at FCELK, 20 (32.78%) were successfully completed and retrieved, 22 copies distributed to the respondents at IKCELD, 21 (34.42%) were completed and retrieved and 16 (26.22%) from the 16 distributed at YBUCELD were retrieved. Therefore, successfully valid instrument for this study is 93.42%. This is deemed encouraging and satisfactory for the study.

Table 2: Identify the types of library application software packages (LASP) adopted in College of Education Libraries in Katsina State.
(n = 57)

S/N	Software Package	Used (n)	Used (%)	Not Used (n)	Not Used (%)
1	Alice for Windows	3	5.3	54	94.7
2	BASIS	4	7.0	53	93.0
3	BookWhere	3	5.3	54	94.7
4	DSpace	3	5.3	54	94.7
5	Greenstone	3	5.3	54	94.7
6	Koha	31	54.4	26	45.6
7	LibPlus	9	15.8	48	84.2
8	Micro CDS/ISIS	10	17.5	47	82.5
9	MINISIS	8	14.0	49	86.0
10	E-Lib	55	96.5	2	3.5
11	TINLIB	22	38.6	35	61.4
12	X-Lib	20	35.1	37	64.9

Key: U = Used and NU = Not Used

Table 2 revealed that E-LIB (96.5%) is the most widely adopted software, indicating widespread available across the libraries. Moderately adopted software is KOHA (54.4%) is the second most used, suggesting strong acceptance, likely due to its open-source nature and flexibility. TINLIB and X-LIB show moderate adoption (38.6% and 35.1%). Low adopted software are MICRO CDS/ISIS, LIB PLUS, MINISIS have low adopted software (below 20%). ALICE for Windows, BOOKWHERE, DSPACE, GREENSTONE, and BASIS are barely adopted (5–7%), indicating they are either less accessible, or not suitable for the libraries' needs.

Table 3: Mean responses of respondents on the extent to which the software packages adopted are utilized for library operations in College of Education Libraries in Katsina State.
(n = 57)

S/N	Utilization Area	HU	U	LU	NU	Mean	SD
1	Cataloging and classification of library materials	5	15	14	23	2.04	1.01
2	Circulation management (issuing, renewing, returning)	9	12	4	32	1.96	1.18
3	Patron registration and management	24	11	4	18	2.72	1.30
4	Reserving library materials	21	13	17	6	2.86	1.03
5	Inventory management and stocktaking	15	28	2	12	2.81	1.05

S/N	Utilization Area	HU	U	LU	NU	Mean	SD
6	Overdue fines and fee management	12	7	13	25	2.11	1.18
7	Interlibrary loan management	6	12	22	17	2.12	0.95
8	Reporting and statistics generation	7	16	26	8	2.39	0.87
9	Integration with online databases and resources	2	16	31	8	2.21	0.72
10	RFID or barcode-based tracking	5	4	15	23	1.49	0.94

Grand mean = 2.27.

Keys: HU = Highly Utilized; U = Utilized; LU = Low Utilization; NU = Not Utilized

The grand mean of 2.27 indicates a low to moderate level of utilization of library application software packages. The highest level of utilization was recorded in the area of reserving library materials, with a mean score of (2.86), inventory management (2.81), and patron management (2.72). Lowest utilization for RFID/barcode tracking (1.49) and circulation management (1.96)

Table 4: Mean responses of respondents on the challenges affecting the effective use of library application software packages in College of Education Libraries in Katsina State.
(n = 57)

S/N	Challenges	SA	A	D	SD	Mean	SD
1	High cost of acquisition and maintenance of LSPs	35	15	0	7	3.37	1.03
2	Change in library administration	15	27	6	9	2.84	0.97
3	Staff resistance to the use of software packages	21	16	10	10	2.84	1.12
4	Erratic power supply	32	11	4	10	3.14	1.15
5	Database conversion problems	10	34	3	10	2.77	0.90
6	Poor network server leading to lack of internet access	30	14	10	3	3.25	0.99
7	Lack of after-sales maintenance and support	13	35	3	6	2.96	0.89
8	Phobia of computer/software or internet usage among librarians	16	21	6	14	2.68	1.17
9	Lack of knowledge about library software	8	18	15	16	2.32	1.06

Grand mean = 2.91.

Key: **SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree**

The grand mean of 2.91 indicates that respondents generally agree that these factors are major challenges affecting the use of library application software. The most critical challenges include high cost of software (3.37), poor network/internet access (3.25) and erratic power supply (3.14). The only relatively weaker challenge is lack of knowledge (2.32), which falls slightly below the acceptance benchmark (2.50).

Table 5: Mean responses of respondents on the strategies for improving the adoption and utilization of library application software in College of Education Libraries in Katsina State.
(n = 57)

S/N	Strategies	SA	A	D	SD	Mean	SD
1	Adequate funding should be provided for acquisition and maintenance of LSPs	48	5	1	3	3.72	0.73
2	Newly appointed librarians should not abandon useful projects of previous administration	37	16	2	2	3.54	0.68
3	Librarians should understand and accept the importance of LSPs	45	12	0	0	3.79	0.41
4	Adequate power supply should be provided in the library	48	8	1	0	3.82	0.43
5	Proper training should be provided for database conversion using LSPs	45	8	4	0	3.72	0.58
6	Libraries should install and upgrade quality network servers for full internet access	38	14	5	0	3.58	0.65
7	Software companies should provide maintenance and support services	37	16	1	3	3.53	0.78
8	Librarians should overcome fear of using computers and software	26	20	6	5	3.18	0.97
9	Awareness of LSPs should be created among librarians	31	18	8	0	3.40	0.73

Grand mean = 3.59.

Key: **SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree**
The grand mean of 3.59 indicates a high level of agreement among respondents on the strategies for improving adoption and utilization of library software. Most strategies are strongly supported, especially for adequate power supply (3.82), awareness and acceptance of LSPs (3.79).

Discussion of Finding
According to the study's findings, respondents' revealed that E-LIB and KOHA are the most widely adopted software packages, while others such as DSPACE, GREENSTONE, and ALICE for Windows are slightly used. This suggests a concentration on a few dominant systems. This finding aligns with report of preference for widely supported and open-source systems like KOHA in developing contexts due to flexibility and lower total cost of ownership (Bello & Mansor, 2021; Yakubu & Abubakar, 2023).
The result of Utilization of Library Software Packages, indicating low to moderate utilization of library software packages in Colleges of Education Libraries. While some operations such as inventory management and reservation are moderately utilized, core functions like circulation and cataloguing are underutilized. Current studies by (Ifijeh & Yusuf, 2020; Zaid & Popoola, 2021) suggests that availability of systems does not guarantee deep use; utilization is often limited by skills gaps, workflow redesign issues, and weak integration with digital resources.
Also, the findings showed that respondents agreed on the presence of significant challenges. Major challenges include high cost, erratic power supply, poor network infrastructure, and lack of technical support. Literature confirms these constraints as persistent barriers in Nigerian and similar contexts, with infrastructure deficits and funding shortfalls directly impacting system performance and continuity (Suleiman & Sani, 2022; Yakubu & Abubakar, 2023).
Additionally, Findings from study showed a high grand mean of 3.59, indicating strong agreement on proposed strategies. Key strategies include improved funding, staff training, stable power supply, and increased awareness. This supports the works of (Bello & Mansor, 2021; Zaid & Popoola, 2021; Suleiman & Sani, 2022), who emphasized capacity building, reliable infrastructure, and sustained vendor/technical support as critical enablers for successful digital transformation in libraries.

Conclusion
This study established that E-LIB and KOHA are the most commonly adopted library application software packages in Colleges of Education libraries in Katsina State. Despite their availability, the overall utilization of these software packages remains low to moderate, particularly in core library operations such as cataloguing, circulation, and RFID/barcode tracking. The major challenges affecting effective utilization include high acquisition and maintenance costs, poor internet connectivity, erratic power supply, and inadequate technical support. Nevertheless, respondents strongly agreed that improved funding, staff training, reliable infrastructure, and increased awareness would enhance software adoption and utilization. Therefore, strengthening these enabling factors is essential for achieving efficient and fully automated library operations in the colleges studied.

Recommendations
Based on the findings, the following recommendations are made:
1. College libraries should adopt widely supported and flexible software such as KOHA to improve efficiency.
2. Awareness programs should be conducted to encourage acceptance and use of library technologies among college librarian.
3. Government and institutional authorities should ensure adequate funding for the acquisition and maintenance of modern library software. They should provide stable power supply and reliable internet connectivity.
4. Software vendors should provide continuous technical support and maintenance services. Regular training and retraining programs should be organized for librarians to enhance their technical skills.

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ADVOCACY FOR FUNCTIONAL LIBRARIES IN STATE OWNED MEDIA ORGANIZATIONS IN SOUTH EAST NIGERIA

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Abstract

Functional libraries serve as vital repositories of information that support research, knowledge creation, and professional practice across media organizations. In state-owned media organizations, functional libraries are essential for effective journalism, policy formulation, and informed public communication. Despite their importance, many media institutions in south east lack well-equipped, accessible, and professionally-managed library systems, limiting journalists, ability to access reliable information and undermining the quality of reporting. This study argues for sustained advocacy toward the establishment and strengthening of functional libraries within state-owned media houses in South East Nigeria. The methodology used for the study is survey research design, questionnaire was designed to collect data from a population of 56 library staff /librarian from five selected state owned media organizations in south east and all the copies were collected and used for the study. The data was analyzed using descriptive statistics (mean), and percentages. The findings of the study reveals high extent on how management and library staff/ librarians perceive functional libraries for effective operations. The study recommends standardization of media libraries because a standard library serves as a digital Asset Management (DAM) system or archives, for media organizations to ensure the efficient storage, retrieval, and monetization of content. The study also advocates for a functional libraries in media organizations for the reason of efficient workflow, content preservation, workflow integration and distribution also facilitates creativity and Innovation.
Keywords: Advocacy, Functional libraries, Media organization, State/Nigeria

INTRODUCTION

Advocacy for functional libraries in state-owned media organizations in South East Nigeria according to Monaci et al (2026) is a strategic and purposeful effort aimed at influencing policies, mobilizing support, and driving institutional reforms that will strengthen information services within these establishments. Advocacy is **act of pleading for or supporting a change in an existing system which will produce results that are permanent and will benefit future users of the system. Advocacy** in a media-driven society where access to credible information shapes public opinion and democratic participation, libraries in state-owned media organizations serve as a vital knowledge hubs for journalists, researchers, editors, and content producers (Igwebuike, 2022). Advocacy involves organized actions and persuasive communication strategies aimed at influencing decision-makers and stakeholders to support policies and development initiatives (American Library Association, 2023). Advocacy goes beyond mere awareness; that involves deliberate engagement with policymakers, media executives, government agencies, and professional bodies to secure financial commitment, policy backing, and institutional recognition for library (Association of College and Research Libraries, 2024) within state-owned media organizations in Abia broadcasting network, Anambra broadcasting service, Ebonyi broadcasting corporation, Enugu broadcasting Service, and Imo State Broadcasting Corporation; advocacy becomes a powerful tool to reposition libraries as indispensable components of media productivity and credibility (Ojukwu, 2022). Effective advocacy for functional libraries emphasizes the role of libraries in promoting accuracy, archival preservation, investigative journalism, and fact-checking (Galey, 2024). Advocacy efforts may include policy lobbying, strategic partnerships, public campaigns, stakeholder engagement, professional association involvement, and evidence-based presentations demonstrating the return on investment in library services. Advocacy broader developmental impact of strong library systems. By advocating for improved funding, digitization initiatives, skilled librarians, and modern information management systems, stakeholders can ensure that state-owned media organizations fulfill their mandate of public enlightenment and national development. In essence, advocacy is the driving force that transforms libraries from neglected units into dynamic centers of knowledge within Nigeria's state-owned media organizations (Udensi, 2022). It is a sustained, strategic process of influencing change, shaping perceptions, and securing commitment toward building libraries that effectively serve the information needs of media professionals and the wider society.

Functional library is not merely a room filled with books or old newspapers; it is a dynamic information center designed to support editorial decision-making, investigative journalism, and content development. Functional libraries support research-based on broadcasting, preserve national history through archives, and enhance the intellectual capacity of media personnel. Functionality implies proper organization of materials, up-to-date collections, digital integration, professional staffing, and efficient retrieval systems. It also involves the preservation of archival materials such as audio recordings, video footage, manuscripts, photographs, and policy documents that form the organizational memory of media organizations. According to Cheruiyot, (2021), functional libraries are essential for ensuring accuracy, fact-checking, and balanced reporting. They provide journalists and broadcasters with access to credible sources, historical records, government publications, and research databases necessary for producing informed and authoritative content. (Alui, 2023). Without functional libraries, media organizations risk disseminating incomplete or inaccurate information,

which can weaken public trust and undermine their public service mandate. Functional libraries support modernization and digital transformation. With the rapid growth of information technology, media libraries must adopt electronic cataloguing systems, digital archives, online databases, and automated information management tools. A truly functional library operates efficiently, offers timely access to both print and digital resources, and adapts to evolving media practices. Advocacy for functional libraries in south east's state-owned media organizations emphasizes revitalization, funding, professional development, infrastructure improvement, and policy support. By prioritizing functionality, efficiency, accessibility, relevance, and sustainability; these organizations can enhance their research capacity, strengthen content quality, preserve national heritage, and fulfill their responsibility of informing, educating, and enlightening the public.

Media organization is a structured institution responsible for information dissemination, public education, agenda setting, cultural preservation, and democratic accountability. Abia broadcasting service, Anambra broadcasting service, Ebonyi broadcasting corporation, and Imo broadcasting corporation are established to serve the public interest by providing accurate, balanced, and development-oriented information. Media organization operates through coordinated departments; news, programming, production, research, archives, and administration working together to achieve institutional goals. Its effectiveness depends largely on access to reliable information, historical records, research materials, and credible data sources. As organization entrusted with shaping public opinion and documenting national events, state-owned media organizations must maintain high standards of professionalism, accountability, and information management. Within this institutional structure, the library role is strengthening the operational capacity of the media organization. However, the focus on media organization highlights the broader institutional responsibility to create policies, allocate funding, and provide infrastructure that supports functional information units. Advocacy in this context targets the leadership and governance systems of these media establishments, encouraging them to recognize libraries as integral components of their operational framework rather than optional support units. State-owned media organizations in south east face increasing demands in the digital age rapid news cycles, competition from private media, social media influence, and the fight against misinformation. To remain credible and competitive, these organizations must invest in strong information systems, including well-managed libraries and archives. Therefore, advocacy efforts emphasize institutional reform, strategic planning, and management commitment within media organizations to ensure sustainable library development.

State/ South East/ Nigeria media sector have its role in shaping public discourse, promoting transparency, and fostering national unity (Akingbohungbe, 2025). State-owned media organizations were established to serve the public interest, inform citizens about government policies, and document the nation's historical and cultural evolution. However, the effectiveness of these institutions is closely tied to the strength of their internal knowledge systems particularly their libraries and archives. Presently in Nigerian, advocacy becomes necessary due to persistent challenges such as inadequate funding, policy inconsistency, infrastructural decay, and limited technological advancement within public institutions. Many state-owned media libraries struggle with outdated collections, poor digitization, and insufficient professional staffing. These issues reflect broader systemic challenges within Nigeria's public sector, where competing national priorities often overshadow information management and archival development. Advocating for functional libraries in South East therefore goes beyond organizational reform; it connects to national development goals. Functional libraries support investigative journalism, preserve countries historical records, and contribute to the fight against misinformation and fake news—an issue of growing concern in the countries digital age. They also enhance the capacity of media professionals to provide well-researched, balanced, and culturally relevant content to diverse audiences across the federation countries continues to pursue modernization and digital transformation, strengthening library systems within state-owned media organizations aligns with broader national aspirations for technological growth and knowledge-based development. Advocacy efforts must therefore engage policymakers, government agencies, professional associations, and civil society to recognize libraries as strategic national assets rather than mere administrative units. focusing on countries highlights the unique developmental realities, governance structures, and information challenges that shape the need for functional libraries in state-owned media organizations.

STATEMENT OF THE PROBLEM

Many state-owned organizations face persistent challenges in information management, documentation, research support, and preservation of organizational records due to weak or non-functional library systems. Libraries within these organizations are often underfunded, poorly equipped, and inadequately staffed. Lack of up-to-date materials, modern information technology, digitized databases, and organized cataloguing systems. As a result, staff members experience difficulty accessing reliable information for policy formulation, planning, research, and decision-making. The absence of functional libraries weakens institutional memory, reduces productivity, and limits the overall effectiveness of public service delivery. Without strong advocacy to influence management decisions and government policies, the neglect of library services may continue, thereby undermining information accessibility, transparency, and organizational effectiveness. Therefore, the core problem addressed in this study is the insufficient advocacy for the establishment, funding, and sustainability of functional libraries in state-owned organizations in South East Nigeria.

PURPOSE OF THE STUDY

The purpose of the study is to examine the role of advocacy in promoting the establishment, development, and sustainability of functional libraries in state-owned organizations in South East Nigeria. Specifically, the study sought to:

1. Ascertain the current state and level of functionality of libraries in state-owned organizations in South East Nigeria.
2. Identify the major challenges affecting the development and effective operation of libraries in these organizations.
3. Examine the level of awareness and perception of management toward the importance of functional libraries in state-owned organizations.

RESEARCH QUESTIONS

1. What is the current state and level of functionality of libraries in state-owned organizations in Nigeria?
2. To what extent have the challenges affects the development and effective operation of libraries in these organizations?
3. How do management and staff perceive the importance of functional libraries in state-owned Organizations?

LITERATURE REVIEW

A functional library is not limited to the presence of books but encompasses up-to-date resources, trained staff, modern technologies, digitization, organized systems, and efficient retrieval mechanisms. Therefore, the absence of functional libraries in state owned media Organizations weakens the organizational memories and reduces productivity and it affects overall effectiveness in service delivery. Stakeholder engagement tools for advocacy addressed the challenges of poor funding, inadequately staffed, poorly equipped and also lack of update materials, modern information technologies, digitalized database and that is why professional association like NLA advocates for development and establishment of functional libraries to safeguard professional interest; with serious advocacy government and management decision will stop the negligence of library services which under mind information accessibility, transparency and Organizational effectiveness (Lynch etal 2021).

RESEARCH METHODOLOGY

The survey research method was adopted for the study which sought Information from respondents on advocacy for a functional libraries in State owned media Organization in south East. The population of the study comprised of fifty six (56) Library staff/ Librarians within the state owned media Organizational libraries. The selected state owned media organizations includes Abia Broadcasting Network, Anambra Broadcasting Service, Ebonyi Broadcasting Corporation, Enugu State Broadcasting Service and Imo State News Media. A self- developed online survey using Google questionnaire form was created for data collection from respondents. Data were analyzed using mean scores, simple Percentages and frequency count.

RESULT AND DISCUSSION

Result and the analysis was presented in tables and graph charts according to the research questions that guided the study.

Result Table 1: Respondents by Organization

ORGANIZATION	FREQUENCY	PERCENTAGE
Abia Broadcasting Network	6	10.71%
Anambra Broadcasting Service Awka	10	17.85%
Enugu State Broadcasting Service	7	12.5%
Imo State News Media	25	44.64%
Ebonyi Broadcasting Corporation	8	14.28%
TOTAL	**56**	**100%**

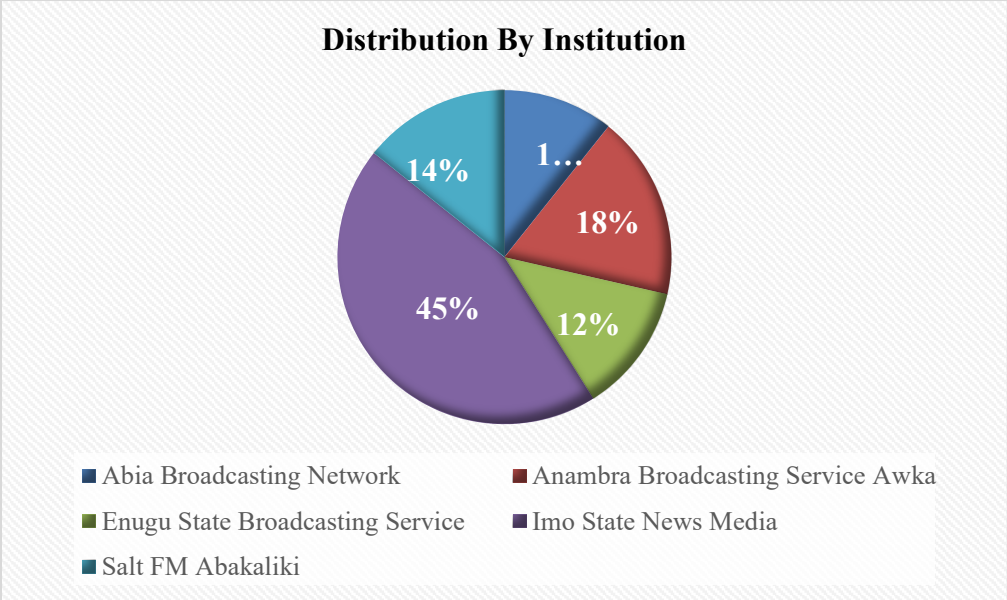


Figure 1: A pie chart showing the distribution of respondents by organizations

Table 1: Revealed that out of the 56(100%) respondents, 6(11%) were respondents from Abia Broadcasting Network, 10(18%) were respondents from Anambra Broadcasting Service, 7(12%) were respondents from Enugu State Broadcasting Service, 25(45%) were from Imo State News Media and 8(14%) were from Salt FM Abakaliki. The result revealed that Imo state media responded than every other state owned organization in south east Nigeria.

Table 2: Respondents' Percentage and Mean scores on the current state and level of functionality of libraries in state-owned organizations in South East Nigeria.

S/N	ITEMS	VHE (4)	HE (3)	VLE (2)	LE (1)	MEAN
1.	The availability of a library in your organization	35(62.5%)	10(18%)	9(16%)	2(3.5%)	3.39
2.	The quality of the library's physical infrastructure	25(45%)	15(27%)	10(18%)	6(11%)	3.05
3	The sufficiency of library resources	10(18%)	28(50%)	10(18%)	8(14.2%)	2.54
4	Current library resources	7(12.5%)	2(3.5%)	7(12.5%))	40 (71%)	1.57
5	Access to digital resources or online databases	45(80%)	11(20%)	0(0%)	0(0%)	3.80
6.	Regularly training of library staff	39(70%)	7(12.5%)	5(9%)	0(0%)	3.33
	OVERALL MEAN					**2.94**

These items was structured on a 4-point scale that ranges from Very High Extent-VHE (4 points), High Extent (3 points) Very Low Extent (2) and Low Extent (1 point). This implies that the extent in which the library is available in the organizations is in a very high extent and the people's access to digital resources or online databases in the library is at a very high extent. The quality of the library's physical infrastructure and sufficiency of library resources are slightly closed to the midpoint which implies that they are perceived at high extent.

Table 3: Challenges affecting the development and effective operation of libraries in these organizations.

S/N	ITEMS	VHE (4)	HE (3)	VLE (2)	LE (1)	MEAN
1	Poor physical infrastructure (library space, seating facilities) affect library services	30(53.5%)	3(5.3%)	10(17.8%)	13(23.2%)	2.89
2	Insufficient or outdated library collection (books, journals, databases) affect library effectiveness	40(71.4%)	5(8.9%)	6(10.7%)	5(8.9%)	3.42
3	Lack of professional and qualified library staff affect performance	39 ((70.5%)	15(26.7%)	0(0%)	2(3.56%)	3.62
4	Limited access to digital resources and online databases affect library usage	35(63%)	18(32.1%)	2(3.57%)	1 (1.78%)	3.55
5	Low awareness or utilization of library services among staff affect overall library use	40(71.4%)	10(17.8%)	10(17.8%)	6(10.7%)	4.82

6	Inadequate training or orientation for library users affect effective library use	50(89.2%)	3(5.35%)	2(3.57%)	1(1.78%)	3.82
7	Lack of advocacy or support affect efforts to strengthen library functions	39(70.5%)	10(17.8%)	5((8.9%)	2(3.56%)	3.53

Table 3: Challenges affects the development and effective operation of libraries in these organizations includes availability of a library in the organization, quality of the library infrastructure, access to digital resources or online databases are perceived, low awareness or utilization of library services among staff affect overall library use, Insufficient or outdated library collection (books, journals, databases) affect library effectiveness , Inadequate training or orientation for library users affect effective library use and Lack of advocacy or support affect efforts to strengthen library functions were perceived at a very high extent and above the midpoint while Poor physical infrastructure (library space, seating facilities) affect library services and regular training of library staff at high extent as it applies to the view of Olorunisola, 2022.

Table 4: How do management and staff perceive the importance of functional libraries in state-owned organizations.

S/N	ITEM	SA(4)	A(3)	D(2)	SD(1)	MEAN
1	To what extent do management and staff perceive Functional libraries as important for effective operations in state owned organizations	35 ((63%)	10 ((18%)	7 (13%)	4 ((7.1%)	3.35
2.	To what extent do functional libraries contribute to Accurate information access in state-owned organizations, as perceived by management and staff	40 (71.4%)	6 (11%)	5 ((9%)	5 (9%)	3.5
3.	To what extent do management and staff perceive Functional libraries as tools for promoting fact-checking and information verification	30 ((53.5%)	15 ((27%)	9 (16%)	2 (4%)	3.30
4.	To what extent do functional libraries support investigative and evidence-based decision making I in state-owned organizations	29 ((52%)	17 ((30.3%)	8 ((14.2%)	2 (4%)	3.30
5.	Is there any difference between management and staff ›erceptions regarding the importance of functional l ibraries in state-owned organizations	10 (18%)	3 (5.3%)	3 (5.3%)	40 (71.4%)	1.7
	GRAND MEAN					3.03

These items were structured on a 4- point scale that ranges from Strongly Agree, Agree, Disagree and Strongly Disagree. From the result in Table 4, item 1(35(63%)), item 2(40(71.4%), item 3(30(53.5%) and item 5(40(71.4%)) revealed above the mid-point (>50%). This implies that management and staff perceive functional libraries as Important for effective operations in state owned Organization, Functional libraries contribute to accurate information access to staff and management in state owned organization, functional libraries as tools for promoting fact-checking and management regarding the importance of functional libraries in state owned organizations were strongly agree. In summary these items in table 4 were strongly agreed and agreed. This explain the views of Igwebuike etal, 2022 that effective library services are importance to organizational decision making and efficiency.

Conclusion

The need for functional libraries in state-owned media organizations in Nigeria cannot be overstated. Libraries always serve as the intellectual backbone of any information-driven institution, providing reliable, organized, and accessible resources that enhance research quality, fact-checking, and content development. The level in which library is been made available in these organizations is highly encouraged. The factor that Influence the development and effective operation of a library includes lack of advocacy or support that will strengthen library functions, poor physical

infrastructure and lack of staff training as it been opined by Olarunisola, 2022. Libraries in media organizations should be exceptionally funded; and made provision for ultra-modern library infrastructure for library use.

Recommendation

The study recommends that libraries in media organizations especially South East were libraries serves as organizational fundamental Information management, content production, public enlightenment and a key channels for information dissemination should be treated as a strategic priority.

The libraries in media organizations should be adequately funded, well trained librarian and modern infrastructure should be considered appropriately to override the problem of outdated materials, insufficient technological integration and weak digital access (Baranzan, 2024).

The study recommends standardization of media libraries because a standard library serves as a digital Asset Management (DAM) system or archives, for media organizations to ensure the efficient storage, retrieval, and monetization of content.

The study advocates for a functional libraries in media organizations for the reason of efficient workflow, content preservation, workflow integration and distribution also facilitates creativity and Innovation.

By advocating for improved funding, digitization initiatives, skilled librarians, and modern information management systems, stakeholders can ensure that state-owned media organizations fulfill their mandate of public enlightenment and national development.

Media libraries must adopt electronic cataloguing systems, digital archives, online databases, and automated information management tools.

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An Analysis of Resources Adequacy in Specialised University Libraries: Staffing, Collections, Facilities, and Finance

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Abstract

This study analyses the adequacy of key resources in specialised university libraries in Delta State, Nigeria, with particular emphasis on staffing, collections, facilities, and finance. Four research questions guided the investigation. A mixed-methods research approach was employed, integrating a descriptive survey design with qualitative inquiry to provide a comprehensive understanding. The study population comprised librarians working in three specialised university libraries: the Federal University of Petroleum Resources Library, Effurun; the Nigeria Maritime University Library, Okerenkoko; and the Admiralty University Library, Ibusa. A total of 52 librarians constituted the target population. Quantitative data were collected through structured questionnaire administered during physical visits to the libraries, while qualitative data were obtained through in-depth interviews with 3 divisional heads from each of the libraries studied. Quantitative data were analyzed using descriptive statistical techniques, whereas qualitative data were examined through thematic analysis. The findings from both data elicited reveal that staffing levels, library facilities, and financial resources are grossly inadequate in the libraries, while library collections were found to be moderately adequate. These results highlight critical resource gaps alongside existing strengths that require strategic intervention. Based on the findings, the study recommended deliberate efforts by relevant authorities to strengthen staffing capacity, upgrade facilities, and improve financial support for specialised university libraries to enhance effective service delivery. Also, sustained investment in regular updating of library collections is recommended to ensure continued relevance to the evolving academic and research needs of faculty and students.

Keywords: Collections, Facilities, Finance, Nigeria, Resource Adequacy, Specialised University Libraries, Staff

Introduction

Specialised university libraries are academic libraries established to support certain fields or occupations, such as medicine, law, petroleum and allied sector, engineering, agriculture, or education. Unlike general university libraries, they provide specific information resources, services, and expertise that are appropriate to the unique teaching, learning, and research needs of their specialised user groups. Their primary responsibilities typically include promoting innovative research, granting access to specialist collections, providing a convenient studying space, and enhancing information sharing within their respective fields.

The availability of essential resources plays a major role in how well specialised university libraries carry out their commitments to members of their academic community. In the present study, resources will be classified into four groups: human, information resources, facilities, and financial resources, which are all interrelated and would be considered holistically (Nwaogu et al., 2023; Simisaye et al., 2024; Nag, 2025). Human resources are the librarians, library officers, security, and other personnel performing roles in the specialised university library.

These human resources are responsible for overseeing the day-to-day operations of the specialised university library (Okiy, 2020). Okiy further affirmed that they are the core of service delivery because they acquire, organize, preserve, secure, and disseminate information to meet the teaching, learning, and research needs of users. In addition to providing reference and user education services, they also help ensure that library policies are implemented, facilities are properly maintained, and users receive timely support. The effectiveness of these personnel depends largely on their availability in sufficient numbers. In agreement with the aforementioned, Rhima and Nwachukwu (2024) noted that the more personnel a library engages to render services, the more effective and swifter the library responds to the information needs of the users with less stress and burnout since responsibilities would be shared with more hands on deck. In addition to human resources, specialised university libraries also need to have adequate information resources tied to the specific information needs of members of their university community.

These resources include books, journals, reference materials, databases, theses, reports, and other subject-specific materials that support teaching, learning, and research in the specialised field (Ashikuzzaman, 2025). The relevance, currency, and accessibility of such resources determine how well the library can satisfy users' information needs and sustain scholarly output within the institution. Another important consideration is the adequacy of these resources, as specialised university libraries should ensure they frequently update their collections to ensure they are current and balanced, meeting the information needs of their users. In addition to collections, Shoaib et al. (2022) affirmed that

specialised university libraries ought to have some essential facilities to keep their users satisfied. These facilities include comfortable reading spaces, adequate shelving, good lighting, computer systems, internet access, power supply, ventilation, and other physical and technological supports that make information access easier (Shoaib et al., 2022). When such facilities are available and properly maintained, they improve user comfort, enhance access to resources, and create an environment that supports effective study and research.

Financial resources are equally important because they make it possible for the library to acquire new materials, subscribe to databases, maintain facilities, and retain qualified staff. In agreement, Ilori and Onanuga (2025) argued that without adequate funding, even well-planned library services may not be effectively delivered. Therefore, the extent to which specialised university libraries can meet the needs of their users depends on the availability and efficient management of these resources as a whole. Human, information, facility, and financial resources determine the overall performance of specialised university libraries. Their adequacy influences service quality, user satisfaction, and the ability of the library to support teaching, learning, and research in specialised academic fields. In the light of the above, the present study is aimed at examining resources adequacy in specialised university libraries with special focus on staffing, collections, facilities, and finance.

Statement of the Problem

Specialised university libraries play a critical role in supporting discipline-specific teaching, learning, and research; however, their ability to fulfil these mandates is largely dependent on the adequacy of key resources. In many developing contexts, including Nigeria, concerns persist regarding shortages in staffing, inadequate facilities, and insufficient funding, all of which can significantly constrain effective service delivery. While some libraries may demonstrate relative strength in certain areas, such as collections, imbalances across resource components can undermine overall performance and limit their contribution to academic productivity.

In Delta State, where specialised universities are emerging to meet sector-specific educational demands, there is growing concern that library resources may not be keeping pace with institutional expectations. Inadequate staffing may lead to increased workload and reduced efficiency, poor facilities may hinder access and user satisfaction, and limited financial resources may restrict acquisition, maintenance, and innovation. These challenges, if not addressed, can compromise the quality of information services and weaken the role of libraries as knowledge hubs within specialised institutions.

Despite the importance of resource adequacy, existing studies (Wanyonyi et al., 2018; Olatunji, 2023) in Nigeria have largely examined university libraries in general terms, often without focusing on specialised institutions or adopting a holistic perspective that integrates staffing, collections, facilities, and finance. Furthermore, there is limited empirical evidence combining both quantitative and qualitative insights to provide a comprehensive understanding of resource adequacy in specialised university libraries within Delta State. This gap in context-specific and integrated analysis necessitates the present study.

While the existing literature extensively documents the challenges of resource adequacy in traditional Nigerian public universities, there remains a critical gap in understanding how these challenges manifest within the niche context of specialised institutions. This study departs from broader library assessments by focusing specifically on the unique resource configurations of specialised university libraries in Delta State. Unlike conventional institutions, specialised libraries such as those at the Federal University of Petroleum Resources, Nigeria Maritime University, and Admiralty University, operate under distinct mandates that necessitate specialised staffing expertise, technical collections, and specific facilities. By narrowing the scope to these institutions, this research aims to provide an empirical analysis of resource adequacy that is currently missing from the national discourse on library management.

Therefore, this study analyses the adequacy of key resources in selected specialised university libraries in Delta State, Nigeria, in order to identify existing gaps and inform strategic interventions for improved service delivery.

Research Objectives

The following objectives provided a guide for the study:

1. Examine the adequacy of staffing in specialised university libraries in Delta State, Nigeria.
2. Assess the adequacy of library collections in meeting users' academic and research needs.
3. Evaluate the adequacy of library facilities available for effective service delivery.
4. Determine the adequacy of financial resources supporting library operations.

Research Questions

The following questions were answered in the study:

- What is the level of staff adequacy in the specialised university libraries in Delta State, Nigeria?
- What is the level of library collections adequacy in meeting users' needs in the specialised university libraries?
- What is the level of adequacy of library facilities available for effective service delivery in the specialised university libraries?
- What is the level of financial resources adequacy for supporting library operations in the specialised university libraries?

Literature Review

The study is anchored on the Resource-Based View (RBV), a theoretical framework that explains how organisations achieve effectiveness and sustained performance through the strategic use of their internal resources. The RBV, as propounded by Barney (1991), posits that the availability, quality, and efficient utilisation of resources determine the ability of an organisation to achieve its objectives and maintain relevance. Figure 1 below shows the various variables of the resource-based view model:



Figure 1: Resource-Based View Model by Valerio (2024)

Organisational resources are broadly categorised into tangible and intangible assets, including human capital, physical infrastructure, financial capacity, and organisational knowledge. Within the context of specialised university libraries, the RBV provides a suitable lens for understanding how the adequacy of staffing, collections, facilities, and financial resources influences service delivery and overall performance. Human resources, comprising librarians and support staff, represent critical intellectual capital responsible for organising, managing, and disseminating information. Library collections constitute the core intellectual assets that support teaching, learning, and research, while facilities provide the physical and technological infrastructure necessary for effective access to information. Financial resources, on the other hand, underpin the acquisition, maintenance, and sustainability of all other resource components.

Ugwu and Chiedebere (2019) examined the militating factors affecting administration among staff of the Alex Ekwueme Library, Oko Federal Polytechnic in Anambra State. The findings indicate that inadequate library staff was a challenge affecting the effective administration in the examined federal polytechnic. In a similar study, Salunke and Hemade (2015) assessed the issue of stress faced by library and information professionals in Sangli and Kolhapur districts, Maharashtra state. The findings revealed that inadequate staff were a major challenge facing most of the libraries in the districts, resulting in stress and burnout. In addition, Moustapha and Abubakar (2023) investigated the shelving difficulties at the academic libraries in Kwara State, Nigeria. The findings revealed that inadequate shelving personnel was a major setback militating against the proper shelving activities in the academic libraries examined in Kwara State. In a study, Rhima and Nwachukwu (2024) examined the staffing needs and adequacy of staff in federal university libraries in South-south, Nigeria. The findings indicate that professional, technical, and para-professional staff are adequate in the university libraries examined in South-south, Nigeria. In contrast, Oyadeyi et al. (2020) examined the influence of occupational stressors and personal factors on library staff job performance in private universities in Oyo State, Nigeria. The findings revealed that inadequate staffing was classified as the major occupational stress affecting the library staff in the private universities in Oyo State, Nigeria.

On the adequacy of information resources, Ayaowei et al. (2024) examined the availability, accessibility, and use of information resources in the library by users who are students. It was concluded from the findings that the information resources available in the library were inadequate and not easily accessible. Owushi and Mundi (2021) assessed users' perception of currency, adequacy of library collections, and the functionality of technological equipment on the use of libraries attached to universities in South-South, Nigeria. The findings revealed that the library information resources are inadequate, and this affects the use of the information resources in the university libraries in South-South, Nigeria. Adegun et al. (2015) evaluated the effectiveness of library resources and services in Ladoke Akintola University of Technology, Ogbomosho, Oyo State, Nigeria. The population comprises 500 students from the 100-level to their final year level of the aforementioned university. The study concluded by noting that there were inadequacies that emanated from a shortfall in acquisitions, but the library resources provided were easily accessible and fairly adequate to meet the information needs of the users. From a similar perspective, Olatunji (2023) examined the adequacy of library collections and staff attitude as it relates to the provision of information services to federal polytechnic students in North Central, Nigeria. The findings indicate that the library personnel are inadequate and this negatively affects service provision in the polytechnic libraries in the North Central States of Nigeria.

Several scholars (Okunoye, 2022; Ibe & Iwhiwhu, 2025) have critically explored the adequacy of infrastructural facilities in libraries. Parbie et al. (2021) assessed users' views of library facilities using the University of Cape Coast as the case study. From the findings, the respondents agreed that the number of computers, comfortable tables, and chairs is adequate for effective user services in Sam Jonah Library, University of Cape Coast, Ghana. In contrast, Ibe and

Iwhiwhu (2025) examined the sufficiency of library infrastructural facilities for effective service delivery in state university libraries in South-South, Nigeria. The finding revealed that library buildings are largely inadequate, study spaces are inadequate, elevators and ramps are inadequate, ventilation and lighting are insufficient, among others. Similarly, Aryee and Tetteh (2024) evaluated library resources challenges, frustration, and user behaviour using an empirical survey strategy. The findings revealed that the users are largely dissatisfied with the adequacy of facilities in their library, causing frustration as they are denied access to and use of information. In agreement with the earlier study, Fagyan et al. (2023) assessed the impact of the frequency of library use on the satisfaction of students at Baguio Central University. The findings revealed that the students are highly satisfied with the adequacy of library facilities in the Baguio Central University. Nazim and Ali (2025) investigated accessibility to library services and facilities for persons with disabilities in India. The findings indicated that there were insufficient adaptive technologies in most of the libraries examined due to poor funding and financial availability. Also, the study by Okwu and Opurum (2021) examined inadequate library services as a challenge for 21st-century education from a developing nation context. The findings revealed that there is a lack of required infrastructural facilities plaguing most libraries in Nigeria, affecting educational development in Nigeria.

On the adequacy of financial resources in university libraries, Agbanu and Ezekwibe (2025) assessed funding practices in university libraries in Nigeria. The findings revealed that the libraries are facing funding shortages, which negatively affect service delivery. Mamman et al. (2019) examined funding of academic libraries in Plateau State, Nigeria. The findings revealed that the libraries had inadequate funding, which negatively affected the availability of information resources and services in the academic libraries in Plateau state. From a similar perspective, Ebiwolate (2022) assessed the present trends in funding of academic libraries in Nigeria. The finding indicates that despite the various sources of funding adopted, the libraries still suffer from inadequate financial resources to pursue their programmes and acquire a wide range of information resources to meet the information needs of members of their academic community. Also, Odili (2021) examined the funding practices of selected research libraries in South-South, Nigeria. The institutions included the Forest Research Institute of Nigeria and the National Horticultural Research Institute. The findings revealed that the libraries examined are facing poor funding, which affects their overall productivity and ability to meet their core mandate. In agreement with the earlier studies, Adeyemi (2015) evaluated the implementation of information commons in Nigerian academic libraries, with a critical look at the prospects and challenges. The findings revealed that inadequate funding was a barrier to the implementation of information commons in the libraries examined. In addition, George et al. (2025) assessed challenges affecting librarians in the discharge of quality services to patrons in South-west university libraries. The findings indicated that poor funding is a major challenge affecting the quality of discharge of services to users in the university libraries in South-West, Nigeria.

Methodology

This study adopted a mixed-methods research approach, integrating quantitative and qualitative methods to provide a comprehensive analysis of resource adequacy in specialised university libraries in Delta State, Nigeria. The study employed a descriptive survey design for the quantitative component and a qualitative inquiry for the interview aspect. The population of the study comprised 52 librarians across the three specialised university libraries in Delta State, Nigeria. These libraries include the Federal University of Petroleum Resources Library, Effurun; the Nigeria Maritime University Library, Okerenkoko; and the Admiralty University Library, Ibusa. For the quantitative aspect, the entire population of 52 librarians participated in the study through the administration of structured questionnaires, while qualitative data were obtained through in-depth interviews with 3 divisional heads, one from each library.

Ethical protocols were strictly followed, ensuring all participants provided informed consent with the right to withdraw at any time. Due to the small population size, total enumeration was used for the quantitative phase involving librarians, while convenience sampling was applied to select divisional heads for qualitative interviews. Data were collected using a structured questionnaire (covering staffing, collections, and facilities) and an interview guide (focusing on finance). The instruments underwent expert validation and a pilot study at the University of Nigeria, Nsukka, which yielded a Cronbach Alpha reliability coefficient of 0.89. Quantitative data were analyzed using descriptive statistics (frequency, mean, and percentages), while qualitative data were processed through narrative thematic analysis.

Findings

Questionnaire Response Rate

Table 1: Questionnaire Response Rate

Special University Library	Copies Distributed	Copies Returned	Percentage of Return
Federal University of Petroleum Resources Library, Effurun, Delta State	29	27	93.1%
Nigerian Maritime University Library, Okerenkoko, Delta State	9	9	100%
Admiralty University Library, Obusa, Delta State.	14	12	85.7%
Total	**52**	**48**	**92.3%**

From the table, Table 1 the Federal University of Petroleum Resources Library recorded a response rate of 93.1%, the Nigeria Maritime University Library recorded 100%, while the Admiralty University of Nigeria Library recorded 85.7%. The high response rate across the three libraries indicates a strong level of participation and enhances the credibility of the findings. The study yielded an overall response rate of 92.3%, which can be classified as high. The inference of this high response rate, particularly within a total enumeration framework, is that the findings carry a high degree of statistical power and are near-entirely representative of the target population. This minimizes non-response bias and confirms that the identified 'gross inadequacies' in staffing, facilities, and finance are an accurate reflection of the systemic challenges across these specialised libraries, rather than isolated perspectives.

Gender Distribution of the Respondents

Table 2: Gender Distribution of the Respondents

Gender Distribution	Frequency	Percentage
Male	25	52%
Female	23	48%
Total	**48**	**100%**

Table 2 revealed that 25(52%) of the respondents were male, while 23(48%) of the respondents were female. This indicates that more male respondents participated in the study than their female counterparts.

Main Findings

To answer **Research Question 1**, respondents were asked to indicate their level of agreement on statements relating to staff adequacy in the specialised university libraries examined.

Note: HA (4): Highly Adequate; A (3): Adequate; SA (2): Slightly Adequate; NA (1): Not Adequate

Table 3: The Adequacy of Staffing in Specialised University Libraries

Staff Adequacy Statements	HA	A	SA	NA	Mean	SD
There are adequate professional librarians to support specialised routines in my library.	3	4	24	17	1.85	0.82
There are enough para-professional staff to support daily library operations effectively.	7	4	24	13	2.10	0.96
Security personnel are adequate to safeguard library resources and maintain order.	5	3	17	23	1.79	0.96
The number of porters in my library is sufficient and strategically positioned in key areas.	8	7	12	21	2.04	1.12
The number of support staff is sufficient for shelving and material handling activities.	4	5	19	20	1.85	0.91
There is an adequate number of cleaners in my library, ensuring that the environment within and outside the library is tidy.	12	5	14	17	2.25	1.18
The number of administrative staff in my library is sufficient to undertake several routines.	6	7	18	17	2.04	1.00
There is a sufficient number of bindery officers in my library undertaking book repair routines.	3	6	16	23	1.77	0.90
The available staff strength is sufficient to meet users' information and service demands.	5	4	18	21	1.85	0.96
Staff workload is fairly distributed due to adequate personnel strength.	4	6	17	21	1.85	0.94

Note: Criterion Mean is 2.50; Aggregate Mean is 1.94

From Table 3, the aggregate mean of 1.94 is below the criterion mean of 2.50; it can be concluded that the staff in the specialised university libraries is grossly inadequate. This finding implies that staffing remains a major challenge affecting effective library service delivery in the specialised universities in Delta State, Nigeria.

To answer **Research Question 2**, respondents were asked to indicate their level of agreement on statements relating to library information resources adequacy in the specialised university libraries examined.

Note: HA (4): Highly Adequate; A (3): Adequate; SA (2): Slightly Adequate; NA (1): Not Adequate

Table 4: The Adequacy of Collections in Specialised University Libraries

Collection Adequacy Statements	HA	A	SA	NA	Mean	SD
There are adequate current textbooks relevant to users' academic programmes in my library.	10	14	15	9	2.52	1.03
My library has sufficient academic journals to support teaching and research activities.	15	13	9	11	2.67	1.15
Electronic information resources (e-books, e-journals, databases) are adequate in my library.	14	12	7	15	2.52	1.21
Reference materials such as encyclopedias, dictionaries, and handbooks are adequate.	9	16	14	9	2.52	1.01
My library has adequate serial publications (magazines, newspapers, and annual reports).	7	18	13	10	2.46	0.98
Research materials such as theses, dissertations, and project reports are adequate.	8	15	16	9	2.46	0.99
My library collection is regularly updated to meet changing information needs.	9	15	15	9	2.50	1.01
The available collection adequately supports specialised programmes in the university.	11	14	7	16	2.42	1.17
The collection covers emerging trends and recent developments in specialised disciplines.	9	17	15	7	2.58	0.96
The overall library collection is adequate to satisfy users' information needs.	8	13	18	9	2.42	0.99

Note: Criterion Mean is 2.50; Aggregate Mean is 2.51

From Table 4, the aggregate mean of 2.51 is slightly above the criterion mean of 2.50; it can be concluded that the collections in the specialised university libraries are moderately adequate. The finding suggests that although the libraries possess a fair level of collection adequacy, there is still a need for continuous improvement in the provision and updating of information resources to effectively meet the teaching, learning, and research needs of their academic communities.

To answer **Research Question 3**, the respondents were asked to indicate their level of agreement on statements relating to facility adequacy in the specialised university libraries examined.

Note: HA (4): Highly Adequate; A (3): Adequate; SA (2): Slightly Adequate; NA (1): Not Adequate

Table 5: The Adequacy of Facilities in Specialised University Libraries

Facility Adequacy Statements	HA	A	SA	NA	Mean	SD
There are adequate reading spaces to accommodate users comfortably in my library.	8	12	14	14	2.29	1.08
My library has sufficient shelves for organising information resources.	10	14	11	13	2.44	1.12
Computer systems available in my library are adequate to support users' information needs.	9	13	12	14	2.35	1.10
Internet bandwidth in my library is adequate and accessible for users' academic activities.	11	12	10	15	2.40	1.18
Power supply facilities in the library are adequate to support uninterrupted service delivery.	8	15	11	14	2.35	1.07
The library has adequate lighting facilities to support effective reading and study.	12	13	10	13	2.50	1.15
Ventilation and air-conditioning facilities in the library are adequate for user comfort.	11	12	14	11	2.48	1.08

My library has adequate security facilities such as CCTV, alarms, and access control systems.	7	16	12	13	2.35	1.03
Furniture such as chairs, tables, and carrels is adequate to support users' study activities.	10	11	14	13	2.38	1.11
The library has adequate ICT infrastructure for digital and electronic information service delivery.	11	13	11	13	2.46	1.12

From Table 5, the aggregate mean of 2.40 is below the criterion mean of 2.50, indicating that facilities in the specialised university libraries are inadequate. This suggests that the physical and technological infrastructure available in the libraries is insufficient to fully support effective information service delivery and users' academic needs.

To answer **Research Question 4**, the respondents were interviewed to ascertain the adequacy of financial resources supporting library operations.

See Appendix 2 for the Interview Guide. In line with anonymity compliance, codes were assigned to the participants; the first was assigned RP 1 (Research Participant 1), the next was assigned RP 2, while the last was assigned RP 3.

On the adequacy of financial resources for the acquisition of information materials, **RP 1** explained:

"*Funding for acquisition is grossly inadequate, as sometimes priority is given to only a few essential materials because the meagre budget cannot cover all the requests from the various departments.*"

Similarly, **RP** 2 noted that "*funding for acquisitions is very limited, we do more of a scale of preference, arranging our wants according to priority due to limited budgets available*". In addition, **RP 3** affirmed that "*due to the inadequate budget, it is difficult to maintain up-to-date collections, particularly with the rising cost of information resources*".

Regarding financial support for routine library operations, all participants all indicate that the financial resources are inadequate. For example, **RP** 1 noted that:

"*Routine operational activities such as facility maintenance, paper purchase, and staff development are hardly sustained due to poor funding*". From a similar viewpoint, **RP 2** remarked that "*we face operational difficulties due to limited finance, which negatively affect service delivery*". **RP 3** affirmed that "*operational costs are increasing, the funds released to the library are grossly inadequate to sustain library services and meet the information needs of users*".

On the implementation of the 10% budgetary allocation to libraries, the respondents unanimously agreed that this policy has not been implemented in their institutions. **RP 1** asserted that:

"*To the best of my knowledge, my library does not receive up to 5% of the institutional* budget; what we get currently is far below the recommended 10%." While **RP 2** affirmed that "*The 10% budgetary allocation is not yet implemented here, the library only gets funds during accreditation preparations, which is far below the benchmark*". Similarly, RP 3 noted that "*the issue of 10% allocation is mere rhetoric which is not yet implemented in my institution, as my library allocation is far below the set benchmark*".

In summary, the interview findings indicate that financial resources in the specialised university libraries are inadequate for both acquisition and operational requirements. The non-implementation of the 10% budgetary allocation further worsens the funding challenge there, affecting the libraries' ability to acquire and carry out daily operations for optimal service delivery.

Discussion of findings

The findings of this study were discussed in line with the research questions, existing empirical studies, and the Resource-Based View (RBV) theory, which anchored the study.

Staff Adequacy in Specialised University Libraries

The findings of the study revealed that staffing in specialised university libraries in Delta State is grossly inadequate, with an aggregate mean of 1.94, which falls below the criterion mean of 2.50. This indicates that the libraries lack sufficient professional librarians, para-professionals, security personnel, bindery officers, and other support staff required for effective service delivery. The implication is that staff shortage may lead to work overload, inefficiency, delays in service delivery, and poor user support. This finding agrees with the study of Ugwu and Chiedebere (2019), who found that inadequate staffing constituted a major challenge affecting effective administration in academic libraries. The finding is also consistent with Salunke and Hemade (2015), who reported that inadequate staffing in libraries resulted in stress, burnout, and reduced efficiency among library personnel. However, the finding contradicts Rhima and Nwachukwu (2024), who reported that professional, technical, and para-professional staff were adequate in federal university libraries in South-South Nigeria. The difference in findings may be attributed to institutional differences, the scope of study, and resource availability across universities. From the perspective of the Resource-Based View (RBV), human resources are critical strategic assets that determine organisational performance. The inadequacy of staff in the specialised university libraries examined suggests a weak human resource base, which undermines the libraries' ability to effectively support teaching, learning, and research.

Collection Adequacy in Specialised University Libraries

The findings showed that library collections in the specialised university libraries are moderately adequate, with an aggregate mean of 2.51, slightly above the criterion mean of 2.50. This suggests that the libraries have fairly adequate textbooks, journals, reference materials, and electronic resources to support academic activities. However, the closeness of the aggregate mean to the criterion mean indicates that there are still gaps in collection development and updating. This finding aligns with Adegun et al. (2015), who found that although there were inadequacies in library acquisitions, the available resources were fairly adequate to support users' information needs. The finding also supports the study of Olatunji (2023), who noted that collection adequacy significantly influences information service delivery in academic libraries. On the contrary, the finding disagrees with Ayaowei et al. (2024), who found that library information resources were inadequate and not easily accessible to users. From the RBV perspective, library collections represent core intellectual resources that contribute to institutional competitiveness. Moderate adequacy implies that the libraries possess valuable knowledge resources, but such resources require continuous investment to remain relevant and useful.

Facility Adequacy in Specialised University Libraries

The findings revealed that facilities in the specialised university libraries are inadequate, with an aggregate mean of 2.40, below the criterion mean of 2.50. This indicates that reading spaces, ICT infrastructure, power supply, internet facilities, furniture, and security systems are insufficient to support optimal library operations and user satisfaction. This finding agrees with Ibe and Iwhiwhu (2025), who found that infrastructural facilities in state university libraries in South-South Nigeria were largely inadequate. It also aligns with Okwu and Opurum (2021), who reported that inadequate infrastructural facilities remain a major challenge affecting effective library service delivery in Nigeria. However, the finding contradicts Parbie et al. (2021), who found that library facilities such as computers, chairs, and tables were adequate for effective service delivery in the University of Cape Coast Library, Ghana. These differences may be linked to institutional funding priorities and infrastructural investments. Under the RBV framework, facilities are physical resources essential for service delivery. Their inadequacy weakens the operational efficiency and service capacity of the libraries.

Financial Resource Adequacy in Specialised University Libraries

The interview findings revealed that financial resources in the specialised university libraries are grossly inadequate for acquisitions and operational activities. The participants consistently reported insufficient funding for collection development, staff training, facility maintenance, and daily library operations. The findings further showed that the 10% budgetary allocation to libraries has not been implemented in the institutions studied. This finding agrees with Agbanu and Ezekwibe (2025), who found that funding shortages negatively affect library service delivery in Nigerian universities. It also supports Mamman et al. (2019), who reported inadequate funding as a major factor affecting the availability of information resources in academic libraries. Similarly, Ebiwolate (2022) found that academic libraries in Nigeria continue to struggle with poor funding despite adopting multiple funding sources. In relation to the Resource-Based View theory, financial resources are the foundation upon which other resources depend. Without adequate funding, it becomes difficult to recruit staff, acquire resources, and maintain facilities. The financial inadequacy observed in this study, therefore, weakens the overall resource capacity of the specialised university libraries and limits their effectiveness in achieving institutional objectives.

Conclusion and Recommendations

The study examined the adequacy of resources in specialised university libraries in Delta State, Nigeria, with emphasis on staffing, collections, facilities, and financial resources. The findings revealed that staffing in the libraries is grossly inadequate, indicating serious shortages in professional, para-professional, and support staff needed for effective library operations. The study also found that library collections are only moderately adequate, suggesting that although essential information resources are available, there are still noticeable gaps in currency, depth, and coverage of specialised subject areas. Furthermore, the findings showed that library facilities are inadequate, particularly in the areas of reading spaces, ICT infrastructure, internet connectivity, and power supply, which are essential for effective information service delivery. The qualitative findings on financial resources equally revealed that funding remains inadequate for both acquisition and operational activities, while the recommended 10% budgetary allocation to libraries has not been implemented in the institutions studied.

Based on these findings, it can be concluded that specialised university libraries in Delta State are operating under significant resource constraints, which affect their capacity to effectively support teaching, learning, and research. Since library effectiveness depends on the availability and efficient management of human, information, physical, and financial resources, there is an urgent need for strategic interventions to strengthen these areas. Improving resource adequacy will enhance service delivery, user satisfaction, and the ability of specialised university libraries to fulfil their core mandate as academic knowledge centres.

Based on the findings of the study, the following recommendations are made:

1. University management should prioritise the recruitment of qualified professional librarians, para-professionals, and support staff to address the problem of staff inadequacy and reduce workload pressure on existing personnel.

2. Library management should strengthen collection development policies to ensure regular acquisition and updating of relevant textbooks, journals, databases, and specialised research materials to meet users' academic and research needs.
3. There should be deliberate investment in library facilities, especially ICT infrastructure, internet connectivity, reading spaces, power supply, and security systems, to improve the learning environment and service delivery.
4. University authorities should increase budgetary allocation to libraries and ensure the timely release of funds for both acquisitions and operational activities to enhance service efficiency.
5. The policy on the 10% budgetary allocation to university libraries should be fully implemented by institutional management to improve financial sustainability and support library development.

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APPRAISAL OF THE ADEQUACY OF STAFF MANAGING SCHOOL LIBRARIES IN NIGERIA

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Abstract

This study examined the place of libraries and librarians in primary and secondary education in Niger State, Nigeria where uneven access to learning support services affects educational outcomes. The study focused on staffing adequacy and extent of utilization of school libraries among pupils, students, and teachers in primary and secondary schools in Niger State, Nigeria. A descriptive survey design was used. Data were collected from 74 school librarians selected through stratified random sampling from a sample of 80, giving a response rate of 92.5%. A structured questionnaire with 40 items was used, and reliability was confirmed with a coefficient of 0.81. Data were analyzed using mean, standard deviation, t-test, and Pearson correlation at 0.05 level of significance. Findings show that school libraries are generally available (mean = 2.80), with strong physical access but very low access to digital resources (mean = 1.96). Utilization is moderate (mean = 2.70), with students using libraries mainly for independent reading and assignments, while organized activities and teacher integration remain low. Staffing is moderately adequate (mean = 2.65), though the number of staff is insufficient. Major challenges include inadequate funding (mean = 3.45), lack of relevant materials (mean = 3.27), and poor infrastructure (mean = 2.86). Student use is higher than teacher use, with teacher engagement in instructional support remaining low (mean = 2.41). Results show no significant difference between primary and secondary schools in resource availability ($p > 0.05$). A strong positive relationship exists between availability and utilization ($r = 0.72$, $p < 0.05$). The study recommends among others that government and school authorities should increase funding for school libraries, schools should provide up to-date print and digital resources aligned with the curriculum and qualified librarians should be employed in all primary and secondary schools in Niger state and indeed Nigeria.

Keywords: School libraries, Library utilization, Librarians, Niger State

Introduction

Education at the primary and secondary levels in Nigeria serves as the foundation for intellectual growth, social development, and future participation in national life, yet the structures that support effective learning remain uneven across many regions and school systems. School libraries exist to provide organized access to information resources that support teaching, independent reading, and skill development among learners, while librarians guide students and teachers in the effective use of these resources (Oyetola & Adio, 2020; Ilori et al., 2020). Oyetola and Adio (2020) explain that school libraries create an environment where learners engage with knowledge beyond classroom instruction, which strengthens comprehension and curiosity. This perspective aligns with long-standing expectations that every school should maintain a functional library space equipped with relevant materials and managed by trained personnel. However, current realities show a wide gap between policy expectations and actual practice, which raises important concerns about how well schools support learning through library services and how this gap affects educational outcomes.

School libraries contribute to reading development, academic performance, and independent learning by providing access to books, digital resources, and structured learning support, yet their presence and effectiveness differ widely across Nigerian schools. Ilori et al. (2020) note that library services support basic education through improved access to learning materials and guided information use, which helps students build stronger academic skills. This role extends beyond simple book provision to include the development of information literacy, study habits, and lifelong learning abilities among students. Many schools that maintain active libraries report better engagement with reading and improved academic performance among learners, which demonstrates the value of structured library services. Despite these benefits, the level of access to functional libraries remains inconsistent, which creates unequal learning opportunities across different schools and regions. This uneven distribution of library services leads directly to concerns about availability, utilization, and staffing, which form the basis for examining the present condition of school libraries.

Availability of school libraries remains one of the most visible challenges within the Nigerian education system, as many schools operate without dedicated library spaces or with facilities that do not meet basic standards for effective learning support (Esan, 2022). Jaja and Akanya (2024) show that the presence of functional libraries is closely linked to improved student achievement, yet a significant number of schools lack such facilities or maintain poorly equipped spaces that limit their usefulness. This situation creates a clear divide between schools that can support reading and research activities and those that cannot, which affects both teaching quality and student outcomes. Even where libraries exist, their distribution across primary and secondary schools raises questions about how widely these services are accessible and whether they meet the needs of both levels of education. These concerns lead to a deeper issue regarding how frequently and effectively available libraries are used, since access alone does not guarantee meaningful engagement with learning resources.

Utilization of school libraries remains low in many cases, even where facilities are present, due to limited awareness, poor management practices, and weak integration of library activities into classroom teaching. Azubogu and Madu (2025) observe that school libraries can improve reading culture when actively used, yet many students and teachers rarely engage with available resources because of limited guidance and structured programs. Regular use of library facilities depends on scheduled activities, teacher collaboration, and active support from school management, which are often lacking in many institutions. Without consistent use, library resources remain underutilized, and their potential impact on learning outcomes is reduced. This situation highlights the need to examine how often libraries are used, who uses them, and what factors influence patterns of use among students and teachers. These questions also draw attention to the availability of trained personnel, since effective utilization depends largely on the presence of qualified staff who can manage and promote library services.

Staffing represents another major concern, as many school libraries in Niger state, indeed Nigeria are managed by untrained personnel or teachers without formal background in library and information science, which limits the quality of services provided to users. Aramide (2022) explains that effective knowledge sharing within school libraries depends on the competencies of library personnel, including their ability to guide users and manage both print and digital resources. Shortage of qualified librarians reduces the effectiveness of library operations, weakens support for students, and limits collaboration between teachers and library staff. Adigun and Aramide (2025) further highlight that collaboration between librarians and teachers improves learning outcomes, yet such collaboration is often weak due to staffing limitations. These gaps raise important questions about how many staff are available in school libraries, what level of training they possess, and how their presence or absence affects the functioning of library services. These concerns relate directly to the objective of assessing the adequacy of staff managing school libraries in Niger State, Nigeria. The staffing challenge also connects directly to broader structural problems that hinder the effective operation and utilization of school libraries.

Several challenges continue to limit the effectiveness of school libraries in Nigeria, including inadequate funding, poor infrastructure, lack of relevant materials, and weak policy implementation, all of which combine to reduce the impact of library services on education. Enang and Okwu (2021) note that policy formulation and implementation play a major role in shaping library services, yet many policies remain poorly enforced, which affects the development and maintenance of school libraries. Akwang (2024) also points to the role of parent institutions in driving innovation, yet such efforts are often limited by financial and administrative constraints. These challenges affect the quality of facilities, availability of resources, and level of professional support within school libraries, which in turn influence how effectively they serve students and teachers. Understanding these constraints is necessary to identify the specific barriers that hinder library use and to determine how they affect different aspects of school library operations across primary and secondary education levels.

Statement of the Problem

School libraries are expected to support teaching, learning, reading development, and access to information resources in primary and secondary schools. Educational policies in Nigeria recognize the importance of libraries and qualified librarians in achieving quality education. Despite these expectations, many schools across the country, including those in Niger State, operate without functional libraries, adequate learning resources, or trained librarians. Some schools have library spaces, but the available materials are often outdated, insufficient, or poorly organized for effective use. As a result, many pupils, students, and teachers have limited access to the information resources needed to support teaching and learning activities.

The situation in Niger State reflects these concerns. Many school libraries receive inadequate funding, lack sufficient facilities, and are managed by personnel without professional training in library and information science. Library services are also not fully integrated into classroom activities, which reduces their use by teachers and learners. Limited evaluation of library services further makes it difficult to determine how well libraries and librarians contribute to educational goals. These conditions raise concerns about the quality of learning support available in schools. Therefore, there is a need to examine the place of libraries and librarians in primary and secondary education in Niger State, Nigeria.

Objectives of the Study

The main objective of this study is to examine the place of libraries and librarians in primary and secondary education in Niger State, Nigeria.

The specific objectives are to:

1. assess the adequacy of staff managing school libraries in Niger state, Nigeria.
2. determine the extent to which libraries are utilized in these schools by pupils, students and teachers in Niger state, Nigeria.
3.

Research Questions

The following questions guide the study;

1. How adequate is the staffing of school libraries in primary and secondary schools?
2. What is the level of utilization of school libraries by pupils, students, and teachers?

Research Hypotheses

One hypothesis was formulated to test key relationships between school library variables and their influence on utilization and effectiveness within primary and secondary schools.

H_{01}: There is no significant relationship between the availability of school libraries and the utilization of library services in primary and secondary schools in Niger State, Nigeria.

Literature Review

School libraries support teaching, reading development, independent learning, and access to information resources in primary and secondary schools. Their effectiveness depends on the availability of learning materials, qualified librarians, institutional support, and the level of use among pupils, students, and teachers. Oyetola and Adio (2020) explain that school libraries provide organized access to information resources that extend learning beyond classroom teaching, while Ilori et al. (2020) state that library services improve basic education through guided access to learning materials and information resources. These studies show that school libraries contribute to learning when functional facilities and support services are available. This makes availability of school libraries an important factor in determining how effectively libraries support education in schools.

Availability of school libraries remains a major issue in many Nigerian schools because several schools lack functional library spaces, current learning materials, and digital resources needed for effective learning support. Jaja and Akanya (2024) explain that availability and utilization of school libraries are associated with better academic achievement among learners, which shows that access to library facilities influences learning outcomes. Functional libraries provide pupils and students with opportunities for reading, assignments, and independent study. However, differences in access across schools create unequal opportunities for learners and teachers. Availability alone does not guarantee effective use because some libraries exist without adequate materials or proper support services. This situation creates the need to examine not only whether libraries are available, but also the extent to which they are utilized by different groups within the school system.

Utilization of school libraries refers to the extent to which pupils, students, and teachers use available library facilities and resources for learning activities. Empirical studies show that regular use of school libraries improves reading habits, academic engagement, and independent learning among students. Azubogu and Madu (2025) report that active use of school libraries improves reading culture among secondary school students, while Jaja and Akanya (2024) show that effective utilization of libraries contributes to better academic performance. These findings indicate that utilization is directly influenced by the availability of functional facilities and relevant resources. Frequent library use encourages reading, assignments, and research activities among learners. However, utilization remains low in many schools because teachers rarely integrate library activities into classroom instruction and many schools lack structured reading programmes. This variation in utilization levels makes it necessary to examine how library services are used by pupils, students, and teachers in primary and secondary schools.

Effective utilization of school libraries also depends on the adequacy and competence of library staff who manage resources and guide users within the library environment. Aramide (2022) explains that knowledge sharing in school libraries depends on the competence of library personnel, especially in managing print and digital resources. Adigun and Aramide (2025) further show that collaboration between librarians and teachers improves learning outcomes and encourages greater use of library services. These studies indicate that librarians influence how users access and utilize information resources within schools. Qualified librarians help pupils and students locate materials, develop reading habits, and improve information use skills. Lack of trained personnel often weakens library services and reduces effective utilization of available resources. Staffing therefore serves as an important factor that connects availability of resources with actual library use among users in schools.

Institutional support through funding, policy implementation, and administrative commitment also affects the availability and utilization of school libraries in Nigeria. Enang and Okwu (2021) note that weak policy implementation limits the growth and sustainability of school library services, while Akwang (2024) explains that institutional support can improve library management and innovation. Bamigbola (2021) adds that school libraries are expected to support learning in a digital age, which requires technological resources and proper administrative support. Abubakar (2021)

also explains that changing educational demands require stronger integration of information services into school systems. These studies show that poor funding, weak infrastructure, and limited administrative support reduce the effectiveness of school libraries. Weak institutional support affects acquisition of materials, staffing, maintenance of facilities, and provision of digital resources. These conditions directly reduce the level of utilization among pupils, students, and teachers.

Several challenges continue to affect the effectiveness and utilization of school libraries in primary and secondary schools across Nigeria. Esan (2022) identifies inadequate funding, weak support systems, and insufficient investment as major barriers affecting school library development. Poor infrastructure, lack of current learning materials, shortage of trained librarians, and low awareness among users also reduce the quality of library services. These problems affect both availability and utilization because schools with poor facilities and limited resources often record lower levels of library use. Limited staffing reduces guidance for users, while lack of relevant materials discourages pupils, students, and teachers from using library resources regularly. These challenges interact with one another and weaken the contribution of school libraries to teaching and learning within schools.

Existing studies provide useful information on school libraries in Nigeria, but important gaps remain. Many studies focus separately on availability, reading culture, staffing, or academic performance without examining how these variables relate to one another within the same study. Limited attention has also been given to how availability, staffing, and institutional challenges influence utilization of school libraries among pupils, students, and teachers within primary and secondary schools in Niger State. This study addresses these gaps by examining availability of school libraries, adequacy of staffing, extent of utilization, and challenges affecting effective library use in primary and secondary schools in Niger State, Nigeria. The study also examines the relationship between availability and utilization of school libraries, which provides a clearer understanding of how these variables interact within the education system.

Methodology

The study adopted a descriptive survey design because it supports systematic collection of data on the availability, utilization, staffing, and challenges affecting school libraries in primary and secondary schools in Niger State, Nigeria. The population of the study comprised all school librarians in public primary and secondary schools in Niger State. The total population for the study was 120 school librarians, consisting of 55 librarians from public primary schools and 65 librarians from public secondary schools in the state. These categories formed the secondary population of the study. A sample size of 80 school librarians was selected using stratified random sampling technique to ensure proper representation from both primary and secondary schools. The sample size represented about 66.7% of the total population, which was considered adequate for the study because it provided broad coverage of respondents across the two school categories and reduced sampling bias. Out of the 80 questionnaires distributed, 74 copies were properly completed and returned, representing a response rate of 92.5%. Data were collected using a structured questionnaire developed based on the objectives of the study. The instrument contained forty (40) items divided into sections covering availability of school libraries, utilization of library services, adequacy of staffing, and challenges affecting library operations. A four-point Likert scale was used for the study. Availability and adequacy items were rated as Very Adequate (4), Adequate (3), Slightly Adequate (2), and Not Adequate (1). Utilization items were rated as Very High Extent (4), High Extent (3), Low Extent (2), and Very Low Extent (1). Challenge and strategy items were rated as Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). The instrument was subjected to content validation through expert review by specialists in Library and Information Science and Educational Research. Reliability of the instrument was established using Cronbach's Alpha, which yielded a coefficient of 0.81, indicating strong internal consistency. Data collection was carried out through direct administration of the questionnaire with assistance from trained research assistants. Completed copies were retrieved within the scheduled period to ensure a high response rate. Data were analyzed using descriptive statistics such as mean and standard deviation to answer the research questions. Independent samples t-test and Pearson Product Moment Correlation were used to test the hypotheses at 0.05 level of significance.

Results and Discussion

Section A: Adequacy of Staffing of School Libraries

Table 4.1: Adequacy of Staffing

S/N	Adequacy of Staffing	VA (4) f(%)	A (3) f(%)	I (2) f(%)	VI (1) f(%)	Mean	SD	Rank
6	The number of library staff in the school is sufficient.	12 (16.2%)	20 (27.0%)	30 (40.5%)	12 (16.2%)	2.43	0.94	5th
7	Library staff possess professional qualifications in library and information science.	18 (24.3%)	25 (33.8%)	20 (27.0%)	11 (14.9%)	2.68	1.01	3rd

8	Library staff provide guidance to pupils/students in using resources.	20 (27.0%)	30 (40.5%)	16 (21.6%)	8 (10.8%)	2.84	0.94	1st
9	There is effective collaboration between teachers and library staff.	15 (20.3%)	22 (29.7%)	25 (33.8%)	12 (16.2%)	2.54	0.98	4th
10	Library staff are available during school hours to assist users.	19 (25.7%)	28 (37.8%)	18 (24.3%)	9 (12.2%)	2.77	0.97	2nd
	Weighted Mean					**2.65**		

The results in Table 4.2 show that staffing of school libraries is moderately adequate, with a Weighted Mean of 2.65. Provision of user guidance ranked highest ($\bar{x}$ = 2.84), indicating that available staff are actively supporting users. Staff availability during school hours also recorded a relatively high mean ($\bar{x}$ = 2.77). However, the number of staff was rated inadequate ($\bar{x}$ = 2.43), suggesting a shortage of personnel. The standard deviation values (0.94–1.01) indicate some variation in responses across schools. These findings are consistent with Aramide K. A. (2022), who emphasized that effective knowledge sharing in school libraries depends on staff competence and availability. The observed staffing limitations also support the position of Adigun I. O. and Aramide (2025), who found that collaboration between teachers and librarians is often constrained by inadequate staffing. This suggests that while existing staff are functional, their number is insufficient to meet demand.

Section B: Extent of Utilization of School Libraries by Pupils, Students and Teachers

Table 4.2: Extent of Utilization of School Libraries

S/N	Extent of utilization of school libraries	VHE (4) f(%)	HE (3) f(%)	LE (2) f(%)	VLE (1) f(%)	Mean	SD	Rank
11	Pupils/students visit the library regularly for academic purposes.	20 (27.0%)	32 (43.2%)	15 (20.3%)	7 (9.5%)	2.88	0.91	3rd
12	Teachers integrate library use into classroom instruction.	10 (13.5%)	25 (33.8%)	28 (37.8%)	11 (14.9%)	2.46	0.90	4th
13	The library is used for independent reading by pupils/students.	25 (33.8%)	30 (40.5%)	14 (18.9%)	5 (6.8%)	3.01	0.89	1st
14	Library resources are used for assignments and research activities.	22 (29.7%)	28 (37.8%)	18 (24.3%)	6 (8.1%)	2.89	0.91	2nd
15	Organized library activities (e.g., reading programs) are conducted regularly.	8 (10.8%)	20 (27.0%)	30 (40.5%)	16 (21.6%)	2.27	0.92	5th
	Weighted Mean					**2.70**		

Table 4.3 indicates that the overall utilization of school libraries is moderate, with a Weighted Mean of 2.70. Independent reading ranked highest ($\bar{x}$ = 3.01), showing that students primarily use libraries for personal academic engagement. Use of library resources for assignments also recorded a relatively high mean ($\bar{x}$ = 2.89), indicating functional academic relevance. However, organized library activities ranked lowest ($\bar{x}$ = 2.27), suggesting weak institutional programming. The standard deviation values (0.89–0.92) indicate a relatively consistent pattern across respondents. This pattern supports the findings of Azubogu N. and Madu (2025), who observed that school libraries improve reading culture mainly through individual engagement rather than structured programs. The low level of teacher integration also reflects the concerns raised by Bamigbola A. (2021), who noted that effective library use depends on active integration into teaching. This indicates that utilization exists but lacks institutional coordination.

Research Hypothesis

One hypothesis was formulated to examine the relationship between staffing and utilization of school libraries in primary and secondary schools in Niger State, Nigeria.

H_{01}: There is no significant relationship between adequacy of staffing and utilization of school libraries by pupils, students, and teachers in Niger State, Nigeria.

Hypothesis Testing

H_{01}: There is no significant relationship between adequacy of staffing and utilization of school libraries by pupils, students, and teachers in Niger State, Nigeria.

Table 4.3: Pearson Correlation Analysis of Staffing and Utilization

Variables	Mean	SD	N	r	Sig. (2-tailed)	Decision
Staffing Adequacy	2.80	0.89	74	0.72	0.000	Reject
Utilization	2.70	0.90	74			

Significant at $p < 0.05$

Table 4.6 shows a correlation coefficient ($r = 0.72$), indicating a strong positive relationship between adequacy of staffing and utilization of school libraries. The p-value of 0.000 is less than the 0.05 level of significance, leading to the rejection of the null hypothesis. This means that schools with more adequate library staff are more likely to record higher levels of library utilization among pupils, students, and teachers. The close standard deviation values (0.89 and 0.90) indicate consistency in the response pattern among respondents. The finding suggests that staffing plays an important role in determining how effectively school libraries are utilized. Availability of qualified personnel helps users gain guidance in locating and using library materials for reading, assignments, and learning activities. This finding supports Esan A. O. (2022), who explained that competent library personnel improve knowledge sharing and management of library resources. It also agrees with Enang U. and Okwu (2021), who reported that collaboration between librarians and teachers improves use of library services and learning outcomes in schools. The implication of this finding is that improvement in staffing levels and professional support within school libraries can increase effective utilization of library services among pupils, students, and teachers in primary and secondary schools in Niger State, Nigeria.

Conclusion

The study examined staffing adequacy and utilization of school libraries in primary and secondary schools in Niger State. Evidence shows that staffing in many school libraries is moderately adequate, with staff providing guidance and support to pupils, students, and teachers during library use. However, many schools still lack enough trained personnel to support effective library operations and learning activities. Collaboration between teachers and library staff remains limited, which reduces effective use of library services and weakens integration of libraries into teaching and learning activities. Utilization of school libraries is moderate. Students use libraries mainly for independent reading and assignments, while teacher participation in library-based instructional activities remains low. Structured library activities and guided use are weak in many schools. This situation shows that libraries function more as passive reading spaces than active learning centres. Differences also exist among users, as students make greater use of library facilities and services than teachers. Low teacher engagement reduces the educational value and effectiveness of school library services within the school system. Hypothesis testing shows a strong positive relationship between adequacy of staffing and utilization of school libraries. Improved staffing levels and presence of trained personnel contribute directly to higher utilization of library services among pupils, students, and teachers. The evidence therefore shows that school library utilization is influenced greatly by adequacy of staffing, professional guidance, and integration of library services into teaching and learning activities.

Recommendations

5. Government and school authorities should employ more qualified librarians in primary and secondary schools in Niger State to improve staffing adequacy and strengthen library service delivery.
6. Regular training programmes should be organised for library staff to improve their professional skills in information management, user support, and library administration.
7. Teachers and librarians should work more closely in planning reading activities, assignments, and instructional programmes that encourage effective use of school libraries.
8. Schools should introduce structured library activities such as reading clubs, library periods, and guided research sessions to improve utilization of library services among pupils and students.
9. School management should create awareness programmes that encourage teachers to integrate library resources into classroom teaching and learning activities.
10. Adequate supervision and monitoring should be introduced to ensure that available library staff perform their responsibilities effectively and provide continuous support to users.
11. Educational authorities should strengthen policies that support effective staffing and utilization of school libraries in primary and secondary schools across Niger State.
12.

Contribution to Knowledge

This study examines staffing adequacy and utilization of school libraries within a single framework, whereas many earlier studies focused on these variables separately. It presents empirical evidence that availability and utilization are strongly linked, with a high correlation value. This study provides statistical evidence that adequacy of staffing influences utilization of school libraries among pupils, students, and teachers in Niger State, Nigeria. This supports a

unified approach to policy and intervention. It identifies a clear gap between student use and teacher use. This highlights the need to focus on teacher engagement as a key factor in improving library effectiveness. It adds state-level evidence from Niger State, where limited data existed. This supports planning and decision-making at sub-national level. It also shows that physical access alone is not sufficient. Digital resources, staffing, and structured programmes are necessary for effective library services. These contributions provide a clearer understanding of how school libraries function and where targeted improvements are required for better educational outcomes.

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Assessing Medical Libraries Digital Skills Training in Identifying Health Misinformation among Clinical Medical Students at University of Lagos, Nigeria

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ABSTRACT

Misinformation in the health profession is a threat to medical education and public health at large, which necessitates the preparation of future health care professionals. Medical students require competencies in information literacy, critical appraisal and digital health discernment. Medical students are techno-savvy and hence the need to acquire skills for the appropriate judgement in discerning the right information. Literature provided the gap that medical students are prone to misinformation regarding health- related information. However, the need to assess the digital health skills training in identifying health misinformation becomes necessary due to the exposure of students to constant trainings in the library. The survey research method was adopted for the study; the study was carried out among one hundred and fifty- two (152) clinical medical students in 500 levels department of community medicine and primary health care college of medicine university of Lagos that recently went through the digital literacy training in the medical library. Data were collected using a structured questionnaire distributed to the students using a google form. A reliability test was conducted on 200 level students. Results were analysed using Cronbach Alpha reliability test and consistency of 0.907 was obtained indicating a high reliable instrument. Findings revealed the relationship between digital literacy skills and proficiency in identifying and appraising health related misinformation. The Pearson correlation Coefficient (r=0.446) indicated a strong positive correlation between digital literacy skills and identification of health misinformation. The study therefore concluded that a high level of digital literacy is required to combat misinformation and trainings are indispensable factor to identify health misinformation. The study recommended that the medical library with the collaboration of the medical college should intensify and be continuously proactive in digital skills training for all medical students.

Keywords: Digital skills, Digital Literacy, Health misinformation, medical library, Clinical medical students

Introduction

Medical education is the systematic training of students in human and health related sciences, aimed at developing competent healthcare professionals who prioritize the sanctity of life and deliver high-quality patient care. Clinical medical students, as aspiring health professionals, require strong critical thinking and information management skills to make sound clinical decisions and appropriately apply knowledge in real-world situations. In today's digital era, the rapid proliferation of information through the internet, social media, blogs and podcasts has created significant challenges in identifying credible and accurate health information. Many students bypass authentic information channels and rely on unverified online sources. Most clinical medical students enter university with limited or no prior knowledge of reliable information resources (Kumar & Edwards, 2013). As a result, they often struggle to locate relevant information and apply it effectively.

The spread of health misinformation has become a serious global concern. Health misinformation refers to false or misleading health-related claims that lack scientific evidence, which can trigger public panic, erode trust in healthcare systems, and negatively impact health outcomes (Peng & Shen, 2025; Pierri et al., 2022). This problem is amplified by the speed and reach of social media and digital platforms (Imanuel et al., 2025) .To effectively combat this threat, clinical medical students must be equipped with high levels of health information literacy and digital literacy. These competencies enable them to critically evaluate information, verify sources, and correct misinformation, thereby promoting information integrity (He et al., 2023). Sound clinical practice demands both clinical competence and strong information literacy skills (Barr, 2023).

Medical libraries and librarians play a pivotal role in this process by guiding students in the effective use of scholarly databases and evidence-based resources for literature reviews and clinical decision-making. However, this can only be successful if medical librarians themselves possess advanced digital literacy and health information skills. Unskilled or inadequately trained librarians may hinder the development of these critical competencies among students.

Strengthening digital health literacy among clinical medical students supported by highly competent medical librarians is essential for developing future healthcare professionals who can navigate the complexities of the information age, make informed decisions, and protect public health from the dangers of misinformation.

Statement of the Problem

Digital literacy and health misinformation among clinical medical students in Nigeria represent a significant challenge requiring urgent attention. Leena et al. (2020) noted that infodemics thrive due to low health literacy. Despite being techno-savvy, many students struggle evaluate the authenticity and reliability of online information, often leading to poor clinical decisions. Health misinformation significantly affects clinical judgement and public trust, as seen during Ebola and COVID-19 outbreaks (Fernández-Pichel et al., 2022; Sandu et al., 2024; Shuaibu et al., 2024). As future professionals, medical students must use evidence-based practice to guide patients (Moretti et al., 2022). However, evidence-based medicine is inadequately taught in Nigerian institutions (Magaji et al., 2024), creating an educational gap that increases students' susceptibility to misinformation. Medical librarians play a key role in building digital literacy and critical thinking skills to combat this gap (Imanuel et al., 2025). Against this backdrop, the present study seeks to assess the effectiveness of digital skills training provided by medical libraries in enabling clinical medical students to identify and combat health misinformation.

Objective of the Study

The study is guided by the following specific objectives

1. To evaluate the level of awareness and self-perception regarding digital literacy competencies among clinical medical students at University of Lagos, Nigeria?
2. To examine strategies employed by clinical medical students to identify and appraise health-related misinformation?
3. To determine efficacy of library-based digital literacy interventions in enhancing the digital competencies of clinical medical students at University of Lagos, Nigeria?

Research Questions

1. What is the current level of awareness and self-perception regarding digital literacy competencies among clinical medical students within the college of medicine university of Lagos?
2. What are the strategies used by clinical medical students to differentiate between evidence-based medical data and health-related misinformation?
3. To what extent does participation in medical library-based digital literacy training enhances the identification of health misinformation?

Research Hypotheses

H_{01}: There is no statistically significant correlation between the level of digital literacy skills and proficiency of clinical medical students in identifying and appraising health related misinformation.

Scope of the Study

The study was limited to 500-level clinical medical students in the Department of Community Medicine and Primary Health Care, College of Medicine, University of Lagos. These students, who had undergone the digital skills training programme at year two of their study and same training at year five constituted the primary respondents for the study. The key variables assessed were digital skills training and health misinformation among the clinical medical students.

Review of Related Literature

Misinformation /Health Misinformation

Misinformation refers to false, inaccurate, or misleading that is disseminated, particularly through the internet, with the potential to cause harm (Bianchini et al., 2019; Wardie & Dias, 2017). In contrast, (Adesanya & Ilori, 2025) describes misinformation as the unintentional spread of false information without malicious intent. Regardless of intent, such information can rapidly reach a wide audience, often generating public tension and confusion. In the health sector, misinformation has emerged as a critical and urgent threat that requires immediate attention.

(Sule et al., 2023) reports that a significant number of physicians in the USA have actively produced and disseminated false medical information on social media. The risk of misinformation has increased significantly due to widespread access to the internet, mobile devices, and numerous digital platforms (Farooq et al., 2020). Individuals who depend primarily om media sources for information are vulnerable to being mislead by false or inaccurate content (Hameleers

et al., 2022). For aspiring healthcare professionals, the ability to navigate complex information environment is essential. Undergraduate medical students require a high level of digital health literacy to effectively identify, evaluate, and counteract health misinformation (Moretti et al., 2022). Healthcare providers, bear a professional responsibility to deliver accurate knowledge to patients and public while actively suppressing misinformation at every point of contact (Epstein, 2022).

Digital Health Literacy

Digital health literacy refers to the ability of medical students to effectively search, access, retrieve, evaluate, and appropriately apply health information from digital technologies and sources. It encompasses the skills required to identify, understand, and utilize health-related information obtained through electronic platforms (Hao et al., 2025). The World Health Organization (WHO) conceptualises digital health literacy as set of competencies that leverage web-based technologies, telemedicine, tele-rehabilitation, virtual assistance, and smart devices for disseminating relevant information.

Health Literacy (HL) is defined as the degree to which individuals possess the capacity to obtain, process, and understand basic health information and services necessary to make appropriate health decision (Ratzan S & Parker R, 2000). According to (Dunn & Conard, 2018), this capacity rests on three fundamental pillars: (1) the ability to obtain health information, (2) the ability to comprehend the acquired information, and (3) the ability to apply it effectively in decision-making. These pillars play a critical role in enabling individuals to identify and mitigate misinformation, thereby reducing the risk of erroneous health-related decisions. To facilitate the critical evaluation of online health information, the CRAAP checklist (Currency, Relevance, Authority, Accuracy and Purpose) provides a structured framework for assessing the quality and reliability of digital resources (Bin & Kamel, 2021). Such evaluative tools are particularly valuable in an era characterised by the rapid proliferation of unverified health content

The development of health literacy competencies is essential for preparing individuals to respond effectively in health sensitive situations (Paakkari & Okan, 2020). Deficiencies in digital health literacy can compromise health outcomes by amplifying the spread and acceptance of misinformation from unreliable sources. Beyond basic technological proficiency, digital literacy involves the high-level skills of locating, evaluating, organising, and applying information (Imjai et al., 2024). Digital competencies, therefore extend beyond usage of tools to encompass critical appraisal and ethical application of digital health resources. Despite the growing integration of digital technologies into healthcare globally, evidence suggests that digital health literacy is not yet formally incorporated into medical curricula in Nigeria, unlike in several other countries. This gap is significant, as equipping medical students with robust digital health literacy skills is crucial for enhancing learning, clinical training, and research capabilities in a technology-driven health sector. The ability to verify sources and disregard unsubstantiated claims is indispensable in an environment saturated with unauthenticated health information. Embedding digital health literacy into medical education in Nigeria would better prepare clinical medical students for the digital transformation of healthcare and promote evidence-based practice and safeguard professional development against the challenges posed by health misinformation.

Level of Awareness and Self perception

Empirical evidence underscores the critical gaps in information and digital health literacy within the Nigerian healthcare and educational context. A study conducted among paediatricians in South-East Nigeria by (Ibenne, 2024) revealed significant deficiencies in information literacy skills, attributed to inadequate knowledge of relevant information sources, poor utilisation practices, and the fragmented nature of information literacy training during medical education. These shortcomings reflect broader systemic weaknesses in preparing clinicians for evidence-based information management.

Comparable findings from international contexts further highlight the value of targeted interventions. (Moretti et al., 2022) demonstrated that exposure to a specialised web-based tool significantly enhanced Italian medical students' ability to counter misinformation and fake news, resulting in moderate improvements in digital health skills and a deeper understanding of web source evaluation. Similarly, (Zhang et al., 2024) found that primary school pupils who lacked digital media literacy struggled considerably with online learning and the effective use of digital resources for academic purposes, emphasising the foundational importance of these competencies across educational levels.

Within Nigeria, (Kuyinu et al., 2020) reported generally inadequate health literacy levels among residents in Lagos State, with gender disparities showing higher adequate health literacy among females compared to males. Interestingly, (Soyemi & Inazu, 2022) found that information literacy skills did not significantly predict or reduce the sharing of misinformation on social media among Nigerian undergraduate students, suggesting that possession of basic information literacy alone may be insufficient to mitigate the spread of false health information without additional critical evaluation and digital health-specific training. Furthermore, (Hao et al., 2025) examined digital health literacy (DHL) levels and associated influencing factors among 1,065 medical students in Sichuan, China, during the COVID-19 pandemic. The

study revealed that digital health literacy remains low among the students and recommended the implementation of targeted teaching strategies focused on locating and evaluating digital health information to improve their competencies. In the current technological landscape, digital health literacy and information literacy skills are indispensable for identifying, evaluating, and distinguishing credible health information from misleading or false content online. The absence of these competencies not only undermines the professional expertise of healthcare practitioners but also contributes to the proliferation of misinformation, resulting in confusion, suboptimal clinical decisions, and compromised patient

Misinformation Impact on Clinical Medical Students

Health literacy has gained an increasing global attention since year 2000, when the World Health Organization (WHO) highlighted low levels of public health literacy as a serious public health concern. The organisation emphasised the urgent need to strengthen health literacy to curb the spread of misinformation and improve health outcomes (Selden et al., 2000).

In Nigeria, misinformation poses a significant challenge to medical students, profoundly affecting their clinical judgement and professional development. Health misinformation, broadly defined as false or misleading content that is inadvertently or deliberately disseminated, has far-reaching consequences. Studies have shown that during the Ebola and COVID-19 outbreaks, widespread health misinformation contributed to unsafe health practices, eroded public trust in the healthcare system, and led to vaccine hesitancy. Many citizens refused vaccination until sustained sensitisation campaigns were implemented (Shuaibu et al., 2024).

The absence of adequate digital health literacy among medical and clinical students in Nigeria has serious implications. It impedes their ability to make informed clinical decisions, retrieve credible evidence-based information, and effectively engage in learning and research activities. Compounding this issue is the fact that Evidence-Based Medicine (EBM) is currently not systematically taught in most Nigerian medical schools. This educational gap, resulting from the exclusion of digital health literacy from the medical curriculum, leaves students ill-equipped to critically differentiate credible scientific sources from unreliable ones, thereby increasing their vulnerability to misinformation (Magaji et al., 2024). Building on the preceding point, (Tandar et al., 2024) advocates integrating practical training into medical school curricula in the USA to better prepare students to recognize and counter medical misinformation. Adapting this approach by integrating practical training on misinformation into Nigerian medical school curricula would not only help curb the spread of false medical information but also provide students with a better understanding of how to identify and counter it.

Spotting Misinformation

Medical trainees require robust competencies in identifying and countering health misinformation within the digital environment. Several established strategies exist for detecting and verifying potentially misleading information. These include evaluating the credibility of sources by prioritising information from reputable institutions and peer-reviewed journals with high impact factors. Sources lacking clear authorship, institutional affiliation, or established quality standards must be subjected to rigorous scrutiny. Evaluating the credibility of research and scholarly information, as outlined in (Mahmood & Jan, 2018) checklist, include the rigor of peer review, the strength of evidence-based evaluation, the credibility of the authors, the reputation of the publisher, and the journal's impact factor. Additional verification techniques involve cross-referencing information across multiple reliable sources, assessing the currency and frequency of updates, and utilising professional fact-checking platforms.

Academic librarians play a pivotal role in developing these competencies among medical students. They provide structured training in digital information retrieval skills, including effective searching of major biomedical databases such as PubMed and the Cochrane Library, as well as university-subscribed electronic journals and e-books. This training encompasses both basic and advanced search techniques, with particular emphasis on the strategic use of Medical Subject Headings (MeSH) to construct precise and comprehensive literature searches. (Prabowo & Manabat, 2021) asserts that librarians facilitate students' information literacy development through various educational initiatives, including seminars, workshops, interactive games, and dedicated information literacy programs.

Furthermore, librarians foster a critical evaluation approach, guiding students in the systematic appraisal of information quality, potential biases, and overall source credibility. Beyond technical skills, instruction should also encompass the ethical and legal dimensions of information use, including principles of open science and data science practices, to promote responsible and transparent engagement with digital health information.

Role of Medical Librarians to Curb Misinformation

Medical librarians play a critical role in combating misinformation through health information literacy, particularly as clinical medical students remain highly vulnerable to false or misleading information. Medical librarianship is fundamentally grounded in the promotion of credible, evidence-based health information by curating and facilitating access to reliable sources, primarily through the development of information literacy and critical appraisal skills. The

core mandate of medical libraries is to educate patrons about misinformation, disinformation, and fake news by directing them toward trustworthy, science-based resources (Becker, 2025). They are also responsible for delivering literacy training on accessing both print and electronic medical resources, as well as equipping users with the skills to distinguish credible from non-credible web-based sources. Medical libraries can enhance digital skills through pedagogical strategies involving trainings, workshops, database navigation and leveraging on AI tools and reference managers. Medical libraries further contribute by strengthening students' digital skills through structured pedagogical approaches, including targeted trainings, workshops, database navigation sessions, and the effective use of AI tools and reference management software. A key element of these digital competencies is information literacy, which encompasses the ability to locate, evaluate, and utilise information effectively (Ikonne et al., 2023).

To maximise impact, the coordination of digital literacy sessions should be made mandatory by medical faculties. Evidence shows that students who receive such training demonstrate improved ability to search for and retrieve relevant resources when addressing clinical questions, with better retention and sustained use of these resources over time (Maranda et al., 2016). Medical libraries also play an essential role in raising awareness among students about the potential vulnerabilities of AI-generated medical information, particularly the risks associated with hallucinations. In this capacity, librarians function as trusted intermediaries between information integrity and misinformation.

(Adewojo et al., 2025) emphasises that librarians adopt a multifaceted strategy to combat misinformation, combining information literacy initiatives with community engagement. Their position as reliable intermediaries grant them privileged access to reputable research, peer-reviewed journals, and authoritative databases. (Mullins & Boyd-Byrness, 2024) proposed a misinformation response model that librarians can adapt locally; it involves understanding the nature of misinformation, correcting it through evidence-based information, and providing sound judgement on the credibility of online sources. For medical librarians to achieve meaningful impact, healthcare professionals involved in training medical students must foster strong, high-quality collaboration with medical libraries. Furthermore, (Borji et al., 2024) outlined four primary roles that health librarians should play: educational, evaluative, information counselling, and research. Among these, the educational role emerged as the most prominent. In addition, a library toolkit developed in (San Diego Circuit, 2023) offers robust resources, including informative factsheets, for tackling health misinformation.

Empirical Evidences of Library-Led Interventions to Curb Misinformation

Developing comprehensive digital literacy programs that evolve in response to the changing digital landscape and the specific needs of health professionals and students was critically emphasized by (Jha, 2024). In his study on digital literacy skills for researchers, he underscored these competencies as essential in today's digital age. Another scholar, (Protogiros et al., 2025) mapped and accessed digital skills training programme for health care professionals in Western Australia, it was reported that effective digital skills training in the medical libraries enhances competencies to utilize technologies for effective care delivery.

In an evaluation of information literacy skills development among first-year medical students, (Carr et al., 2011) found that librarians play a pivotal role in teaching students how to evaluate medical literature for authenticity, validity, and reliability. This is achieved by guiding students with credible tools and evaluation strategies, including Scimago, Beall's List, and other assessment methods, to identify predatory journals and misinformation and Students are trained to critically examine authorship, publisher reputation, institutional credentials, and to prioritize peer-reviewed scientific sources. (Dehghani & Harris, 2023) suggested that curbing misinformation requires identifying predatory journals, establishing blacklists and whitelists (e.g., Beall's list), and supporting directories such as the Directory of Open Access Journals (DOAJ).

In the Nigerian context, (Lebo et al., 2025)investigated the impact of librarian-led case-based learning sessions among third-year medical students. The findings indicated that these sessions significantly improved students' clinical skills by training them to effectively utilise authoritative resources.
(Oso, 2024) also examined the influence of students' information literacy skills (ILS) on their perception of librarians. The study revealed that librarian-led information literacy training had a strong positive impact, enabling students to identify their information needs, distinguish between potential sources, and effectively retrieve relevant information. It further established that such training helps students differentiate between trustworthy and untrustworthy information sources, resulting in a positive correlation between the level of information literacy skills and the perceived image of librarians. Other effective interventions to address health misinformation include peer-to-peer debunking initiatives, seminars and educational programs that build literacy and teach practical for identifying and countering fake news (Czerniak et al., 2023).

Methodology

The study adopted a survey research design. The population comprised 152 clinical medical students from the department of community and primary health care college of medicine university of Lagos who are 500 level students.

The total enumeration sample size was used to cover the entire population of 152 students due to the manageable size. Total enumeration method is applicable when the entire population is small, the aim is towards obtaining accuracy and a level of precision (Singh & Masuku, 2014). The instrument used for data collection was the questionnaire.
Data from research questionnaire was analyzed using version 25 of The Statistical Package for Social Science (SPSS). Data collected were analyzed using descriptive statistics such as frequency distribution, percentages, mean and standard deviation for research questions. The hypothesis was tested using Pearsons Product Moment Correlation. The result was used to attest the combined influence of digital literacy skills on health misinformation among clinical medical students.

Result and Interpretations of Data:

Below are the results and interpretations of data obtained which are presented in tabular form.

Table 1: Descriptive Analysis of Respondent's Demographic Characteristics

Demographic Variables	Frequency (N)= 96	Percentage (%)
Gender		
Male	48	50.0
Female	48	50.0
Total	96	100.0
Age		
16 – 20 years	2	2.1
21 – 24 years	94	97.9
Total	96	100.0
Level of Study		
500 level	96	100.0
Total	96	100.0

Source: Researcher's Field Survey, 2026

Table 1 presents the demographic characteristics of the respondents. The study indicates an equal gender distribution of 50% each representing a balanced reflection of gender. Regarding age, 97.9% were between 21 and 24 years old, while only 2.1% fell within the 16 to 20 years category. This sample predominantly consist of older clinical students. Finally, all 100% were composed of 500 levels clinical medical students as this group were the targeted population for the study.

Table 2: Descriptive Analysis of Respondent's on Internet Skills

Rating of Internet Skills	Frequency (N)= 96	Percentage (%)
Poor	1	1.0
Average	17	17.7
Good	46	47.9
Excellent	32	33.3
Total	96	100.0

Source: Researcher's Field Survey, 2026

According to Table 2, majority demonstrated positive self-assessment of their internet skills with 47.9% rating them as good and 33.3% as excellent. This reflects a high level of digital competence among the students. Only 17.7% described their skills as average, while 1.0% rated themselves as poor.

Table 3: Descriptive Analysis of Respondent's on Purpose of Use of Internet

Purpose of Use of Internet	Frequency (N)= 96	Percentage (%)
	No	**Yes**
For assignments	1(1.0)	95 (99.0)
To read health related content	1(1.0)	95 (99.0)
For general update	1(1.0)	95(99.0)

Source: Researcher's Field Survey, 2026

Table 3 revealed that virtually all clinical medical students utilize the internet for essential academic and information purposes. With 99.0% reporting using it for assignments, reading health related materials and staying updated with general information.

Research Question One: What is the current level of awareness and self-perception regarding digital literacy competencies among clinical medical students within the college of medicine university of Lagos?

Table 4: Awareness and Self-perception regarding Digital Literacy Competencies among Clinical Medical Students

S/N	Awareness and self-perception	Not confident	Confident	Very confident	Extremely confident	$\bar{x}$	S.D.
1	How confident are you in your ability to find reliable health related information online	1 1.0%	36 37.5%	38 39.6%	21 21.9%	2.82	0.78
2	Do you feel confident on digital health literacy for medical students	3 3.1%	38 39.6%	36 37.5%	19 19.8%	2.74	0.81
Weighted Mean =2.78							

Table 4 indicates that clinical medical students at the university of Lagos exhibited a high level of awareness and positive self-perception of their digital literature competencies. Majority expressed confidence or very high confidence in their ability to find reliable health-relating information online (77.1%). In addition, 21.9% and 19.8% respectively indicated they were extremely confident in these areas, while a small proportion reported lacking confidence. The overall weighted mean score of 2.78 further confirms a generally strong confidence level among students. By implication most clinical medical students possess adequate digital literacy awareness and self-confidence, which is essential for effective engagement with digital health information.

Table 5: Level of Effectiveness of Medical Library-Based Digital Literacy Training among Clinical Medical Students

S/N	Digital skills training	Not effective	Effective	Very effective	Extremely effective	$\bar{x}$	S.D.
1	How effective is the training to identifying misinformation	7 7.3%	51 53.1%	29 30.2%	9 9.4%	2.42	0.76
2	Database search of health information	4 4.2%	40 41.7%	38 39.6%	14 14.6%	2.65	0.78
3	Critical appraisal of scientific literatures	7 7.3%	47 49.0%	32 33.3%	10 10.4%	2.47	0.78
4	Use of Biomedical databases	5 5.2%	43 44.8%	34 35.4%	14 14.6%	2.59	0.80
5	The use of medical subject heading (MeSH)	2 2.1%	43 44.8%	35 36.5%	16 16.7%	2.68	0.77
6	Citation Management tools	2 2.1%	35 36.5%	40 41.7%	19 19.8%	2.79	0.78
	Weighted Mean =2.60						

Table 5 clinical medical students perceived the medical library based digital literacy training as generally effective with a weighted mean score of 2.60, indicating a moderately high level of effectiveness. In critical areas respondents rated the training as effective in identifying misinformation (83.3%), database searching (81.3%), critical appraisal of scientific literature (82.3%) and the use of biomedical database (80.2%). Notably, higher effectiveness was reported for specialized skills such as the use of medical subject headings (MeSH) and citation management tools with a mean score of 2.68 and 2.79 respectively. By implication the medical library-based training plays a significant role in equipping clinical medical students with essential digital literacy skills.

Research Question Two: What are the strategies used by clinical medical students to differentiate between evidence-based medical data and health-related misinformation?

Table 6: Aspect of the training found most useful for identifying unreliable health information by clinical medical students

S/N	Strategies	Not useful	Useful	Very useful	Extremely useful	$\bar{x}$	S.D.
1	Cross Referencing	5 5.2%	41 42.7%	36 37.5%	14 14.6%	2.61	0.80
2	Author Reputation	10 10.4%	38 39.6%	33 34.4%	15 15.6%	2.55	0.88
3	Institutional Reputation	3	42	36	15	2.66	0.78

		3.1%	43.8%	37.5%	15.6%		
4	High Impact journals	-	35	45	16	2.80	0.71
			36.5%	46.9%	16.7%		
5	Other sources for identifying unreliable sources (Scimago and Beal's list)]	9	48	30	9	2.41	0.79
		9.4%	50.0%	31.3%	9.4%		
Weighted Mean =2.61							

The findings in Table 6 showed that clinical medical students employ multiple effective strategies to distinguish evidence-based medical information from health-related misinformation. Highly rated strategies included cross-referencing information 94.8% was rated to be extremely useful, assessing institutional reputation 96.9% and considering author reputation 89.6%. These highlights students' strong reliance on credible indicators. The use of high-impact journals recorded the highest mean score of 2.80 which emerged the most valued strategy. By implication it reflects a clear preference for trust and reputable scholarly sources. In contrast, specialized tools as Scimago and Beall's list of received lower rating with mean score of 2.41, which suggest limited familiarity or utilization among students.

Research Question Three: To what extent does participation in medical library-based digital literacy training enhances the identification of health misinformation?

Table 7: Extent of Identification of health misinformation in medical library-based digital literacy training by clinical medical students

S/N	Identifying health misinformation	Not confident	Confident	Very confident	Extremely confident	$\bar{x}$	S.D.
1	Can you distinguish Evidence-Based health information from false claims	10 10.4%	47 49.0%	25 26.0%	14 14.6%	2.45	0.87
2	I can identify articles that lack scientific evidence	23 24.0%	46 47.9%	19 19.8%	8 8.3%	2.13	0.87
3	I can identify biased sources of information	27 28.1%	42 43.8%	19 19.8%	8 8.3%	2.08	0.90
4	I can identify non-peer-reviewed scholarly communications	34 35.4%	31 32.3%	24 25.0%	7 7.3%	2.04	0.95
5	I can identify sensational headlines	11 11.5%	46 47.9%	25 26.0%	14 14.6%	2.44	0.88
6	My confident to discern misinformation through credibility of journals	15 15.6%	44 45.8%	27 28.1%	10 10.4%	2.33	0.87
Weighted Mean =2.24							

Participation in medical library-based digital literacy training moderately enhances clinical medical students' ability to identify health misinformation (weighted mean= 2.24). While the majority reported high confidence in distinguishing evidence-based information from false claims (89.6%) and identifying sensational headlines (88.5%). For the more complex skills such as recognizing non-peer reviewed publications (64.6%). Moderate confidence was reported in identifying articles lacking scientific evidence and assessing journal credibility revealing gaps in deeper critical appraising competencies. Further improvement is needed in advanced evaluative skills.

Testing Hypothesis

Hypothesis One: There is no statistically significant correlation between the level of digital literacy skills and proficiency of clinical medical students in identifying and appraising health related misinformation.

Table 8: Pearson Product Moment Correlation (PPMC) showing the relationship between level of digital literacy skills and proficiency of clinical medical students in identifying and appraising health related misinformation

Variables	Mean	Std. Dev.	N	R	p-value	Remarks
Digital literacy skills	15.5938	4.06934	96	.446*	<.001	Sig.
Identifying and appraising health related misinformation	13.4688	4.48847				

* Correlation is significant at the 0.05 level (2-tailed).

The Pearson product moment correlation analysis revealed a statistically significant positive relationship between clinical medical student's level of digital skills and their proficiency in identifying and appraising health related misinformation (r=.446, n=96, p (.001) <.05). This indicates that higher digital literacy skills are associated with better ability to identify and appraise misinformation. Consequently, the null hypothesis is rejected.

Discussion of Findings

Research Question One revealed a high level of awareness and a positive self-perception of digital literacy competencies among the respondents. This finding is supported by (Soyemi & Inazu, 2022), who asserted that literacy skills are not a strong predictor of the tendency to reduce or share misinformation on social media among undergraduate students. This contrasts with studies from China and South-East Nigeria, which reported low levels of digital health literacy (Hao et al., 2025; Ibenne, 2024). Furthermore, the library-based digital literacy training was found to be effective and moderately high. (Maranda et al., 2016) reported that students who received such training demonstrated improved ability to recognize misinformation. Similarly, clinical medical students at the University of Lagos have benefited from extensive digital literacy training provided by librarians through their educational, informational, and evaluative roles (Borji et al., 2024).

Research Question Two revealed the strategies employed by clinical medical students to identify and appraise health-related misinformation. The findings showed that medical students demonstrated a strong reliance on credible indicators (Mahmood & Jan, 2018; Prabowo & Manabat, 2021), although they were not familiar with specialized tools for this purpose. This aligns with (Dehghani & Harris, 2023), who recommended more intensive training to improve students' knowledge and use of specialized tools.

Findings from Research Question Three revealed the efficacy of library-based interventions in enhancing digital competencies, indicating a moderately enhanced ability among the students. These results are supported by (Lebo et al., 2025; Oso, 2024), who reported a positive and significant impact of such training on students' clinical skills through the effective utilization of authoritative resources.

Furthermore, the findings from the hypothesis tested in Table 8 led to the rejection of the null hypothesis. This indicates a statistically significant relationship between clinical medical students' level of digital literacy skills and their proficiency in identifying and appraising health-related misinformation. The results of the study therefore confirm that digital literacy skills and the ability to identify and appraise health-related misinformation are key influencing factors.

Conclusion

Digital literacy is essential in everyday life, particularly for students aspiring to become future health professionals. To effectively combat health-related misinformation, clinical students require a high level of digital literacy skills. This study revealed that clinical medical students demonstrated a high level of awareness and a positive self-perception of their digital literacy competencies. The findings underscore that digital skills training is an indispensable factor influencing their ability to identify health misinformation.

Recommendations

In line with the findings, the study therefore, recommends that

1. Digital literacy skills training should be prioritized by medical colleges in Nigeria and trainings on misinformation related to health be included in to curriculum.
2. Medical and health librarians should continuously intensify digital skills training for all medical students.
3. Trainings on specialized tools for identifying misinformation such as Scimago and Beall's list should be prioritized for all medical students.

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ASSESING THE LEVEL OF LIBRARIANS' PREPAREDNESS FOR THE ADOPTION OF ARTIFICIAL INTELLIGENCE FOR INFORMATION SERVICES PROVISION IN UNIVERSITY LIBRARIES IN NASARAWA STATE

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ABSTRACT

The study centered on assessing the level Librarians preparedness for the adoption of Artificial Intelligence for information services provision in university libraries in Nasarawa state. Survey design was adopted for the study, the instrument used for data collection was structured closed ended questionnaire, and the population of the study consists 33 librarians in four (4) university libraries. 33 copies of the questionnaire were distributed and 30 were filled and returned representing 91% response rate. The data collected was analyzed using descriptive statistics expressed in frequency and mean scores. Four objectives guided the study. The findings of the study revealed that Librarians are prepared to adopt AI tools such as ChatGPT, Chatbots visual assistance, Canva and Andi search. The AI skills possessed by the respondents are information literacy skills, AI powered search & discovery, data privacy & copyright and team and human machine collaboration skills. The challenges to AI adoption by Librarians are integrating AI with existing library systems and services, limited ICT infrastructures, high cost of implementing AI based solutions for information delivery and poor internet services. The strategies for enhancing the adoption of AI by Librarians are regular training and capacity building workshops, provision of adequate ICT infrastructure, provision of AI enable software and tools and access to reliable internet connectivity. The study recommends step down workshop on the use of ChatGPT, Chatbots, Virtual assistant, Canva. Andisearch, microelectronic mechanical systems and the procurement of AI enable library software and tools

Keywords: Artificial Intelligence, University Libraries, Information services, Librarians, Preparedness.

INTRODUCTION

Universities Libraries have been reformed to reflect contemporary information services delivery across the globe. AI adoption is promoting and expanding the frontier of information services in contemporary university libraries, Artificial Intelligence (AI) is gaining grounds because it enables the librarians in university libraries to render efficient and effective information services to the maximum satisfaction of their users. Al-Khalid (2022) noted that AI has changed the narratives of modern technological advancements in all sectors and is popularized amongst all sectors of society. In addition, AI has the capabilities of giving upper hand and advantages to librarians the platform of providing all round the clock information services, regardless of location or number of users at a time.

Notably, AI adoption is pervasive, its adoption cut across all professions including Librarianship. AI can perform tasks usually associated with human intelligence, such as recognizing patterns, understanding language, making recommendations, or spotting anomalies. Practically AI helps all categories of information professionals to work faster and more accurately.

The concept of AI has been defined by different scholars based on their perspectives. McGraw-Hill Encyclopedia of Science and Technology (2007) defined AI as a subfield of computer science focusing on the understanding of our natural environment and innovatively creating intelligent gadgets and software that can handle intelligent operations often undertaken by humans. In addition, Merriam-Webster English Dictionary (2018) defined "AI as a part of computer science that deals with giving ability to the machines to look as if they have natural human intelligence".

AI could historically be traced back in 1955 when John Mac Carthy postulated that all aspects of learning and human intelligence in performing tasks could be programmed through machines. The adoption of AI in university libraries heralds a new chapter in the evolution of information service delivery which enhanced efficiency, accessibility, and user experiences. Expectedly, University librarians need to re-position themselves for the task of information services provision by retooling and reskilling to take the relative advantage of artificial intelligence's potentials by refining the quality of library services in the information explosive age. Tella (2020) and Memela (2023) stated that AI seems to be the new hope for university libraries to provide more advanced automated services to their users as it is one of the technologies that has arisen and will play a major role in the 5th Industrial Revolution.

Information service refers to the systematic collection, organization, processing, and dissemination of information to meet the specific needs of users. Information service aimed to provide relevant, accurate, and timely information that supports decision-making, problem-solving, research, and learning. The role of AI in information services provision in universities cannot be over emphasized. University libraries are playing an important role in facilitating research by

scholars, students, and teachers at all levels of education, (Auten, 2020) University Libraries provide different information resources including print and digital collections, to patrons. Universities Libraries play a pivotal role in higher education in supporting research and academic activities to excel in the learning activities.
According to Ugwu (2019) Librarian is a person in-charge of school library, they can provide services to people, organization and always holds a supervisory position, overseeing other library employees such as library technicians and assistants. An academic librarian plays an important role in tertiary institutions like universities, polytechnics, colleges of education and vocational schools by guiding students, teachers and faculty. AI is one of the most recent ICT tools available for adoption by Librarians in University Libraries. What remains unclear is their level of preparedness to adopt AI for 21st century information services delivery. This is a significant problem that needs to be empirically investigated.

Statement of the Problem
University libraries play a critical role in supporting teaching, learning, and research through effective information service delivery. In the 21st century, the rapid advancement of Artificial Intelligence (AI) technologies such as machine learning, automated cataloguing, recommendation systems, and digital reference services has transformed library and information services globally. These technologies enhance efficiency, improve user experience, and enable libraries to meet the evolving information needs of users in an increasingly digital environment.
Despite this global advancement many librarians in university libraries appear to be reluctant in adopting AI for library and information services. Issues such as limited ICT infrastructure, inadequate funding, lack of skilled personnel, low awareness of AI applications, and resistance to technological change may hinder effective AI adoption. As a result, library services may remain largely traditional, leading to slow service delivery, which leads to limited access to digital resources, and reduces user satisfaction.

Also, some librarians appear to be battling with many challenges that hampered AI adoption. These include poor ICT skills, AI phobia and poor knowledge of AI. This is why this study seeks to proffer solutions to the problem of poor or slow Adoption of AI among librarians with a focus on university libraries in Nasarawa state. The universities are Federal University of Lafia, Nasarawa State University Keffi, Bingham University Karu and Phoenix University Agwada. The problem of the study posed as a question is, what is the level of AI adoption preparedness among librarians for 21st century information services in university libraries in Nassarawa State.
Objectives of the Study
General Objective
The general objective of this study is to assess the level of AI adoption preparedness among librarians for 21st century information services in university libraries in Nasarawa State.
Specific Objectives

The specific objectives of the study are to:
1. Find out the extent to which librarians are prepared to adopt AI for 21st century information service provision in University libraries in Nasarawa state
2. Identify the AI skills required for 21st century information provision in University Libraries in Nasarawa state.
3. Identify the challenges to AI adoption by librarians for 21st century information service provision in university libraries in Nasarawa State.
4. Find out the strategies that could be used to enhance AI adoption by librarians for 21st century information service provision in university libraries in Nasarawa state.

REVIEW OF LITERATURE
The review of the literature was done in a manner that aligned with the objectives that guided the study in addition to some conceptual definitions. The concept of AI is a complex, dynamic phenomenon, which gives rise to different meaning depending on what it is used for. AI could be defined as a branch of science that stimulates intelligent behavior On the computer to solve complex problems better than humans. Field (2021) defines AI as the simulations. of human intelligence in computers that are trained to think and act like humans. Artificial Intelligence as described by Merriam Webster (2019) is a branch of computer science that works with providing machines the ability to appear natural human intelligence.

Using computers and eventual acceptance of AI could have a positive impact on library services, which are presently being studied. It is also noted that AI can enhance circulation services by making books, journals, multimedia and other resources more accessible to users and reduce wait time. Other areas in which AI is important include automated fine management, where the circulation personnel take care of the paperwork. The personnel scans records, library cards, and user IDs to verify that the requested items are available.
Artificial Intelligence (AI) has the potential to forecast material demand and aid in inventory control, guaranteeing the availability of popular items. By analyzing borrowers' borrowing patterns and past selections, AI recommendation

systems can further revolutionize library services by recommending appropriate books, improving user experience, and creating new research opportunities (Chen & Lee, 2020). Artificial intelligence (AI) algorithms can be used to determine overdue materials, compute fines, and even grant fine waivers in certain situations. Asemi and Asemi (2018) enumerated several ways that AI technologies can be applied to enhance library services. These include circulation services, book shelving, the cataloguing of library materials, and more. According to Adetayo (2023), artificial intelligence (AI) like ChatGPT, are becoming useful resources for academic libraries.

Artificial Intelligence (AI)-powered systems can also provide 24/7 assistance for library users. They can provide around-the-clock reference services, allowing users to get help even when the library is closed. This reduces the workload on librarians and offers 24/7 support, making libraries even more accessible (Harris & Turner, 2021). Barsha and Munshi (2023) averred that AI utilization in university libraries has the potential of revolutionizing library service delivery and management by improving information retrieval, streamlining knowledge organization and management, personalizing user services, and enhancing resource management, among others. Similarly, Udoh *et al.* (2024) opined that AI technologies have the potential to transform university libraries into smart and intelligent institutions for better service delivery. Shahzad *et al*. (2024) noted that AI plays a revolutionary role in the delivery of innovative library services to patrons. In a related development, Abba (2024) posited that AI technologies are used to render different library services, such as serving as a knowledgebase for cataloguing information of library materials, and a self-check-out machine for books.

Librarians' preparedness to adopt Artificial Intelligence

The preparedness of librarians to adopt Artificial Intelligence (AI) in university libraries is increasingly recognized as a critical determinant of effective 21st-century information service delivery. Preparedness encompasses multiple dimensions, including awareness, technical competence, perception, institutional support, and infrastructural readiness. Research have shown that the adoption of AI in libraries and information centers are based on the awareness and perceptions of the LIS professionals in different societies. Moustapha and Yusuf (2023) noted that libraries in Nigeria are struggling to adopt AI because of paucity of fund and technological defects, while the fear of job loss, reliability on and authenticity of content and fear of privacy and confidentiality are the problems associated with the librarians' perceptions. Subaveerapandiyan, Sunanthini and Amees (2023) claimed that LIS professionals in Zambia were aware of the skills required to adopt AI technologies. This spurred their eagerness and preparedness to take the lead role in adopting AI in libraries.

Readiness is the state of being adequately equipped with the necessary conditions and resources to facilitate the seamless utilization of AI technology in university libraries (Ali & Khan, 2024). Ajani *et al*. (2022) discovered that librarians have mixed feelings about the readiness of academic libraries to integrate AI systems into library operations and services. Sambo and Oyovwe-Tinuoye (2023) stated that training programs should be prioritized by library management to equip librarians with the skills that will enhance effective AI utilization for service delivery. Undoubtedly, the implementation of AI in libraries would provide value-added services to the users Chohan *et al*., (2023). Ma *et al*. (2020) explained that AI is beneficial to libraries as semantic library services may be offered to users. On their part, Owolabi *et al*. (2021) submitted that AI technology brings revolutionary changes in librarians' attitudes and working styles. While some studies observed that training workshops were essential for librarians for the successful implementation of AI in university libraries.

Therefore, librarians' readiness towards AI utilization in university libraries would drive innovation, which is the hallmark of the 21stcentury library workspace. The technological explosion has had a great impact on university libraries, leading to a massive shift in library services toward the use of these technologies (Emiri, 2019). Accordingly, factors influencing AI adoption include organizational technological practices, financial resources, university size, and data management and protection concerns (Jan *et al*., 2024). Also, Yakubu *et al*. (2023) reported that attitude was a major factor determining intention to use AI by librarians. Radhakrishnan and Chattopadhyay (2020) averred that factors influencing librarians' readiness towards AI adoption for service delivery were trust, cost, social influence, motivation, performance expectancy, utilitarian benefits, safety, and prior experience with AI tools. Undoubtedly, AI has the potential to revolutionize how university libraries operate, making them more efficient and effective in serving their users. Based on views expressed by scholars, AI utilization in university libraries would have valuable and far-reaching implications on the 21st century information service provision.

Challenges to AI adoption in University Libraries

Without doubt, barriers to AI adoption in libraries are multifaceted, and encompassing Librarians' limited understanding of AI, difficulties in integrating AI with existing library systems and services, and the significant financial commitments associated with AI products. Myriad of Studies conducted globally revealed that while awareness of AI's potential is growing, actual implementation remains limited. Most institutions are still in exploratory phases, with few practical applications such as chatbots, machine learning-based recommendation systems, and automated cataloging services in

place mainly in South Africa, Nigeria, and Kenya. Financial constraints, inadequate infrastructure, digital literacy gaps, cultural resistance, and the absence of clear policies and ethical frameworks were identified as critical barriers.

Furthermore, Udoh *et al*. (2024) found that lack of training opportunities on AI-related issues, poor power supply, poor Internet services, lack of AI tools and associated facilities, poor attitude to change, and poor funding of university libraries were identified as barriers to the full potential of AI utilization in university libraries. Similarly, Abba (2024) discovered that lack of funds to acquire AI tools, training of librarians, and lack of full knowledge of AI were the most mentioned challenges associated with the adoption of AI in libraries. Equally, Barsha and Munshi (2023) identified a lack of infrastructure and resources, shortage of skilled personnel, absence of data privacy regulations, digital divide, and the high cost of implementing AI-based solutions as barriers to AI utilization for service delivery in university libraries. According to Zondi *et al*. (2024), inadequate infrastructure, lack of adequate financial resources, expertise, and constant power outage were major barriers to the implementation of AI in libraries. Studies conducted by Emiri, (2023); Gartner Talent Neuron (2020) as well as Northumbria University (2024) reported that the number one challenges or major barrier to the adoption of artificial intelligence is skills shortage.

METHODOLOGY

Quantitative research method was used while survey design was adopted for the study. The population of the study comprises Thirty-three (33) librarians in the four (4) University libraries in Nasarawa state. A breakdown of the response from the 4 University libraries studied is presented in a tabular form as follows:

SN	Name Of Institution	Population
1.	Federal University of Lafia	10
2.	Nasarawa State University Keffi	12
3.	Bingjam University Karu	09
4.	Phoenix Agwada	02

The entire 33 librarians constituted the sample size for the study. The decision to use the entire population is guided by the position of Benard (2012) who stated that if the population of the Study is less than 200. The entire population should be used for the study. However, out of the 33 Copies of the questionnaire distributed, 30 were filled and returned. They were analyzed and tabulated for easy interpretation and inferences.

TABLE 1 Extent to which librarians are prepared to adopt AI in the University libraries studied.

S/N	**Item statement**	**VHE**	**HE**	**LE**	**NA**	**MEAN**
1.	Prepared to adopt MEM for multitasking.	12	08	07	03	2.7
2.	Prepared to adopt AndiSearch to help me navigate the vast amount of information needed to answer complex patron questions.	06	11	10	03	2.8
3.	Prepared to adopt perplexity to help stay up to date with the latest research trends.	06	09	05	10	2.3
4.	Prepared Scispace Copilot to help break down complex academic papers.	09	13	06	02	2.6
5	Prepared to adopt canva AI to help design eye-catching visuals for marketing library events, programs, and services.	10	06	10	04	2.9
6.	Prepared to adopt ChatGPT, Chatbots and visual assistants.	12	06	08	04	2.9
7.	Prepared to adopt Machine learning to help me learn from data	10	05	10	05	2.6

To determine the extent to which Librarians are prepared to adopt Artificial intelligence (AI) in the University libraries studied. Respondents were provided with a list of possible areas in which Librarians were ready to adopt. The responses in Table 1 indicated that Librarians were prepared to adopt Canva, ChatGPT, Chatbot, and visual assistants having a mean score of 2.9 each. This is followed by their preparedness to adopt Andi search with a mean score of 2.8. The responses also indicated that the respondents were prepared to adopt MEM with a mean score of 2.7. On the other hand, the respondents were least prepared to adopt perplexity with a mean score of 2.3.

TABLE 2 AI skills possessed by Librarians in the University Libraries studied

S/N	Item Statement	P	NP
1	AI-Powered search and discovery	26	04
2	Digital collection management	15	15
3	Ability to use prompt to get information	20	10
4	Basic machine-learning knowledge	10	20

5	AI ethics, bias and responsible use	18	12
6	Data privacy and copyright	25	05
7	Content curation and recommendation	13	17
8	Data analysis and visualization	12	18
9	Accessibility and inclusivity	19	11
10	Information literacy and AI awareness	28	02
11	Ability to work as a team and human-machine collaboration skills	25	05

KEY: P: POSSESSED NP: NOT POSSESSED

The study tried to find out the types of AI skills possessed by Librarians in the Universities libraries studied. Respondents were provided with a list of skills needed for AI adaption. Responses in Table 2 indicated that 28 of the respondents possessed AI skills in information literacy and AI awareness. This is followed by AI powered search and discovery skills, having frequency score of 26, In addition, 25 of the respondents possessed AI skills in data privacy and copyright, and ability to work as a team and human machine collaboration. Conversely, the responses further showed that 20 of the respondents indicated that they do not possess AI skills in basic machine knowledge while 18 of the respondents indicated that they do not possess AI skills in data analysis and visualization.

TABLE 3 Challenges to AI adoption by Librarians in the University Libraries studied.

S/N	Item Statement	Tick
1	Integrating AI with existing library systems and services	28
2	Limited ICT infrastructures	27
3	Poor attitude to change	24
4	Low awareness AI application	04
5	Inadequate training opportunities on AI related issues	21
6	High cost of implementing AI based solutions for information delivery	26
7	Poor internet services	25

The study equally sought to identify challenges to AI adoption by Librarians in the University Libraries studied, the respondents were provided with the list of some challenges. They were requested to tick multiple challenges to AI adoption. Table 3 shows their responses. Responses in Table 3 revealed that integrating AI with existing Library system and services are the dominant challenges faced by Librarians with a frequency score of 28. This is closely followed by limited ICT infrastructures with frequency score of 27 and high cost of implementing AI based solution for information delivery with frequency score of 26. The least challenge to AI adoption by Librarians was low awareness of AI application, having a frequency score of 4.

TABLE 4 Strategies of enhancing AI adoption by Librarians in the University Libraries Studied

S/N	Item Statement	Tick
1	AI awareness and sensitization programs	07
2	AI regular and capacity building workshops	28
3	Inclusion of AI courses in library and information curricula	25
4	Continuous professional development (CPD) on AI tools	18
5	Hands-on practical exposure to AI application	23
6	Provision of adequate ICT infrastructures	28
7	Access to reliable internet connectivity	26
8	Availability of AI enabled library software and tool	27
9	Evaluation and continuous improvement of AI systems	20
10	Management and institutional support for AI initiatives	16
11	Adequate funding and budget allocation for AI project	23
12	Clear AI implementation policies and guidelines	15
13	Change in librarian's attitude and readiness towards AI adoption	22
14	Collaboration with IT professionals and data scientists	15
15	Partnership with Universities, tech firms and professional bodies	20

The research also sought to find out the strategies that could be used to enhance AI adoption by Librarians in the University libraries studied. The response in table 4 showed that 28 of the respondents advocated for the provision of adequate ICT infrastructures and AI regular training and capacity building workshop, having frequency scores of 28 respectively. This is closely followed by 27 respondents who advocated the availability of AI-enabled library software and tools. Similarly, 26 of the respondents advocated for access to reliable internet connectivity with frequency score of 26and inclusion of AI courses in library and information science curriculum with a frequency score of 25. Conversely

AI awareness and sensitization program was the least strategy advocated to enhance AI adoption by Librarians in the University Libraries studied having a frequency of 7.

CONCLUSION

Based on the views expressed by scholars as contained in the available literatures on the subject matter and from the findings of this study. AI has become the new normal in information service delivery in the 21st century. Therefore, AI are useful tools for efficient and effective information service provision. The study has established that librarians are prepared to adopt AI in university libraries. The findings further established that they have the requisite skills for AI adoption. The challenges to AI adoption have been identified and the strategies for enhancing the adoption of AI in university libraries by librarians were equally established.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:

1.There should be train the trainer workshop on the use of conversational AI, ChatGPT, Chatbots, canva AI, andisearch and MEM.

2. Librarians should make frantic and deliberate efforts to acquire AI skills in basic Machine Learning, knowledge, data analysis, visualization, and content curation.

3. Library management and researchers in universities should make a deliberate effort to integrate AI with existing library systems and services in addition to the provision of state-of-the-art ICT infrastructures.

4. AI-enabled library software and tools should be procured to enhance 21st-century information service provision in the university libraries.

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ASSESSING THE STATE OF SCHOOL LIBRARIES IN GOVERNMENT SECONDARY SCHOOLS IN JIGAWA STATE, NIGERIA

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ABSTRACT

This study assesses the state of school libraries in government secondary schools in Jigawa State, Nigeria. Specifically, the study sought to: (1) assess the adequacy of library infrastructure, information resources, and information and communication technology (ICT) facilities in government secondary school libraries in Jigawa State; (2) examine the availability and professional competence of library personnel, as well as the range and quality of library services provided in these schools; and (3) evaluate the patterns of library utilization by students and teachers and identify the major challenges affecting the effective functioning of school libraries in Jigawa State. A descriptive survey research design was employed for the study. The population comprised 3,829 school administrators, teacher-librarians, and students, from which a representative sample was selected using a combination of stratified and simple random sampling techniques. Data were collected through structured questionnaires. A total of 374 valid responses were returned and analyzed using descriptive statistics, including frequencies, percentages, and mean scores. The findings indicate that most government secondary school libraries in Jigawa State are inadequately equipped, characterized by insufficient and outdated information resources, limited seating capacity, and poor integration of information and communication technologies. The study also reveals a shortage of professionally trained librarians, which adversely affects the range and quality of library services and contributes to low levels of library utilization among students. Key challenges identified include inadequate funding, weak policy implementation, and limited administrative support for library development. The study concludes that the current condition of school libraries in Jigawa State falls below recommended national and international standards. It therefore recommends increased government funding, the deployment of qualified library professionals, and the development of sustainable policies aimed at revitalizing school libraries and strengthening their role in supporting secondary education in the state.

Keywords: School Library Development, Educational Infrastructure, Information Resources, Library Services, Nigeria

INTRODUCTION

School libraries are widely recognized as essential components of the educational system, serving as resource centers that support teaching, learning, and the intellectual development of students. They provide access to diverse information resources, foster reading culture, and equip learners with critical information literacy skills necessary for academic success and lifelong learning (Tripathi et al., 2026). In secondary education, particularly, school libraries play a crucial role in complementing classroom instruction and promoting independent study habits among students. However, the effectiveness of school libraries largely depends on the availability of adequate infrastructure, up-to-date information resources, qualified personnel, and functional services (Gwakwe & Goldman; Omar et al., 2024).

In Nigeria, despite policy recognition of the importance of school libraries, many public secondary schools continue to experience challenges related to inadequate library facilities and poor resource provision. These challenges are often more pronounced in government-owned schools, where issues such as insufficient funding, lack of trained librarians, and weak policy implementation hinder the development and effective utilization of library services (Olorunyomi, 2026; Onasanya, 2024). Consequently, students and teachers may have limited access to relevant learning materials, which can negatively impact teaching quality and students' academic performance.

Jigawa State, like many other states in Nigeria, has made efforts to improve its educational system; however, concerns persist regarding the condition of school libraries in government secondary schools. Anecdotal evidence suggests that many of these libraries are either poorly equipped or underutilized, raising questions about their capacity to support educational objectives effectively. It is against this backdrop that this study assesses the state of school libraries in government secondary schools in Jigawa State, with a focus on infrastructure, information resources, staffing, services, and usage patterns.

By providing empirical evidence on the current condition of school libraries, the study aims to inform policymakers, educational administrators, and stakeholders on areas requiring urgent intervention to enhance library development and improve educational outcomes.

STATEMENT OF THE PROBLEM

Despite the widely acknowledged importance of school libraries in supporting effective teaching and learning, there is growing concern about their deteriorating condition in public secondary schools across Nigeria. School libraries are expected to provide adequate information resources, conducive learning environments, and professional services that

enhance students' academic performance and information literacy skills (Peter, 2025). However, in many government secondary schools, these expectations are not being met, thereby limiting the role libraries can play in the educational process.

In Jigawa State, the situation appears particularly troubling, as anecdotal evidence and preliminary observations suggest that many school libraries are either non-functional or grossly under-resourced. Issues such as inadequate infrastructure, outdated and insufficient learning materials, lack of information and communication technology (ICT) facilities, and poor maintenance practices are commonly reported (OBUAH, 2026; Olorunyomi, 2026; Sadiat et al., 2024). In addition, the absence or shortage of professionally trained librarians further undermines the quality of library services, resulting in low utilization by both students and teachers (Adamu, 2018; Merga & Mat Roni, 2026; Musa et al., 2025). These challenges raise serious concerns about the ability of school libraries to effectively support curriculum delivery and promote independent learning.

Furthermore, although government policies and educational frameworks emphasize the importance of school libraries, there is limited empirical data assessing their actual condition, particularly in Jigawa State. This lack of reliable data makes it difficult for policymakers and educational stakeholders to design informed interventions and allocate resources effectively. Therefore, the problem this study seeks to address is the insufficient understanding of the current state of school libraries in government secondary schools in Jigawa State, with a view to identifying existing gaps and challenges that hinder their optimal performance and development.

OBJECTIVES OF THE STUDY

This study aims to:

1. Assess the adequacy of library infrastructure, information resources, and information and communication technology (ICT) facilities in government secondary school libraries in Jigawa State.
2. Examine the availability and professional competence of library personnel, as well as the range and quality of library services provided in these schools.
3. Evaluate the patterns of library utilization by students and teachers, and identify the major challenges affecting the effective functioning of school libraries in Jigawa State.

LITERATURE REVIEW

Conceptual Review:

Concept of School Libraries

School libraries are integral components of the educational system, serving as organized collections of information resources designed to support teaching, learning, and personal development among students (Kurttila-Matero, 2011). They provide access to print and non-print materials, including textbooks, reference materials, audio-visual resources, and digital content. According to international standards, school libraries function as learning hubs that promote reading culture, independent inquiry, and information literacy skills (Tripathi et al., 2026). In secondary schools, they are expected to complement classroom instruction and foster lifelong learning habits among students.

Components of Effective School Libraries

Effective school libraries are characterized by several key components, including adequate infrastructure, relevant and up-to-date information resources, qualified personnel, and functional services (Kurttila-Matero, 2011; Mojapelo, 2018). Library infrastructure encompasses physical facilities such as reading spaces, furniture, lighting, and ventilation. Information resources include textbooks, reference materials, and digital resources aligned with the school curriculum (Tekir & Akar, 2019). Staffing is also critical, as trained librarians are responsible for organizing resources and delivering services (Ondieki, 2023). Additionally, library services such as user education, reference services, and reading promotion activities are essential for enhancing library utilization (Muzvondiwa & Marutha, 2022).

Utilization of School Libraries

The utilization of school libraries refers to the extent to which students and teachers make use of library resources and services. High levels of utilization are associated with improved academic performance, better reading habits, and enhanced research skills. However, utilization is often influenced by factors such as resource availability, accessibility, user awareness, and the presence of professional library staff (Dada, 2025; Merga & Mat Roni, 2026). In many developing countries including Nigeria, low utilization has been linked to inadequate facilities and poor service delivery (Hlatshwako & Tsabedze, 2024).

Theoretical Framework:

Library Service Quality Theory

Library Service Quality Theory emphasizes that the effectiveness of library services depends on users' perceptions of service quality, including accessibility, responsiveness, and adequacy of resources (Shi & Levy, 2005). In school libraries, the quality of infrastructure, resources, and staff competence directly influences user satisfaction and utilization.

Systems Theory
Systems Theory views the school library as a subsystem within the broader educational system. It highlights the interdependence between library resources, personnel, policies, and users (Puala, 2025; Whitchurch & Constantine, 1993). A deficiency in any component—such as inadequate funding or lack of trained staff—can negatively affect the overall performance of the library system.

Resource-Based Theory
Resource-Based Theory focuses on the importance of available resources in achieving organizational effectiveness (Assensoh-Kodua, 2019). Applied to school libraries, the theory suggests that the availability of adequate infrastructure, learning materials, and skilled personnel determines the library's ability to support teaching and learning effectively.

Empirical Review:
Global Perspective on School Libraries
Globally, studies have demonstrated that well-equipped school libraries contribute significantly to students' academic achievement and literacy development. Research in developed countries shows that access to diverse and current library resources enhances students' reading skills and supports curriculum delivery (Merga & Mat Roni, 2026). Furthermore, the presence of qualified librarians has been linked to improved student performance and higher levels of library use (Merga & Mat Roni, 2026). However, even in advanced systems, challenges such as digital integration and funding constraints persist.

African and Nigerian Perspective
In Africa, school libraries face numerous challenges, including inadequate funding, poor infrastructure, and limited access to current information resources (Jack, 2025). Studies conducted in Nigeria reveal that many government secondary school libraries are either poorly equipped or non-functional. Common issues include outdated materials, lack of ICT facilities, and shortage of trained librarians (Bello & Musa, 2025). Empirical evidence also indicates low levels of library utilization among students and teachers, largely due to these deficiencies (Hlatshwako & Tsabedze, 2024). While some schools have made efforts to improve library services, progress remains uneven across regions.
Despite the growing body of literature, there is limited empirical research specifically focused on the state of school libraries in Northern Nigeria, particularly in Jigawa State. Many existing studies adopt a generalized national perspective without addressing regional disparities. This gap highlights the need for context-specific investigations to provide a clearer understanding of the challenges and opportunities for improving school libraries in the region.
Conceptual Framework of the Study
The conceptual framework for this study is based on the relationship between school library components, moderating factors, and educational outcomes. The core components of school libraries—such as infrastructure, information resources, staffing, and services—serve as the independent variables. User-related factors (such as awareness and attitudes) and institutional factors (such as funding, policy support, and administrative commitment) act as moderating variables. The dependent variable is the level of library utilization and its impact on teaching and learning outcomes.

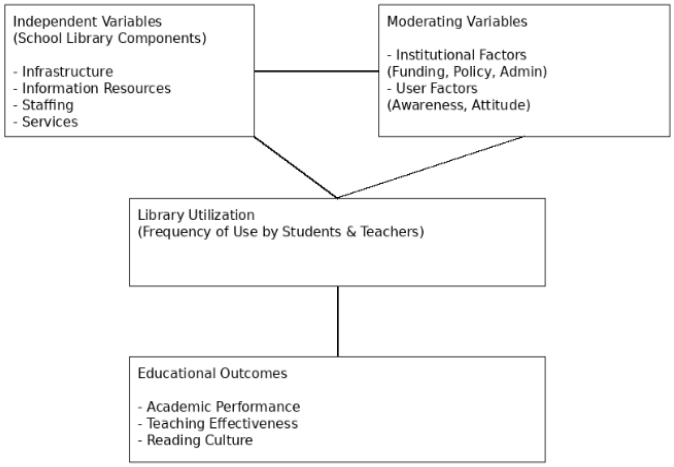


Figure 1: Conceptual framework of the study
The framework for as indicated in Figure 1 above assumes that when school libraries are adequately equipped and supported, and when users are aware and motivated, effective utilization will occur. This, in turn, leads to improved academic performance, enhanced reading culture, and better teaching effectiveness.

RESEARCH METHODOLOGY
This study adopted a descriptive survey research design to assess the state of school libraries in government secondary schools in Jigawa State, Nigeria. The descriptive survey design was considered appropriate because it allows for the systematic collection of data from a large population and enables an accurate description of existing conditions,

practices, and challenges related to library infrastructure, resources, staffing, services, and utilization patterns (Ullah & Ameen, 2018).

The population of the study comprised 3,829 respondents, including school administrators, teacher-librarians, and students drawn from selected government secondary schools across Jigawa State. These categories of respondents were considered suitable because they are directly involved in the management, use, and operation of school libraries.

Using the Krejcie and Morgan (1970) Sample Size Determination Table, a sample size of 383 respondents was selected from the study population of 3,829. The Krejcie and Morgan table was considered appropriate because it provides scientifically established sample sizes for finite populations and is widely used in social science research to ensure representativeness and reliability of findings (Mohanasundaram & Harsha, 2024). To ensure adequate representation, a combination of stratified and simple random sampling techniques was employed. Stratified sampling was used to categorize respondents into administrators, teacher-librarians, and students, while simple random sampling was used to select participants within each group.

Data were collected using a structured questionnaire designed to obtain information on the condition of library infrastructure, availability of information resources, staffing, library services, and patterns of utilization. The instrument was subjected to expert validation to ensure content and face validity, while reliability was established through a pilot study and the application of appropriate reliability measures.

The questionnaires were administered through direct distribution to respondents in selected schools. Out of 383 questionnaires distributed, 374 valid responses were retrieved and used for analysis. Data collected were analyzed using descriptive statistics, including frequencies, percentages, and mean scores.

Ethical considerations such as informed consent, confidentiality, anonymity, and voluntary participation were strictly observed throughout the study to ensure the integrity of the research process.

DATA PRESENTATION, ANALYSIS, AND DISCUSSION

State of Library Infrastructure in Government Secondary Schools in Jigawa State

Data collected from respondents reveal that the state of library infrastructure in most government secondary schools in Jigawa State is inadequate. While some schools reported having designated library spaces, many lack essential facilities such as adequate seating capacity, proper ventilation, and conducive reading environments.

Table 1: State of Library Infrastructure

Infrastructure Components	Adequate (%)	Inadequate (%)
Library building/space	41.7	58.3
Seating capacity	35.2	64.8
Furniture and fittings	38.9	61.1
Lighting and ventilation	44.5	55.5

The findings as shown in Table 1 indicate that a significant proportion of school libraries operate under poor physical conditions, which may discourage effective usage by students and teachers.

Availability of Information Resources in School Libraries

The availability of information resources was found to be generally low, with many respondents indicating that available materials are outdated and insufficient to meet users' needs.

Table 2: Availability of Information Resources

Information Resources	Available (%)	Not Available (%)
Textbooks (current editions)	46.3	53.7
Reference materials	39.5	60.5
Periodicals/newspapers	34.8	65.2
Digital/ICT resources	28.6	71.4

The results as shown in Table 2 above suggest that most school libraries lack relevant and up-to-date materials, particularly digital resources, limiting their ability to support modern teaching and learning practices.

Staffing and Library Services

Findings show a shortage of professionally trained librarians, with many schools relying on teacher-librarians without formal library training. Consequently, the range and quality of library services are limited.

Table 3: Staffing and Library Services

Variables	Adequate (%)	Inadequate (%)
Qualified librarians	31.2	68.8
Teacher-librarians	52.6	47.4
Circulation services	48.9	51.1
User education services	36.4	63.6

The findings as shown in Table 3 indicates that staffing challenges significantly affect the effectiveness of library service delivery in the schools.

Patterns of Library Utilization

The study revealed generally low levels of library utilization among students and teachers. Students primarily use the library occasionally for reading and assignments, while teachers make minimal use of library resources for instructional purposes.

Table 4: Patterns of Library Utilization

Level of Use	Students (%)	Teachers (%)
High	29.5	21.3
Moderate	34.7	30.6
Low	35.8	48.1

The findings in Table 4 indicate that libraries are underutilized, particularly by teachers, which limits their integration into teaching and learning processes.

Challenges Affecting School Libraries

Several challenges were identified as hindering the effective functioning of school libraries in Jigawa State.

Table 5: Challenges Affecting School Libraries

Challenges	Agree (%)	Disagree (%)
Inadequate funding	76.4	23.6
Lack of qualified librarians	72.8	27.2
Poor policy implementation	69.5	30.5
Inadequate ICT facilities	74.1	25.9
Limited administrative support	67.9	32.1

These challenges as indicated in Table 5 above significantly constrain the development and utilization of school libraries.

DISCUSSION OF FINDINGS IN RELATION TO LITERATURE AND THEORY

The findings of this study are consistent with existing literature on school libraries in Nigeria and other developing contexts, which report inadequate infrastructure, insufficient information resources, and a shortage of trained library personnel. The observed deficiencies in library facilities and materials support previous studies that highlight poor funding and weak policy implementation as major barriers to effective library development.

The low level of library utilization observed among students and teachers aligns with studies indicating that inadequate resources and lack of professional staffing reduce user engagement. From a theoretical perspective, the findings support **Library Service Quality Theory**, which emphasizes that poor service quality and limited resources negatively affect user satisfaction and usage. Similarly, **Systems Theory** is reflected in the interdependence of library components, where deficiencies in infrastructure, staffing, and resources collectively undermine overall performance.

Furthermore, the results align with **Resource-Based Theory**, which underscores the importance of adequate resources in achieving organizational effectiveness. The lack of critical resources in school libraries in Jigawa State explains their limited capacity to support teaching and learning effectively.

Overall, the study confirms that while school libraries are vital to educational development, their current state in Jigawa State significantly limits their potential impact. Addressing the identified challenges is essential for improving library utilization and enhancing educational outcomes.

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary of Major Findings

This study assessed the state of school libraries in government secondary schools in Jigawa State, Nigeria, with particular attention to library infrastructure, information resources, staffing, services, and patterns of utilization. The findings revealed that most school libraries are inadequately equipped, with poor infrastructure, limited seating capacity, and generally unconducive reading environments. In addition, the study established that information resources are insufficient, outdated, and largely unable to support the current curriculum effectively.

The study also found a significant shortage of professionally trained librarians, with many schools relying on unqualified personnel, which negatively affects the quality and range of library services. Consequently, library utilization by both students and teachers remains low. Furthermore, key challenges identified include inadequate funding, weak policy implementation, lack of administrative support, and poor provision of ICT facilities, all of which hinder effective library development and use.

Conclusion

The study concludes that the condition of school libraries in government secondary schools in Jigawa State is generally poor and falls below acceptable national and international standards. Although school libraries are recognized as essential educational support systems, their current state limits their ability to effectively contribute to teaching and learning processes.

The inadequacies in infrastructure, information resources, staffing, and services have resulted in low utilization levels among students and teachers. If these challenges are not addressed, school libraries will continue to play a minimal role in enhancing educational outcomes in the state. Therefore, urgent and coordinated interventions are required to reposition school libraries as functional learning hubs that can support secondary education effectively.

Recommendations

Based on the findings of this study and in line with the study objectives, the following recommendations are made:

1. Library Infrastructure, Information Resources, and ICT Facilities

The Government of Jigawa State, through the Ministry of Education and relevant educational agencies, should provide adequate funding for the construction, renovation, and equipping of school library facilities. Existing libraries should be upgraded to meet national and international standards by providing adequate seating capacity, conducive reading environments, current curriculum-based information resources, and modern ICT facilities such as computers, internet connectivity, and digital learning resources.

2. Library Personnel and Library Services

Qualified and professionally trained librarians should be employed in all government secondary school libraries to enhance the quality of library services. In addition, regular professional development programmes, workshops, and training should be organized for teacher-librarians and other library personnel to strengthen their competencies in library management, information service delivery, and ICT application. School libraries should also diversify and improve their services to better support teaching, learning, and research activities.

3. Library Utilization and Challenges Affecting School Libraries

School administrators and educational authorities should develop strategies to promote effective library utilization among students and teachers through library orientation programmes, reading promotion campaigns, information literacy instruction, and the integration of library activities into the school curriculum. Furthermore, educational authorities should strengthen the implementation of school library policies, establish monitoring and evaluation mechanisms, and provide sustained administrative support to address challenges related to inadequate funding, weak policy implementation, and poor management practices.

4. Strengthening School Library Development

A comprehensive school library development policy should be developed and implemented to provide clear guidelines for funding, staffing, infrastructure development, resource acquisition, ICT integration, and service delivery. Such a policy should include periodic assessment and accountability measures to ensure the continuous improvement and sustainability of school libraries in Jigawa State.

Suggestions for Further Studies

Future research could adopt a comparative approach by examining school library development across different states or geopolitical zones in Nigeria. Additionally, qualitative studies exploring user experiences and perceptions of school library services could provide deeper insights into utilization challenges and improvement strategies.

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Assessment of Professional Development Programmes and Librarians' Innovative Service Delivery Outcomes in Public University Libraries in Rivers State

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Abstract

The study examined professional development programmes (PDPs) and librarians' innovative service delivery outcomes in public university libraries in Rivers State. It was guided by specific objectives which sought to identify the PDPs available to Librarians, level of participation, the effects and challenges. A descriptive design was adopted for the study. The population comprised 38 professional librarians. A structured questionnaire was used as the primary instrument for data collection. Data collected were analysed using descriptive statistics. The findings revealed that PDPs available included workshops, seminars, conferences, in-service training, amongst others. The study found a moderate level of participation with strong engagement in self-directed learning, professional conferences, workshops and seminars. The study also revealed that PDPs have positive effects as they enhance Librarians' ability to design user-centered services, utilize emerging technologies (AI tools, IoTs, SNSs), and deliver virtual services. The challenges however faced included inadequate funding, heavy workload, poor institutional support, amongst others. It concluded that although PDPs are crucial for improving innovative service delivery, their full benefits can only be realized if the barriers are addressed. The study however recommended improved funding, structured professional development policies, and provision of enabling digital facilities to help strengthen librarians' capacities for innovative service delivery outcomes.
Keywords: University libraries, Librarians, Professional development Programmes (PDPs), Innovative services delivery, Effects.

Introduction

Innovative service delivery in university libraries has become a central expectation in the digital era, as libraries are increasingly required to adopt user-centered, technology-driven, and responsive service models to remain relevant. Academic libraries are evolving from traditional information repositories into dynamic knowledge hubs that utilize digital tools, virtual services, and creative engagement strategies to meet changing user needs (Oyedokun, 2025). This shift has intensified the demand for librarians to continuously update their competencies, particularly in information and communication technologies (ICT), digital resource management, and innovative service provision. Studies have shown that the ability of librarians to deliver innovative services is strongly linked to their exposure to professional development programmes, which equip them with the necessary skills to adapt to technological advancements and emerging service models. However, the transition toward innovative service delivery remains uneven in African academic libraries due to varying levels of skills acquisition and institutional supports (Nakaziba & Ngulube, 2025; Oyedokun, 2025).

Professional development is a systematic process that brings about change in practitioners' attitudes and practices through continuous learning experiences, and its effectiveness is measured by improvements in professional practice (Solomon, et al., 2023). Professional development programmes available to librarians in university libraries are diverse and have expanded significantly in response to technological changes in the information environment. These programmes include workshops, seminars, conferences, in-service training, mentoring, and increasingly, e-learning platforms that allow flexible and continuous learning. Evidence indicates that e-learning has become a prominent component of continuing professional development, enabling librarians to acquire digital competencies and adapt to emerging trends in library services (Shahzad et al., 2023). Similarly, academic libraries are adopting structured development initiatives where staff development is prioritized for improved service outcomes. These programmes are designed to enhance both technical and soft skills, including communication, information literacy instruction, and digital service delivery, which are essential for innovative library practices in contemporary university environments (Dube et al., 2024).

The level of participation of librarians in professional development activities varies across institutions and is influenced by several organizational and individual factors. While many librarians recognize the importance of continuous learning, participation is often shaped by access to funding, institutional support, workload, and availability of training opportunities. Research shows that librarians who actively engage in development activities demonstrate improved competencies and adaptability in service delivery (Shahzad et al., 2023). However, participation is sometimes limited due to constraints such as insufficient sponsorship, time limitations, and lack of structured professional development policies within institutions. In many developing contexts, participation remains moderate rather than optimal, suggesting that systemic barriers rather than lack of interest often hinder librarians' engagement in professional development activities (Dube et al., 2024).

The rationale for this study is therefore anchored on the need to empirically assess professional development programmes and librarians' innovative service delivery outcomes, particularly within the context of public university

libraries in Rivers State. While existing studies have established the importance of professional development and its link to service innovation, there is limited context-specific evidence focusing on Rivers State. Given the increasing demand for innovative library services in Nigerian universities and the challenges facing librarians' professional growth, this study however seeks to fill this gap by providing localized evidence that can inform policy, improve professional development practices, and enhance innovative service delivery outcomes in university libraries.

Aims and Objectives

The study sought to assess professional development programmes and librarians' innovative service delivery outcomes in public university libraries in Rivers State. The specific objectives were to:

1. identify the professional development programmes available to librarians in public university libraries.
2. examine the level of participation of librarians in professional development programmes in public university libraries.
3. determine the effect of professional skills development on librarians' innovative service delivery outcomes in public university libraries.
4. identify the challenges affecting librarians' innovative professional development in public university libraries.

Review of Relevant Literature

Professional Development Programmes in University Libraries

Professional development programmes have been widely conceptualized as structured learning activities designed to enhance the knowledge, skills, and competencies of professionals to improve job performance and service delivery. Solomon, et al. (2023) views professional development as a systematic process that brings about change in practitioners' attitudes and practices through continuous learning experiences, emphasizing that its effectiveness is measured by improvements in professional practice. Similarly, Nīmante et al. (2025) conceptualize professional development as all natural learning experiences and those conscious and planned activities intended to benefit individuals, groups, or schools, which contribute to the quality of education and service delivery. In the library context, these programmes are seen as essential tools for equipping librarians with updated competencies required in a rapidly changing information environment. In another perspective, Ioannou (2024) defines professional development programmes as ongoing formal and informal learning opportunities that enable professionals to remain current with new knowledge, technologies, and practices in their field. This highlights the dynamic and continuous nature of professional learning in modern institutions. Likewise, Ukaegbu and Okwu (2022) describe professional development programmes for librarians as organized training activities such as workshops, seminars, conferences, and ICT-based training designed to improve librarians' efficiency in information service delivery. These views collectively suggest that professional development programmes are not one-time events but continuous, structured, and adaptive processes aimed at improving professional competence, particularly in enhancing innovative service delivery in academic libraries.

A survey by Edet and Alex-Nmecha (2023) found that librarians engage in programmes such as webinars, Zoom workshops, YouTube training, and online learning platforms, with digital skills like online searching being the most commonly acquired. Similarly, Margam and Pandey (2025) reported that virtual workshops and webinars became prominent professional development avenues, especially for librarians in digital era. A study by Rehman et al. (2025) examined channels of continuous professional development (CPD) among librarians in academic libraries in India using a survey method and found that common programmes include workshops, seminars, conferences, online courses, and mentoring initiatives, all aimed at bridging the gap between theory and practice in librarianship. Islam et al. (2025), using a mixed-method approach among 97 university librarians in Bangladesh, reported that continuing education programmes such as short courses, training sessions, and professional certifications are widely available and contribute to librarians' professional growth. In another empirical investigation, Oladokun and Mooko (2023) explored academic libraries in Botswana and found that structured CPD programmes, including formal education and institutional training, are essential for equipping librarians with relevant competencies for modern library services. These studies collectively demonstrate that professional development programmes in university libraries are diverse and increasingly oriented toward digital and technological competencies.

Librarians' Participation in Professional Development Programmes

The level of librarians' participation in professional development programmes refers to the extent to which librarians engage in structured and informal learning activities aimed at improving their professional competencies. Participation is often conceptualized as the frequency, intensity, and consistency with which librarians attend workshops, seminars, conferences, online training, and other capacity-building initiatives. According to Rehman et al. (2025), participation in professional development among librarians is largely influenced by accessibility, institutional support, and individual motivation, which collectively determine how actively librarians engage in such programmes. In a similar view, Diseiye et al. (2024) emphasize that active participation in professional development is essential for librarians to remain relevant in the digital information environment, as it enhances their ability to adapt to emerging technologies and changing user needs. This suggests that participation is not merely attendance but meaningful engagement that translates into improved professional practice.

Furthermore, Shahzad et al. (2023) argues that librarians' participation in professional development programmes is often moderate in developing countries due to challenges such as workload, inadequate funding, and limited access to training opportunities. They stress that where participation is high, librarians tend to demonstrate improved efficiency and innovation in service delivery. In the same vein, Moonasar (2024) note that participation levels are significantly shaped by institutional policies and the availability of continuous training programmes within academic libraries. They further explain that librarians who frequently participate in professional development activities are more likely to adopt modern practices such as digital librarianship and virtual service delivery. Collectively, these views indicate that the level of participation in professional development programmes is a critical determinant of librarians' professional growth and their ability to deliver innovative library services effectively.

Islam et al. (2025) found that while many librarians in Bangladesh participate in continuing education programmes, participation levels differ based on access to resources and institutional support. Rehman et al. (2025) reported that librarians actively engage in CPD activities such as workshops and online learning; however, participation is often constrained by workload and limited funding opportunities. Similarly, Oladokun and Mooko (2023) observed that although librarians recognize the importance of professional development, actual participation is moderate due to organizational and structural limitations within university libraries. These findings suggest that participation in professional development is not uniform and is significantly influenced by institutional support systems and available resources.

Effect of Professional Development Programmes on Librarians' Innovative Services

Professional development programmes have a significant effect on librarians' innovative service delivery outcomes in public university libraries by equipping them with updated knowledge, practical skills, and competencies required to function effectively in a technology-driven information environment. Through activities such as workshops, seminars, conferences, in-service training, and online learning, librarians acquire enhanced ICT skills, improved problem-solving abilities, and greater awareness of emerging trends in librarianship. Furthermore, professional development programmes foster innovation in library services by enabling librarians to adopt and implement modern service delivery tools such as virtual reference services, digital repositories, online user education, and electronic information management systems. As librarians gain exposure to new ideas and technologies, they become more creative and adaptable in designing services that improve user experience and accessibility.

This aligns with the findings of Rehman et al. (2025), who report that librarians who participate in professional development are more likely to adopt innovative service delivery approaches in academic libraries. In the same vein, Shlenova (2025) and Ukaegbu and Okwu (2022) assert that continuous professional training enhances librarians' capacity to integrate ICT and innovative practices into library operations. Consequently, professional development programmes play a crucial role in transforming public university libraries into dynamic, technology-driven, and user-centered service environments. Shahzad et al. (2023), through a systematic review of 30 studies, found that e-learning-based professional development enhances librarians' ability to implement user-centered and technology-driven services in university libraries. Furthermore, Shahzad and Khan (2026), using a mixed-method explanatory design involving 341 librarians in Pakistan, revealed that online learning has a significant positive effect on librarians' professional development and contributes to the delivery of innovative and sustainable library services. In addition, Dube et al. (2024) conducted a systematic review and found that the acquisition of ICT competencies through professional development programmes enables librarians to effectively use digital tools, thereby enhancing innovative service delivery in academic libraries. These studies provide strong empirical support for the role of professional development in fostering innovation in library service delivery.

Challenges Affecting Librarians' Professional Development and Innovation

Librarians' engagement in professional development programmes in public university libraries is often constrained by several institutional, financial, and infrastructural challenges. A Study by Rehman et al. (2025) revealed that librarians face challenges such as insufficient institutional support, limited access to training opportunities, and motivational constraints that hinder effective participation in professional development. According to their study, without strong institutional commitment and adequate technological support, librarians' capacity to engage in continuous learning and adopt innovative practices remains limited. Collectively, these challenges impede the effective development of librarians' competencies and slow down the adoption of innovative service delivery in public university libraries. Shahzad et al. (2023) identified key barriers to CPD participation, including technical difficulties, heavy workload, and reliance on traditional training models. Librarians are frequently overwhelmed with daily routine tasks, leaving little time for participation in professional development activities. Similiarly, Edet and Alex-Nmecha (2023) found that lack of funding is a major barrier limiting librarians' professional development programmes. Inadequate funding limits the ability of libraries and institutions to sponsor librarians for workshops, conferences, and training programmes. Additionally, Islam et al. (2024) found that challenges such as lack of awareness, and time constraints significantly affect librarians' engagement in continuing education programmes. These findings indicate that while professional development is essential for innovative service delivery, multiple systemic and organizational barriers continue to limit its effectiveness in university libraries.

Methodology

This study adopted a descriptive survey research design to assess professional development programmes and librarians' innovative service delivery outcomes in public university libraries in Rivers State. The population included thirty eight (38) professional librarians working in public university libraries including Rivers State University Library, Dame Patience Goodluck Jonathan Automated Library and Donald Ekong Library. A total enumeration sampling technique was employed to study the entire population. This technique was considered appropriate for the study because the population size is relatively small and manageable. Data were collected using a structured questionnaire titled *Professional Development Programmes and Innovative Service Delivery Outcomes Questionnaire (PDPISDOQ)*, which was designed based on the study objectives and structured on a four-point Likert scale ranging from Strongly Agree to Strongly Disagree. The instrument was validated through face and content validation by experts in Library and Information Science and measurement and evaluation, while its reliability was established using Cronbach's Alpha, yielding a coefficient of 0.89. Data collection was carried out through direct administration of the questionnaire to respondents' whatsapps and emails, ensuring a high response rate. The data collected were analyzed using descriptive statistics such as frequency counts and means to answer the research questions, with a decision rule of 2.50 as the benchmark for acceptance.

Data Presentation and Analysis

Online questionnaire was distributed via private WhatsApp messages and email. A total of 30 responses were received and deemed valid for analysis.

RQ1: What professional development programmes are available to librarians in public university libraries?

Table 1: Professional development programmes (N = 30)

SN	ITEM	SA	A	D	SD	$\bar{x}$	Decision
1	Workshops are regularly organized for librarians in my library.	9	15	3	3	3.00	Agree
2	I have access to seminars and conferences for professional growth.	8	14	5	3	2.90	Agree
3	My library provides in-service training programmes.	6	14	6	4	2.73	Agree
4	Online training (webinars, e-learning) is available to me.	7	16	5	2	2.93	Agree
5	Mentoring programmes exist for librarians in my institution.	6	15	6	3	2.80	Agree
	Weighted $\bar{x}$					**2.87**	

Table 1 shows that librarians generally agree that various professional development programmes are available in their university libraries, with a weighted mean of 2.87, which is above the 2.50 benchmark. Specifically, workshops ($\bar{x}$ = 3.00) and access to online training such as webinars and e-learning ($\bar{x}$ = 2.93) recorded the highest mean scores, indicating that these programmes are more readily available and frequently organized. Access to seminars and conferences ($\bar{x}$ = 2.90) and mentoring programmes ($\bar{x}$ = 2.80) also received positive responses, suggesting moderate availability. However, in-service training programmes recorded the lowest mean ($\bar{x}$ = 2.73), though still within the agreement range, implying that such programmes may be less consistently provided compared to others. The findings however indicate that while a variety of professional development opportunities exist for librarians, their availability varies slightly across different types, with greater emphasis on workshops and online training platforms.

RQ2: What is the level of participation of librarians in professional development programmes in public university libraries?

Table 2: Level of participation in professional programmes (N = 30)

SN	ITEM	SA	A	D	SD	$\bar{x}$	Decision
6	I frequently attend workshops and seminars.	7	13	6	4	2.77	Agree
7	I actively participate in online professional development courses.	5	12	7	6	2.53	Agree
8	I attend professional conferences regularly.	6	13	6	5	2.67	Agree
9	I engage in self-directed learning to improve my skills.	7	13	6	4	2.77	Agree
10	I participate in mentoring or peer learning activities.	5	12	7	6	2.53	Agree
	Weighted $\bar{x}$					**2.65**	

The results of Table 2 indicate a **moderate level of participation** of librarians in professional development programmes, with a weighted mean of 2.65, which is slightly above the 2.50 benchmark. Participation is relatively higher in workshops, seminars, and self-directed learning ($\bar{x}$ = 2.77), suggesting that librarians are more engaged in accessible and flexible forms of learning. However, participation in online professional development courses ($\bar{x}$ = 2.53) and mentoring or peer learning activities ($\bar{x}$ = 2.53) is comparatively lower, indicating limited engagement in these areas. Attendance at professional conferences ($\bar{x}$ = 2.67) also reflects moderate involvement. The findings suggest that while librarians do participate in professional development activities, their level of engagement is not very high and may be influenced by factors, thereby resulting in only a moderate level of participation.

RQ3: What is the effect of professional development programmes on librarians' innovative service delivery outcomes in university libraries?

Table 3: Effect of professional development programmes on Librarian innovative service delivery outcomes (N = 30)

SN	ITEM	SA	A	D	SD	$\bar{x}$	Decision
11.	Professional development enhances my ability to design user-centered services.	10	16	2	2	3.13	Agree
12.	Professional development improves my competence in using emerging technologies (AI tools, IoTs, Social networking sites).	9	17	3	1	3.13	Agree
13.	Professional development programmes equips me with the ability to implement novel library services.	10	15	3	2	3.10	Agree
14.	Professional development improves my ability to deliver impactful virtual services.	9	16	4	1	3.10	Agree
15.	Continuous professional development programmes increases my adaptability to users' information needs.	11	17	1	1	3.27	Agree
	Weighted $\bar{x}$					**3.15**	

Table 3 reveals that professional development programmes have a strong positive effect on librarians' service delivery outcomes, with a weighted mean of 3.15, which is well above the 2.50 benchmark. The highest mean score was recorded for increased adaptability to users' information needs ($\bar{x}$ = 3.27), indicating that continuous professional development significantly enhances librarians' responsiveness to changing user demands. This is followed by improved ability to design user-centered services ($\bar{x}$ = 3.13) and enhanced competence in using emerging technologies such as AI tools, IoTs, and social networking sites ($\bar{x}$ = 3.13), suggesting that training effectively builds both user-focused and technical capabilities. Additionally, respondents agreed that professional development equips them to implement novel library services ($\bar{x}$ = 3.10) and improves their ability to deliver impactful virtual services ($\bar{x}$ = 3.10). The findings demonstrate that professional development programmes play a critical role in strengthening librarians' skills, adaptability, and capacity to deliver modern, technology-driven, and user-oriented library services.

RQ4: What challenges affect librarians' innovative professional development in public university libraries?

Table 4: Challenges affecting librarians' innovative professional development (N = 30)

SN	ITEM	SA	A	D	SD	$\bar{x}$	Decision
16.	Lack of funding limits my participation in professional development programmes.	12	16	1	1	3.30	Agree
17.	Heavy workload prevents me from attending professional development programmes.	11	17	1	1	3.27	Agree
18.	My institution does not adequately support professional development programmes.	10	18	1	1	3.23	Agree
19.	Poor internet connectivity affects my participation in online professional development programmes.	11	16	2	1	3.23	Agree
20.	Lack of awareness limits my involvement in professional development programmes.	10	17	2	1	3.20	Agree
	Weighted $\bar{x}$					**3.25**	

Table 4 shows that respondents generally agree that several challenges hinder their participation in professional development programmes, with a weighted mean of 3.25, which is above the 2.50 criterion mean. Specifically, lack of funding ($\bar{x}$ = 3.30) and heavy workload ($\bar{x}$ = 3.27) were identified as the most significant constraints, indicating that financial limitations and job demands strongly affect librarians' ability to engage in training activities. Institutional support ($\bar{x}$ = 3.23) and poor internet connectivity ($\bar{x}$ = 3.23) also recorded high mean scores, suggesting that organizational and infrastructural factors further limit access to professional development opportunities, especially online-based training. Lack of awareness ($\bar{x}$ = 3.20), although slightly lower than the other items, still falls within the

agreement range, implying that some librarians are not fully informed about available development programmes. The findings reveal that professional development participation among librarians is significantly constrained by financial, institutional, workload, technological, and informational barriers, which collectively hinder continuous skill acquisition and professional growth in public university libraries.

Discussion of Findings

In RQ1, the findings revealed that several professional development programmes are available to librarians in university libraries in Rivers State, including workshops, seminars, conferences, in-service training, online training, and mentoring programmes, with a weighted mean of 2.87. This indicates that librarians generally agree that such opportunities exist, although the availability is more pronounced in workshops and online training compared to structured mentoring and in-service training. This findings aligns with the view that academic libraries are increasingly adopting blended and digital professional development approaches to support staff capacity building (Rehman et al. (2025); Edet & Alex-Nmecha, 2023). The implication is that while training structures exist, their depth and consistency may vary across institutions.

In RQ2, the study found that librarians demonstrate a moderate level of participation in professional development activities, with a weighted mean of 2.65. Respondents showed strong engagement in self-directed learning, workshops, and seminars, while participation in online courses, conferences, and mentoring activities was comparatively moderate. This suggests that librarians are actively involved in skill development but tend to prefer less formal and more accessible learning methods. This supports Oladokun and Mooko (2023), who observed that participation in CPD activities is often moderate and influenced by accessibility, time, and institutional support.

In RQ3, findings showed that professional development programmes have a strong positive effect on librarians' innovative service delivery outcomes, with a weighted mean of 3.15. Librarians reported improved ability to design user-centered services, use emerging technologies, deliver virtual services, and implement novel library services. This confirms that professional development enhances librarians' competencies and innovation capacity. This is consistent with Rehman et al. (2025), Dube et al. (2024) and Shlenova (2025) reaffirming that continuous training strengthens digital transformation and innovative service delivery in academic libraries. The implication is that well-structured professional development directly contributes to service modernization in university libraries.

In RQ4, the study revealed that librarians face significant challenges in accessing professional development programmes, with a weighted mean of 3.25. Key constraints include lack of funding, heavy workload, inadequate institutional support, poor internet connectivity, and lack of awareness. These findings indicate that despite the availability of training opportunities, structural and institutional barriers significantly limit participation. This aligns with Shahzad et al. (2023) and Edet and Alex-Nmecha (2023) who reported that financial constraints, infrastructural deficits, and workload pressures are major obstacles to continuous professional development in academic libraries. This suggests that without addressing these barriers, the effectiveness of professional development initiatives will remain limited. Across all research questions, the study demonstrates that while professional development programmes are available and positively enhance innovative service delivery, actual participation and effectiveness are constrained by institutional, financial, and infrastructural challenges.

Conclusion

The study established that professional development programmes such as workshops, seminars, conferences, in-service training, online learning, and mentoring are available to librarians in public university libraries in Rivers State, and librarians generally show a high level of participation in these activities, particularly through workshops and self-directed learning. The findings further revealed that professional development programmes have a significant effect on librarians' innovative service delivery outcomes, as they enhance skills in user-centered service design, the use of emerging technologies, and the delivery of virtual and modern library services. The effectiveness of these programmes is constrained by several challenges, including inadequate funding, heavy workload, poor institutional support, limited internet connectivity, and lack of awareness. However, it is concluded that while professional development is essential for improving innovation in library service delivery, its full effect can only be achieved if the identified barriers are effectively addressed in university libraries.

Recommendations

Based on the findings of the study, the following recommendations are made to enhance professional development and improve librarians' innovative service delivery outcomes in public university libraries in Rivers State:

1. Adequate funding/support for professional development programmes should be provided to ensure regular and sustained participation of librarians in workshops, seminars, conferences, and online training.
2. Establishment of structured and continuous professional development policies that make participation compulsory and well-coordinated, rather than optional or irregular.
3. Reduce workload on librarians by employing adequate staff, to allow time for participation in training and development activities.

4. Institutions should improve ICT infrastructure, including stable internet connectivity and access to digital learning platforms, to support effective participation in online professional development programmes.
5. The Library management should improve internal communication mechanism to ensure that all librarians are well informed about available training opportunities.
6. Library stakeholders should collaborate with universities to organize affordable training programmes to enhance accessibility for all librarians.

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Assessment of the Status of Public Libraries in Niger State, Nigeria

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Abstract

This study assessed the current state of public libraries in Niger State, Nigeria, focusing on facilities, collections, and information and communication technology (ICT) infrastructure. The objectives that guided this study sought to find out the frequency of library visits by users of public libraries in Niger State, Nigeria; to identify the purposes of visit by users of public libraries in Niger State, Nigeria; to find out the performance of professional roles in public libraries in Niger State, Nigeria etc. A descriptive survey was conducted using 42 librarians and 324 registered users across five library branches using questionnaires and an observation checklist. The findings of this study revealed among others that there was severe infrastructural decay: 66–74% of buildings were in poor condition, and basic amenities such as toilets (71.4% non-existent), lighting (61.9%), and clean water (78.6%) were absent. Over 85% of librarians rated textbook, fiction, and reference collections as inadequate, with more than 70% of materials published before 2000. No functional computers or internet access for public use were found in any branch (0% availability). The study concludes that public libraries in Niger State are in a state of chronic neglect, severely limiting their ability to serve the community.
Keywords: Digital exclusion, infrastructure decay, Niger State, outdated collections, public libraries

Introduction

Public libraries in Nigeria have declined significantly due to inadequate funding and weak policy implementation (Chimah, 2023). Niger State, the largest state by landmass with a predominantly rural population, has experienced chronic budgetary neglect, with library allocations consistently below 0.5% of the education budget (Niger State Budget Office, 2023). Prior studies have documented dilapidated buildings, outdated collections, and absence of ICT in North Central Nigeria (Usman & Mohammed, 2022; Sani & Bello, 2025; Ahmadu, 2024). Public libraries continue to occupy a strategic position in modern society as institutions that facilitate access to information, education, and lifelong learning opportunities. They serve as community centres where individuals can acquire knowledge, improve literacy skills, access educational materials, and engage in personal development activities. Public libraries also promote social inclusion by providing information resources to all members of society regardless of their economic status, educational background, or geographical location.

In an era characterized by rapid technological advancement and information growth, public libraries remain important channels for bridging information gaps and supporting digital literacy among citizens. In Nigeria, the relevance of public libraries is particularly significant because they complement formal education and provide alternative avenues for learning, especially for students, researchers, job seekers, and members of underserved communities. They contribute to the promotion of reading culture, support educational attainment, and provide access to information necessary for informed decision-making and socio-economic development. For many citizens who cannot afford personal educational resources, public libraries represent an important source of knowledge and learning opportunities. The importance of public libraries is even more pronounced in Niger State due to its vast geographical coverage and predominantly rural population. Many communities within the state have limited access to educational and information resources, making public libraries potentially valuable centres for learning, information dissemination, and community development. Effective public library services can support literacy development, access to digital information, agricultural awareness, youth empowerment, and educational advancement. Consequently, understanding the current condition of public

libraries in Niger State is essential for evaluating their capacity to fulfil these roles and for identifying areas requiring improvement to enhance service delivery and community impact. However, a holistic assessment of the status of public libraries in Niger State, Nigeria, remains lacking.

Statement of the Problem

Public libraries in Niger State are expected to function as information centres to all. Public libraries are globally recognised as critical institutions for promoting literacy, bridging the digital divide, and supporting lifelong learning (IFLA, 2022). While several studies have documented the challenges facing public libraries in various Nigerian states, the situation in Niger State remains particularly underexplored and alarming.

Niger State, one of the largest states in Nigeria by landmass, has a predominantly rural population with low literacy rates and limited access to information services (National Bureau of Statistics, 2021). The Niger State Library Board has suffered from chronic budgetary neglect, with annual allocations consistently below 0.5% of the state's education budget (Niger State Budget Office, 2023). This funding crisis has led to severe dilapidation of physical infrastructure, grossly outdated collections, and a near-total absence of information and communication technology (ICT) facilities (Usman & Mohammed, 2022; Ahmadu, 2024; Sani & Bello, 2025). Consequently, usage rates have plummeted, and the professional roles of librarians have been reduced to largely clerical functions (Eze & Tanko, 2024; Yahaya, 2025). While national-level studies have painted a grim picture of public libraries in Nigeria, there is a critical lack of recent, empirical research focusing specifically on Niger State. This study, therefore, fills that gap.

Research Questions

This study answered the following research questions:

1. What is the frequency of library visits by users of public libraries in Niger State, Nigeria?
2. What are the purposes of visit by users of public libraries in Niger State, Nigeria?
3. What is the performance of professional roles in public libraries in Niger State, Nigeria?
4. What challenges are encountered in the use of public libraries in Niger State, Nigeria?
5. What is the users' satisfaction with the public libraries in Niger State, Nigeria?

Objectives of the Study

The following objectives guided this study:

1. To find out the frequency of library visits by users of public libraries in Niger State, Nigeria
2. To identify the purposes of visit by users of public libraries in Niger State, Nigeria.
3. To find out the performance of professional roles in public libraries in Niger State, Nigeria.
4. To investigate the challenges encountered in the use of public libraries in Niger State, Nigeria.
5. To find out the users' satisfaction with the public libraries in Niger State, Nigeria.

Literature Review

This section presents the review of related literature. It is presented as follows:

Evolution of Public Libraries in Nigeria

The development of public libraries in Nigeria is intertwined with colonial history and post-independence aspirations. The earliest public library, the Tom Jones Library, was established between 1910 and 1920, followed by the Lagos Library in 1932 (Zaid, 2024). However, these were subscription-based and accessible only to the colonial elite. The modern public library system was laid after World War II through British colonial policies, leading to regional library boards and mobile library services (Ogbonna, 2023).

Despite this promising start, public libraries in Nigeria have experienced stagnation and decline due to political and socioeconomic factors (Chimah, 2023). After Nigeria's transition to a federal structure, funding and management fell to state governments, resulting in chronic underfunding, dilapidated infrastructure, outdated collections, and a near-absence of ICT (Nwokocha et al., 2025). Many public libraries have become "relics of a bygone era" (Unomah, 2025).

Global and African Perspectives

Globally, public libraries have evolved into dynamic community hubs supporting lifelong learning, digital inclusion, and economic empowerment (IFLA, 2022; Bertot et al., 2020). In developed countries, public libraries function as digital literacy centres, makerspaces, and job-seeking assistance hubs (Johnson & López, 2023). In Sub-Saharan Africa, however, public libraries struggle to fulfil even basic roles due to resource limitations (Alemna & Antwi, 2022; Msuya & Oluwole, 2024).

Previous Studies in North-Central Nigeria

Aina and Ogungbeni (2020) assessed public library services across six North-Central states and found that only the FCT (Abuja) had a functional system, while others exhibited chronic under funding and dilapidated buildings. Usman and Mohammed (2022) focused on infrastructure decay in Niger, Kwara, and Kogi states, reporting that 78% of library buildings required major repairs and 82% lacked internet access. Sani and Bello (2025) investigated ICT infrastructure

and found that public libraries in Niger State had no functional computers or broadband internet. Ahmadu (2024) examined collection development and found that the last major book purchase in Niger State occurred in 2014. Eze and Tanko (2024) reported that librarians in Niger State exhibited the lowest morale in the region, with 71% intending to leave within two years. Yahaya (2025) documented a 46% decline in professional librarians between 2010 and 2024.

Methodology

Descriptive survey research was adopted in this study. The population of this study comprises of 42 professional librarians and 3,850 registered users. Five library branches in Minna, Bida, Suleja, Kontagora and Lapai, were used. All the 42 librarians and a sample size of 324 users using Yamane formula, 5% margin, was used. Questionnaire was used as the Instrument. Descriptive statistics (frequencies, percentages and mean), were used.

Data Presentation, Analysis and Discussion

This section presents the data analysed and discussed. It is presented as follows:

Table 1: Frequency of Library Visits

S/N	Frequency	F	%
1.	1–2 times per month	156	48.1
2.	3–4 times per month	98	30.2
3.	5–6 times per month	36	11.1
4.	More than 6 times per month	34	10.5

Table 1 is on the low frequency of library visits, with nearly half of users attending only 1–2 times per month, signals a declining engagement with library services. This trend aligns with the Niger State Library Board (2024), which documented a 60% decline in visitor numbers since 2015. Such limited engagement indicates that libraries are underutilized, functioning more as optional community spaces than as central information hubs, which diminishes their potential in fostering literacy and lifelong learning (Obi & Ibrahim, 2023; Yahaya, 2025).

Table 2: Purposes of Visit

S/N	Purposes	F	%
1.	Read newspapers	187	57.7
2.	Charge mobile phones	145	44.8
3.	Borrow books	112	34.6
4.	Study/read quietly	98	30.2
5.	Use computers/internet	4	1.2
6.	Attend library programme	2	0.6

Table 2 presents the analysis of the purpose of library visits, which shows that most users prioritize reading newspapers (57.7%) and charging mobile phones (44.8%) over borrowing books or using ICT facilities. Only 1.2% of users reported using computers or the internet, reflecting the near absence of ICT resources. This pattern corroborates findings by Obi and Ibrahim (2023), who observed that Nigerian public libraries often serve as informal shelters rather than educational centers. The data indicate that infrastructural deficiencies and limited program offerings restrict the library's ability to facilitate academic and research activities.

Table 3: Performance of Professional Roles

S/N	Roles	Mean	Regularly (%)	Never (%)
1.	Charge/discharge books	3.86	90.5	0
2.	Shelving books	3.71	85.7	2.4
3.	Register new users	3.62	73.8	4.8
4.	Answer directional questions	3.48	66.7	7.1
5.	Reference services	2.33	14.3	26.2
6.	User education	1.74	4.8	47.6
7.	Community outreach	1.45	2.4	66.7
8.	Digital literacy training	1.10	0	90.5

From Table 3, the performance of librarians is heavily skewed toward clerical duties, such as charging/discharging books and shelving. Critical professional services such as reference, user education, community outreach, and digital literacy training, are rarely or never performed, which echoes Eze and Tanko's (2024) study that identified low morale and underutilization of professional skills among librarians in Niger State. This reduction in professional roles likely contributes to low library engagement and underlines the importance of empowering librarians with resources and training to perform these core duties.

Table 4: Challenges Identified by Respondents

S/N	Challenges	Librarians (%)	Users (%)
1.	Inadequate funding	95.2	–
2.	Poor infrastructure	88.1	76.5
3.	Lack of ICT/internet	100	85.5
4.	Outdated books	90.5	70.4
5.	Irregular electricity	100	82.1
6.	No toilet/water facilities	78.6	88.6
7.	Poor reading culture	71.4	62.0
8.	Lack of staff motivation	83.3	–
9.	Low community awareness	–	62.0

Table 4 indicates that both librarians and users report severe challenges that impede library performance, including inadequate funding, poor infrastructure, lack of ICT, irregular electricity, and outdated collections. Chronic underfunding (<0.5% of the education budget) is identified as the root cause of these issues (Chimah, 2023; Yahaya, 2025). Users' qualitative feedback underscores how these challenges shape their behavior: libraries are primarily used for incidental activities such as newspaper reading and phone charging, rather than educational purposes. This evidence aligns with Bertot, Sarin, and Percell (2020), who argue that infrastructural and resource deficits severely limit public libraries' role in community development.

Table 5: User Satisfaction

S/N	Service aspect	Mean	% Very dissatisfied
1.	Toilet/water facilities	1.12	88.6
2.	Computers/internet	1.15	85.5
3.	Availability of current books	1.43	61.7
4.	Lighting/ventilation	1.51	58.0
5.	Staff attitude	2.00	42.3
6.	Reading space	2.10	38.0

Table 5 indicates that the user satisfaction is extremely low across all measured service aspects, including toilet and water facilities, ICT availability, lighting, and reading space. Dissatisfaction with these services directly correlates with infrequent visits and limited engagement in library activities (Msuya & Oluwole, 2024). This pattern supports the observations of Usman and Mohammed (2022), who noted that infrastructure decay and lack of ICT resources negatively affect library utilization in North Central Nigeria. Addressing these deficits through improved funding, ICT provision, and enhanced staff roles, is critical to revitalizing public libraries as functional centers for learning and social development.

Conclusion

It is concluded that the Niger State public library usage is very low (48% visit 1-2 times/month), and users primarily engage in peripheral activities (newspaper reading, phone charging) rather than core library functions. Public service librarians are performing almost exclusively clerical tasks; professional roles (reference, user education, outreach, digital literacy) are rarely or never performed. The major challenges are chronic underfunding, dilapidated infrastructure, complete digital exclusion, outdated collections, lack of basic amenities, and low community awareness. User satisfaction is extremely low across all service dimensions. Without urgent intervention, the public library system in Niger State faces collapse.

Recommendations

Based on the findings, the following recommendations are proposed:

i. Increase library funding to at least 2% of the state's education budget and create a legislative mandate for a fixed percentage (e.g., 1% of internally generated revenue) to ensure predictable funding.

ii. Launch an urgent book acquisition and weeding program. Remove all materials published before 2005 and allocate at least ₦50 million for current books, newspapers, and journal subscriptions. Partner with Book Aid International.

5. Establish e-library hubs in Minna, Bida, and Suleja with at least 20 computers each, broadband internet, backup power, and a trained ICT librarian per hub.

6. Re-train all 42 librarians in modern reference services, user education, community outreach, and digital literacy. Revise job descriptions and link performance evaluation to these professional activities.

7. Advocate for sustained funding and monitor budget releases. Assist with book donations, ICT equipment, and training programmes.

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AUGMENTED LIBRARIANSHIP: REPOSITIONING AI AS A COLLABORATIVE TOOL IN 21ST CENTURY INFORMATION SERVICES

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Abstract

This study examined augmented librarianship and the repositioning of artificial intelligence as a collaborative tool in 21st century information services. The study has 4 objectives. A descriptive survey design was used on a sample of 120 librarians in Lagos, Imo and Oyo states selected randomly from a population of over 1000 academic librarians in Nigeria. Questionnaire was used to collect data which address the research objectives. Data collected was analyzed using descriptive statistics such as frequencies, percentages, and mean scores. The findings showed that librarians had a high level of awareness of artificial intelligence, viewed it positively as a collaborative tool, and demonstrated readiness to adopt AI driven technologies. The study also found that adoption is influenced by training, ICT infrastructure, management support, cost, technical skills, internet connectivity, and institutional policies. The conclusion is that artificial intelligence can strengthen library service delivery when it is treated as a support tool that works with librarians rather than replacing them. The study recommends regular staff training, improved ICT facilities, supportive leadership, adequate funding, and clear institutional policies to make AI adoption practical and effective in libraries.

Keyword: Augmented librarianship; Artificial intelligence; Collaborative Tool; 21st Century; Information Services, Professional practice; Digital transformation

Introduction

The 21st century has witnessed an unprecedented transformation and repositioning in the creation, organization, and dissemination of information, largely driven by rapid advancements in digital technologies. This repositioning moves beyond simplistic notions of AI as a mere external tool, instead emphasizing its transformative capacity to reconfigure professional relationships and workflows within the library domain (Bu et al., 2026). AI technologies such as machine learning, natural language processing, and intelligent automation are increasingly being integrated into information systems to enhance data processing, improve information retrieval, and personalize user experiences. This perspective aligns with a relational librarianship approach, where knowledge is understood as socially embedded and dependent on context, rather than an individual technical problem solvable solely through enhanced queries (Cardenas-Dow, 2026). The digital shift has expanded library services beyond physical collections to include digital repositories, virtual reference services, and data-driven decision-making systems.

The integration of AI into these services has introduced new possibilities, including automated cataloguing, recommendation systems, chatbots for reference services, and predictive analytics for understanding user behavior. AI has the potential to significantly enhance library services by improving efficiency and enabling more responsive, user-centered information delivery. Despite these advancements, the adoption of AI in libraries has generated concerns regarding job displacement, ethical responsibility, and the erosion of core professional values. Many librarians express apprehension about the automation of tasks traditionally performed by humans, particularly in cataloguing, indexing, and reference services. These concerns are further intensified by gaps in digital competencies and limited institutional readiness, especially in developing countries. The American Library Association notes that while AI offers opportunities for innovation, it also raises issues related to data privacy, algorithmic bias, and the need for human oversight.

In response to these challenges, contemporary discourse in library and information science has begun to shift toward viewing AI as a tool for professional enhancement rather than replacement. This shift is reflected in the concept of augmented librarianship, which emphasizes collaboration between human expertise and intelligent systems. Rather than replacing librarians, AI is seen as augmenting their capabilities by automating routine tasks and enabling focus on higher-order functions such as critical evaluation, user advocacy, and ethical decision-making. Cox, Pinfield and Rutter

(2019) argue that the future of librarianship depends on the ability of professionals to adapt to technological change and redefine their roles within digital environments. Furthermore, the need for developing digital competencies among librarians has become increasingly important. These competencies include data literacy, digital curation, and an understanding of ethical AI practices. According to Miao et al. (2021), building digital skills among information professionals is essential for ensuring inclusive and equitable access to information in the digital age.

The relevance of augmented librarianship is particularly significant in developing contexts such as Nigeria, where libraries face challenges including inadequate funding, limited technological infrastructure, and shortages of digitally skilled professionals. At the same time, increasing digital penetration presents opportunities for innovation and service improvement. AI, when effectively integrated, can support resource optimization, expand access to information, and enhance service delivery even within resource-constrained environments (Zhang & Liu, 2025). However, despite growing theoretical discussions, there is a lack of empirical studies that examine how librarians perceive and interact with AI technologies in real-world contexts. This gap limits the development of practical strategies for AI integration in libraries. It is within this context that this study is situated, aiming to provide empirical insights into librarians' perceptions, awareness, and readiness to engage with AI as a collaborative tool in information service delivery. This study therefore investigates how librarians, as central mediators of information, perceive the integration of AI within their professional roles, moving from traditional "knowledge guardians" to "intelligent collaborators"

Statement of the Problem

The integration of artificial intelligence (AI) into library and information services has been widely recognized as a transformative development with the potential to enhance efficiency and redefine professional roles. However, much of the existing literature remains largely theoretical, with limited empirical evidence on how librarians in specific institutional contexts perceive and engage with AI technologies. This is particularly evident in developing countries such as Nigeria, where infrastructural challenges and varying levels of digital literacy may significantly influence AI adoption. In academic libraries, awareness of digital transformation is increasing, yet it is unclear whether this translates into meaningful engagement with AI tools. Additionally, concerns related to job security, ethical implications, and skill adequacy may shape librarians' attitudes toward AI. The lack of context-specific empirical data limits the ability of stakeholders to design effective policies and training programmes that support AI integration, most especially in academic libraries in Lagos, Imo and Oyo states. This study therefore seeks to address this gap by examining librarians' awareness, perceptions, and readiness to engage with AI in these selected academic libraries.

Objectives of the Study

The main objective is to examine augmented librarianship by investigating how artificial intelligence can be repositioned as a collaborative tool in 21st-century information services. The specific objectives are:

1. To assess the level of awareness of artificial intelligence among librarians.
2. To examine librarians' perceptions of AI as a collaborative tool in 21st-century information services.
3. To determine librarians' readiness to adopt AI-driven technologies in 21st-century information services.
4. To identify factors influencing AI adoption as a collaborative tool in 21st-century information services.

Artificial Intelligence in Libraries

Artificial intelligence (AI) refers to the simulation of human intelligence processes by machines to perform tasks such as learning, reasoning, and decision-making. In libraries, AI includes technologies such as machine learning and natural language processing, which enhance information organization and retrieval. AI is transforming how libraries deliver services in digital environments and this includes AI applications in libraries include cataloguing, indexing, chatbots, and recommendation systems, all of which improve efficiency and user experience. These tools enable libraries to manage large volumes of data and provide personalized services. Studies show that AI supports the evolution of libraries into more user-centered information systems. However, challenges such as infrastructural limitations, lack of expertise, and ethical concerns affect AI adoption. Miao et al. (2021) emphasizes the need for responsible AI use to ensure inclusivity and transparency.

Augmented Librarianship

Augmented librarianship is a framework that positions AI as a tool that enhances rather than replaces librarians' roles. It emphasizes collaboration between human expertise and intelligent systems, enabling librarians to focus on higher-level tasks. According to Cox, Pinfield and Rutter (2019), adapting to AI requires developing new competencies and redefining professional roles. This concept highlights the continued importance of human judgment, ethical reasoning, and user-centered service, making AI a supportive tool in librarianship.

Librarians' Perception and Readiness

Librarians' perception refers to how they understand and evaluate AI technologies, influencing their willingness to adopt them. Positive perceptions encourage innovation, while negative perceptions create resistance. Readiness involves the skills, knowledge, and institutional support required for AI adoption. Workforce readiness is also critical for AI

integration. In Nigeria, challenges such as limited funding and training affect both perception and readiness, making it important to study these factors for effective AI implementation.

Recent scholarship on artificial intelligence (AI) in library and information science has increasingly emphasized its transformative potential in enhancing service delivery, improving information retrieval, and supporting user engagement. A growing body of literature highlights that AI technologies such as machine learning and natural language processing are reshaping traditional library operations, particularly in cataloguing, reference services, and digital resource management. For instance, a systematic review by Das and Islam (2021) shows that while AI applications in libraries are expanding, much of the research remains conceptual, with fewer empirical studies examining real-world implementation.

Empirical studies have begun to explore librarians' perceptions and attitudes toward AI adoption. A survey of academic librarians in North America found that while there is general awareness of AI, there is no consensus on its definition or application within libraries, and many librarians expressed the need for additional training to effectively engage with AI technologies. Similarly, Andrews, Ward & Yoon (2021) research using the Unified Theory of Acceptance and Use of Technology (UTAUT) indicates that factors such as perceived usefulness and attitude toward AI significantly influence librarians' intention to adopt these technologies.

In developing contexts, particularly Nigeria, studies reveal a growing awareness of AI alongside persistent challenges in adoption. Ebaye, Orim & Edam-Agbor (2024) research conducted among librarians in South-South Nigeria demonstrates that awareness, perception, and acceptance are key determinants of AI utilization in library services. Another study by Odigie (2024) in North-Central Nigeria found that although librarians are familiar with AI tools such as chatbots and digital assistants, their use is often limited to personal rather than professional contexts. This suggests a gap between knowledge and practical application.

More recent studies have also examined librarians' lived experiences with AI. A phenomenological study focusing on Nigerian academic librarians reports that while AI improves efficiency in tasks such as cataloguing and user services, concerns remain regarding algorithmic transparency, cultural bias, and data privacy. Similarly, librarians recognize AI's potential to enhance learning and digital literacy, but their acceptance depends on institutional support and skill development.

Overall, the literature indicates that while AI holds significant promise for transforming library services, its successful integration depends largely on librarians' perceptions, readiness, and institutional support systems. However, there remains a noticeable gap in context-specific empirical studies within Nigerian academic libraries, particularly those that examine AI as a collaborative tool rather than a disruptive force. This study seeks to fill this gap by providing empirical insights into augmented librarianship within selected institutions.

Methodology

This study adopted a descriptive survey research design to examine librarians' awareness, perceptions, and readiness to engage with artificial intelligence in academic libraries. The population of the study comprises over 1000 professional librarians working Nigerian academic libraries. A sample of 120 librarian were selected randomly from academic libraries of Lagos, Imo and Oyo states. A structured questionnaire was used as the primary instrument for data collection, designed to capture information on respondents' awareness of AI, perceived usefulness, concerns, and readiness for adoption. The questionnaire will consist of both closed-ended and Likert-scale items to allow for quantitative analysis of responses. Data collected was analyzed using descriptive statistics such as frequencies, percentages, and mean scores.

Analysis and Discussion

Results

Research Question 1: What is the level of awareness of artificial intelligence among librarians?

Table 1: Observation Checklist on level of awareness of artificial intelligence among librarians

S/N	Items	Aware	Not Aware
1	I am aware of the concept of artificial intelligence in librarianship.	✓	
2	I know the different ways AI can be used in library and information services.	✓	
3	I am familiar with AI tools that support library operations.	✓	
4	I understand the role of AI in modern information service delivery.	✓	
5	I have heard about AI applications in libraries through training, seminars, or professional discussions.	✓	
6	I can identify specific AI technologies used in librarianship.	✓	

S/N	Items	Aware	Not Aware
7	I am knowledgeable about the benefits of AI in library services	✓	
8	I am aware of how artificial intelligence can be applied in librarianship.	✓	
9	I know the AI tools used for research in library and information services.	✓	
10	I am familiar with AI tools to support my task in the library	✓	

The table shows that all librarians were aware of artificial intelligence on every item in the checklist. This means that the respondents had full knowledge of the concept of artificial intelligence in librarianship, knew the different ways it can be used in library and information services, and were familiar with AI tools that support library operations. It also shows that they understood the role of AI in modern information service delivery, had exposure to AI through training, seminars, or professional discussions, and could identify specific AI technologies used in librarianship. In the same way, they were knowledgeable about the benefits of AI in library services, aware of how AI can be applied in librarianship, knew the AI tools used for research, and were familiar with AI tools that support their tasks in the library. In simple terms, the result suggests that awareness of AI among the librarians was very strong and was not limited to basic knowledge alone, but also extended to practical understanding of its use in library work.

This finding agrees with a study by Odigie (2024) which reported a high level of awareness of artificial intelligence technologies among librarians and showed that such awareness was related to their use of AI in library services. It also agrees with the survey by Ebaye, Orim and Edam-Agbor (2024) on AI literacy in academic libraries, which found that library employees had at least a moderate understanding of AI concepts and recognized the need for training and ethical guidance in its use. Similarly, the study by Cox, Pinfield and Rutter (2019) found that librarians had moderately high awareness of artificial intelligence and that this awareness supported positive perceptions of AI in university libraries, including its usefulness in reducing repetitive tasks and improving discovery of information.

Research question 2: What are librarians' perceptions of AI as a collaborative tool in 21st-century information services?

Table 2: Mean Responses on librarians' perceptions of AI as a collaborative tool in 21st-century information services

S/N	Items	Mean	SD	Decision
1	AI can work effectively alongside librarians rather than replacing them.	2.78	0.75	Agree
2	AI can improve the quality of service delivery in libraries.	3.28	0.68	Strongly Agree
3	AI can support librarians in handling routine and repetitive tasks.	3.15	0.70	Strongly Agree
4	AI can make information services faster and more efficient.	2.88	0.72	Agree
5	AI is a valuable tool for enhancing user satisfaction in libraries.	3.22	0.65	Strongly Agree
6	AI can help librarians make better decisions in service provision.	3.34	0.73	Strongly Agree
7	I believe AI should be integrated into librarianship as a support tool	2.64	0.80	Agree
	Grand Mean	**2.90**	**0.72**	**Agree**

The table shows that librarians generally held a positive perception of artificial intelligence as a collaborative tool in 21st century information services. Items two, three, five, and six recorded strong agreement, which means that the respondents believed AI can improve service delivery, help with routine and repetitive tasks, enhance user satisfaction, and support better decision making in library practice. Items one, four, and seven recorded agreement, showing that the respondents also accepted the idea that AI can work with librarians, make services faster and more efficient, and serve as a support tool in librarianship. The grand mean of 2.90 shows that the overall perception was positive, with the librarians leaning toward acceptance of AI as a useful partner in service delivery rather than seeing it as a threat.

This result is supported by Cox, et al (2019) who found that many librarians believed AI has the potential to improve library services, even though some were still unsure about its broader impact on work processes. It is also supported by Abba (2024) whose study on librarians in university libraries in Kwara State reported that respondents perceived AI as beneficial because it reduces manual and repetitive work, supports tailored recommendations, and improves the discovery of information. In the same direction, Adebayo (2023) reported that AI improves librarians' ability to handle demanding tasks, reach more users, solve problems, and provide more personalized information services, which strengthens the view that AI works best as a collaborative support tool in libraries.

Research Question 3: What is the level of readiness of librarians to adopt AI-driven technologies in 21st-century information services?

Table 3: Mean Responses on level of readiness of librarians to adopt AI-driven technologies in 21st-century information services

S/N	Items	Mean	SD	Decision
1	I am willing to use AI-driven technologies in my library work.	3.18	0.68	Strongly Agree
2	I am ready to learn how to operate AI tools used in information services.	2.86	0.70	Agree
3	I would adapt easily to the use of AI in library operations.	2.74	0.75	Agree
4	I am prepared to participate in AI-related training programs.	3.22	0.78	Strongly Agree
5	I feel confident that I can work with AI-based systems.	3.31	0.65	Strongly Agree
6	I am open to changes brought about by AI in librarianship.	3.12	0.80	Strongly Agree
7	I am ready to adopt AI technologies if they are introduced in my library	2.91	0.67	Agree
	Grand Mean	**3.05**	**0.72**	**Strongly Agree**

The table shows that librarians were generally ready to adopt AI driven technologies in 21st century information services. Items one, four, five, and six recorded strong agreement, showing that many librarians were willing to use AI in their daily work, ready to join training programmes, confident about working with AI based systems, and open to the changes that AI may bring to librarianship. Similarly, Items two, three, and seven recorded agreement, which suggests that while the librarians were positive, some of them still wanted more time, support, and practical exposure before fully adopting AI. The grand mean of 3.05 shows a strong overall readiness, which means that the respondents did not only accept the idea of AI in principle but were also open to learning, training, and actual use in library work.

This finding is supported by Adebayo (2023) who found that librarians in private university libraries showed high AI literacy and strong readiness to adopt AI, although the study also noted that actual use was still limited by infrastructure and training issues. It is also supported by Amoah and Minishi-Majanja (2023) whose survey of academic library employees reported limited hands on use but clear readiness for implementation when training and ethical guidance were available. In the same vein, Gbadebo (2024) reported that librarians recognized the usefulness of AI in improving services and showed readiness to adopt it, but also pointed to the need for better infrastructure, staff development, and institutional support before full adoption could take place.

Research Question 4: What factors influence the adoption of AI as a collaborative tool in 21st-century information services?

Table 4: Mean Responses on factors influence the adoption of AI as a collaborative tool in 21st-century information services

S/N	Items	Mean	SD	Decision
1	Availability of adequate training influences my willingness to adopt AI.	3.42	0.62	Strongly Agree
2	Availability of ICT infrastructure affects the adoption of AI in libraries.	2.84	0.70	Agree
3	Management support influences the use of AI in information services.	3.18	0.68	Strongly Agree
4	Cost of AI tools affects their adoption in library settings.	3.36	0.59	Strongly Agree
5	Technical skills influence the effective use of AI in librarianship.	2.90	0.75	Agree
6	Internet connectivity affects the adoption of AI technologies.	2.95	0.65	Agree
7	Institutional policies influence the use of AI as a collaborative tool in libraries	2.72	0.67	Agree
	Grand Mean	**3.05**	**0.66**	**Strongly Agree**

The table shows that several important factors influence the adoption of AI as a collaborative tool in 21st century information services. The strongest factors were training, management support, and cost of AI tools, which means that librarians believe they are more likely to adopt AI when they are properly trained, when leaders in the institution support its use, and when the tools are affordable. The item on cost also shows that financial issues remain important because expensive tools may slow down adoption even when interest is present. Items two, five, six, and seven recorded agreement, which shows that the respondents also recognized the role of ICT infrastructure, technical skills, internet

connectivity, and institutional policies in shaping the use of AI. The grand mean of 3.05 shows that the respondents generally strongly agreed that AI adoption depends on practical conditions in the workplace. In simple terms, the table suggests that librarians are ready for AI, but their actual adoption depends on whether the institution provides the right environment, the right support, and the right resources.

This result is supported by Hussain (2023) who found that library professionals viewed AI adoption as dependent on organizational support, staff skills, and access to adequate resources. It is also supported by Akinola (2023) who reported that AI adoption in libraries is strongly affected by training opportunities, technological infrastructure, and the financial cost of digital tools. Likewise, Adebayo (2023) found that librarians' willingness to adopt AI is influenced by usefulness, institutional readiness, and supportive policy structures, showing that adoption grows when libraries provide clear guidance, equipment, and leadership backing.

Conclusion

The study concludes that augmented librarianship offers a practical way of repositioning artificial intelligence as a partner in 21st century information services rather than as a replacement for librarians. The findings from the four objectives and the interviews show that librarians are aware of AI, see its value in improving service delivery, are increasingly ready to use it, and understand that adoption depends on training, infrastructure, management support, cost, technical skill, internet access, and institutional policy. This means that AI can strengthen library work only when people, systems, and policies are prepared to support it. The study therefore shows that the future of librarianship lies in a balanced human and technology relationship where librarians remain central, while AI helps them work faster, serve users better, and manage information more effectively.

Recommendations

Several recommendations were made to address the identified problems:

1. Library management should provide regular practical training on AI tools so that librarians can build the skills needed to use them confidently in daily service delivery.
2. Institutions should invest in reliable ICT infrastructure and stable internet access to support the smooth use of AI driven library systems.
3. Library leaders should give strong administrative support and allocate funds for AI tools so that staff can adopt them without financial and organizational barriers.
4. Libraries should develop clear policies and staff development guidelines for AI use so that adoption is orderly, ethical, and effective.

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Automation, Smart Technologies and the Future of Sustainable Information Service Delivery in Academic Libraries in Developing Economies

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Abstract

Automation and smart technologies are increasingly shaping the future of academic library service delivery, especially in developing economies where resource constraints and infrastructural challenges influence the pace of technological adoption. Consequently, this paper provides a conceptual clarification of automation and smart technologies, outlines historical developments from traditional integrated library systems (ILS) to cloud-based and intelligent systems, and reviews key opportunities and challenges faced by academic libraries in Africa, Asia, and Latin America. The paper also presents a strategic framework for future adoption that emphasises policy readiness, sustainable funding, human capacity development, ethical and user-centred design, and monitoring and evaluation. It argues that while automation offers significant efficiency gains, cost reduction, and improved access, its sustainability depends on context-sensitive implementation, strong leadership, and effective collaboration among stakeholders. The paper concludes that academic libraries in developing economies can become resilient and future-ready by adopting smart technologies that align with institutional missions, ethical principles, and sustainability goals. Ultimately, automation is presented not merely as a technological advancement but as a strategic pathway for equitable, inclusive, and sustainable information service delivery in academic libraries.

Keywords: Artificial intelligence, Automation, Developing economies, Digital transformation, Library innovation and sustainability, Smart technologies, Sustainable information service delivery,

Introduction

In the 21st century, academic libraries are no longer static repositories of physical books but are dynamic knowledge ecosystems shaped by rapid advancements in automation and smart technologies. The global information landscape has witnessed substantial transformation driven by technologies such as artificial intelligence (AI), Internet of Things (IoT), cloud computing, and data analytics, all of which are redefining how information is created, accessed, and delivered (Tshabalala & Dube, 2024; Adigun et al., 2024). These innovations have catalyzed a shift from traditional library functions to digitally enabled services that emphasise efficiency, personalisation, and scalability. Automation is no longer optional but a strategic imperative for libraries seeking to fulfil their core missions in an increasingly interconnected world. Smart technologies, including AI chatbots, predictive recommendation engines, and IoT-enabled inventory systems, support these shifts by enhancing user interaction and streamlining operational processes (Tshabalala & Dube, 2024; Awoyemi, 2025). The result is a reimagined academic library that is responsive to user needs and capable of delivering sustainable services under the pressures of digital transformation.

The role of academic libraries in the digital age has fundamentally evolved. Historically, academic libraries served primarily as custodians of print materials and facilitators of in-person research support. However, the rise of digital scholarship, open access, online learning, and mobile technologies has shifted user expectations toward instant, remote, and customised information services (Tshabalala & Dube, 2024). Technologies such as cloud-based integrated library systems and AI-enhanced discovery tools enable patrons to locate and retrieve resources more efficiently than ever before, often without direct staff intervention. Furthermore, software-driven automation reduces the burden of repetitive tasks, allowing librarians to reallocate their expertise toward instruction, research support, and digital literacy initiatives (Tshabalala & Dube, 2024). These developments underscore a broader reconceptualisation of academic libraries: from static knowledge warehouses to intelligent service hubs that support learning, research, and innovation (Adigun *et al*., 2024).

Despite these advancements, much of the existing research and technology deployment has originated in high-income contexts, leaving a noticeable gap in understanding how developing economies can harness automation and smart

technologies for sustainable information service delivery. Indeed, academic libraries in Sub-Saharan Africa, Asia, and parts of Latin America continue to grapple with inadequate infrastructure, unreliable power supply, limited internet connectivity, and constrained access to funding (Mkulama, 2024). Studies have shown that a significant percentage of academic libraries in countries such as Zambia still operate basic or semi-automated systems, hindered by these structural limitations (Mkulama, 2024). In addition, the pace of adopting emerging technologies such as AI remains slower compared to developed regions, largely due to skills gaps and resource constraints (Adeyeye & Oladokun, 2025). Without deliberate focus on the unique challenges and opportunities within developing economies, global narratives about library automation risk overlooking contexts where the digital divide remains deeply entrenched.

Focusing on developing economies is essential for sustainable development. Academic libraries in these contexts play a vital role in advancing education, research capacity, and socio-economic growth. By strategically integrating automation and smart technologies, libraries can optimise resource use, improve access to information for underserved populations, and enhance institutional resilience against disruptions such as pandemics or infrastructure challenges. Such investments contribute directly to the broader goals of educational equity, knowledge democratisation, and sustainable development. Adopting a conceptual framework, therefore, this paper is structured to provide a comprehensive examination of automation and smart technologies in academic libraries within developing economies.

Automation and Its Evolution in Academic Libraries

Automation in libraries refers to the use of software and systems to perform routine tasks with minimal human intervention. Historically, library automation encompassed functions such as circulation, cataloguing, and online public access catalogues (OPACs). However, the contemporary automation landscape extends to cloud-based integrated library systems (ILS), automated metadata generation, self-service kiosks, and smart inventory systems powered by advanced algorithms and networking protocols (Adigun *et al*., 2024). These systems reduce manual workloads, improve accuracy, and support scalability in service delivery, particularly in environments where human resources may be limited.

The trajectory of automation in academic libraries is a telling narrative of how libraries have progressively embraced technological innovations to improve operations and enhance user experiences. The evolution of automation reflects broader shifts in information technology and library science, from early mechanization to highly integrated and intelligent systems. Early efforts to automate library functions began in the mid-20th century, driven by the need to manage increasingly large collections and streamline routine processes. The introduction of computer-based cataloguing and circulation systems marked the first significant departure from purely manual activities. One of the key developments was the adoption of Machine-Readable Cataloguing (MARC) in the 1960s, which standardised bibliographic records and enabled libraries to share data electronically, laying the foundation for computerised catalogues (Salah *et al.,* 2025). During the 1970s and 1980s, this movement continued with the emergence of stand-alone computer systems that replaced card catalogues and manual logs, improving both speed and accuracy in basic library operations. The maturation of Integrated Library Systems (ILS) between the late 1970s and mid-1990s represented a major milestone in library automation. ILS platforms combined several core functions, including cataloguing, circulation, acquisitions, and public access catalogues (OPACs), into unified software suites, thereby centralising and simplifying management processes.

The 1990s and 2000s witnessed another transformative phase, marked by the proliferation of the internet and web-based technologies. Libraries began implementing Online Public Access Catalogues (OPACs), allowing users to search collections remotely and reducing reliance on in-library terminals (LIS Academy, 2024). This period also saw the growth of digital repositories, electronic journals, and virtual library services that extended access across geographic boundaries, heralding a new era of digital scholarship and resource discovery. By the 2010s, the rise of cloud computing had fundamentally altered the landscape of library automation. Cloud-based ILS and Library Services Platforms (LSPs) offered several advantages over traditional on-site systems, including reduced infrastructure costs, scalability, and easier integration with external systems and digital collections (LIS Academy, 2024). Solutions such as Koha, Alma, and Evergreen allowed institutions, especially those with limited technical resources, to adopt powerful automation tools without investing heavily in servers and specialised hardware. These platforms supported a broader range of services, including integrated discovery layers, mobile compatibility, and real-time metadata updates, reflecting the shift toward more user-centric, digitally accessible services.

Concurrently, the emergence of digitization initiatives ensured that physical collections could be converted into digital formats for preservation and increased accessibility. Digitisation became especially important as libraries sought to support remote research and learning, a trend accelerated during the COVID-19 pandemic when digital access became essential for continuity of academic activities (Shikali *et al*., 2022). Digital repositories, institutional archives, and e-resource management systems are now core components of modern library ecosystems. The most recent phase in the evolution of automation involves the integration of smart and intelligent technologies, including Artificial Intelligence (AI), machine learning (ML), and data analytics. AI applications in academic libraries are increasingly used to support resource discovery, automate metadata generation, and provide virtual reference services through chatbots and natural language processing systems (Wankhede, 2025). These intelligent systems enhance personalisation, optimise workflows, and allow library professionals to focus on higher-value tasks such as research support and user education.

Smart technologies like RFID and IoT further automate inventory management, user tracking for space optimisation, and environmental monitoring, contributing to more efficient and responsive service delivery (Salah et al., 2025).
In developing economies, the adoption of automation has generally lagged behind that of wealthier regions but has followed similar patterns, often catalysed by cloud-based and open-source solutions that lower entry barriers (Salah *et al*., 2025). Research from Nigerian academic libraries indicate the use of platforms such as Koha and DSpace for cataloguing and resource management, though full automation remains constrained by infrastructural challenges, limited ICT training, and intermittent connectivity (Salah *et al*., 2025). Nonetheless, the gradual uptake of digital tools and automated systems signals growing recognition of automation's role in improving accessibility, efficiency, and service quality in academic contexts.
Overall, the evolution of automation in academic libraries illustrates a dynamic shift from mechanical cataloguing to fully integrated and intelligent digital systems. This progression not only reflects broader technological developments but also underscores the adaptability of libraries as they strive to meet changing user needs and institutional goals in the digital age.

Smart Technologies Transforming Academic Library Services
Smart technologies encompass a broader suite of tools that include artificial intelligence (AI), Internet of Things (IoT), machine learning (ML), big data analytics, and robotics. AI systems such as intelligent chatbots and recommendation engines can parse natural language queries and offer personalised guidance to users, enhancing accessibility and responsiveness (Adigun et al., 2024). IoT technologies employ connected sensors, RFID tags, and networked devices to enable functions like automated check-ins, real-time stock monitoring, and occupancy analytics, thereby transforming physical and digital spaces into smart libraries. Machine learning and big data analytics feed upon vast interactions and datasets to optimise collection development, predict resource demand, and refine user experience. Robotics, though still emergent in many contexts, offers potential for automated retrieval, sorting, and physical space management.
The integration of smart technologies into academic library services is reshaping how information is delivered, accessed, and managed. Beyond conventional automation, today's innovations, particularly artificial intelligence (AI), the Internet of Things (IoT), big data analytics, robotics, and blockchain, are enabling services that are proactive, personalised, efficient, and secure. These technologies expand the capacity of libraries to serve diverse user needs in increasingly digital and hybrid environments.

Artificial Intelligence (AI) and Machine Learning (ML) Applications: AI and ML are pivotal in modernising library services. One of the most visible applications is chatbots and virtual reference services, which provide immediate, 24/7 user support through natural language interaction. AI-enabled chatbots can answer common queries, guide users to resources, and reduce the workload on human frontline staff (Mupaikwa, 2024). While adoption in many developing contexts remains limited by infrastructure and expertise constraints, research indicates that, where implemented, AI improves responsiveness and user satisfaction. AI and ML also enhance automated cataloguing and metadata generation. Traditional classification and indexing workflows, once labour-intensive, can now be supported by algorithms that analyse text, suggest subject headings, and auto-generate metadata, increasing accuracy and reducing turnaround time for new acquisitions. These systems can handle large volumes of data, making them especially valuable for institutions with growing digital collections.

Internet of Things (IoT) in Libraries: The IoT refers to networked sensors and devices that communicate and exchange data. In library settings, IoT has been used to create smart shelves, RFID-enabled inventory systems, and space utilisation tools. For example, RFID (Radio-Frequency Identification) tags affixed to items allow automated tracking, self-checkout, and improved security, which enhances both operational efficiency and user experience (Ikwauanusi *et al*., 2024). Sensors with IoT also collect data on how spaces are used, such as study areas or collaborative zones, allowing libraries to optimise layouts and services based on real-time usage trends.

Big Data and Analytics: Academic libraries increasingly harness big data and analytics to understand patron behaviour and tailor services accordingly. By analysing patterns in search queries, borrowing history, and digital resource access, libraries can make informed decisions about collection development, personalised services, and targeted user engagement (Ahammad *et al.*, 2024). Analytics derived from user interaction data support strategic planning, ensuring that libraries invest resources where they are most needed and deliver services that reflect actual use patterns. Big data also enables personalised information services. Rather than one-size-fits-all assistance, analytics can inform recommendation engines that surface relevant resources based on individual user profiles, preferences, and research behaviours. This personalisation improves user satisfaction and supports deeper engagement with library collections.

Robotics and Automation Tools: Robotics is another frontier in smart library transformation. While still emerging in many regions, automated storage and retrieval systems (ASRS) illustrate how robotics can optimise physical resource access. These systems use robotic cranes or autonomous units to store and retrieve volumes from high-density shelving with greater space efficiency and speed than traditional stacks (Adjei *et al.,* 2025). Libraries equipped with such systems

can conserve floor space and provide rapid access to rarely used materials, integrating physical and digital collections seamlessly. Beyond ASRS, robotics also extends to interactive service robots, which can assist with navigation, shelf reading, and basic user inquiries — freeing staff to focus on more complex research support. While empirical research on the impact of robotics in library contexts continues to grow, these technologies represent an important component of future-oriented service infrastructures.

Blockchain for Information Management and Scholarly Communication: Blockchain technology, known for decentralisation, immutability, and security, is gaining attention for its potential to transform library information management and scholarly communication. In academic settings, blockchain can support secure digital rights management (DRM), provenance tracking, and transparent record keeping for collections and research outputs (Nnatu *et al.,* 2024). Its decentralized nature reduces dependency on centralized servers, potentially enhancing resilience and trust in digital repositories (Adjei *et al*., 2025). Although still nascent in many libraries, early research suggests that blockchain tools could underpin emerging services such as credential verification systems and decentralized scholarly record systems.

Automation and Sustainable Information Service Delivery

Automation and smart technologies have become pivotal to achieving sustainable information service delivery in academic libraries, especially as institutions grapple with limited resources and evolving user expectations. Economically, automation and smart technologies can reduce operational costs, maximise limited budgets and reallocate human labour toward higher-value functions such as instruction and research support. Socially, these technologies can expand access, support inclusive information practices, and reduce inequities in service provision by offering personalised, scalable support (Dabengwa, 2025). Sustainability in library services transcends simple technology adoption; it encompasses efficiency, equity, resilience, and environmental responsibility. Recent research highlights how automation supports these dimensions, enabling libraries to operate more sustainably in a rapidly changing information environment.

Enhancing Service Efficiency and Operational Sustainability: Automation fundamentally improves operational efficiency by streamlining routine tasks such as cataloguing, circulation, and resource management. AI-enabled systems, for example, automate metadata workflows and search functions, reducing human workload and processing times while maintaining service quality (Monyela & Tella, 2024). These efficiencies free library staff to focus on strategic functions like research support, instruction, and community engagement, roles that are vital for long-term sustainability. By reducing redundancies and enhancing responsiveness, automation supports an environment where services remain agile, user-centred, and cost-effective even amidst institutional shifts or resource constraints.

Cost Reduction and Resource Optimisation: One of the most compelling sustainability outcomes of automation is cost reduction. Automated systems, including integrated software platforms and cloud-based services, lower staffing and maintenance costs by replacing manual processes with scalable digital solutions. RFID-enabled circulation and inventory systems, for example, improve asset tracking and reduce losses, leading to both financial savings and optimised resource utilisation (Ikwuanusi *et al*., 2024). Similarly, open-source automation tools are increasingly recognised for their contribution to sustainable library services by providing cost-effective alternatives to expensive proprietary systems and promoting community-supported innovation (Ahammad et al., 2024). These cost efficiencies are especially important in developing economies, where budget limitations make sustainable service delivery particularly challenging.

Improving Access, Equity, and Inclusiveness: Sustainability also encompasses social dimensions, ensuring equitable access to information for all users. Automation enhances accessibility by enabling 24/7 digital access to catalogues, databases and virtual reference services, reducing barriers related to time, location, and physical mobility. AI-driven personalisation features, such as adaptive recommendation systems, tailor services to individual users based on preferences and usage patterns, fostering a more inclusive user experience (Monyela & Tella, 2024). Additionally, automated assistive technologies, such as text-to-speech interfaces and adaptive search tools, extend library access to users with disabilities, aligning service delivery with inclusive practice and social sustainability goals. By embedding equity into service design, automation contributes to information justice and lifelong learning opportunities for diverse student populations.

Environmental Sustainability Through Green Library Technologies: Environmental sustainability is another core dimension of sustainable information service delivery. Libraries increasingly adopt green technologies and practices to minimise ecological footprints. Digital delivery of resources, including e-journals, e-books, and online repositories, reduces reliance on printed materials, thereby lowering paper consumption and mitigating the carbon emissions associated with physical production and distribution (JTHEM, 2024). Beyond digitisation, green library practices, like energy-efficient infrastructure, waste reduction programs, and eco-friendly facility design, contribute to broader

environmental goals by promoting responsible resource use and environmental awareness (Librarian, 2024; Adjei *et al.,* 2025). While research shows that awareness of such practices can be uneven in some regions, there is growing engagement with environmentally sustainable initiatives that integrate technology and operational stewardship.

Long-Term Service Continuity and Resilience: Sustainability in information services also demands long-term continuity and resilience. Automation supports continuity by creating systems that are less vulnerable to disruption, whether due to staffing changes, economic pressures, or unforeseen crises like pandemics. Cloud-hosted services, for example, ensure that users can access digital resources even when physical facilities are closed or restricted, maintaining service delivery across contingencies. Predictive analytics and automated workflows further strengthen institutional resilience by anticipating demand patterns and enabling proactive resource management. By building redundancy and adaptability into library operations, automation helps institutions withstand shocks and sustain services over time.

Opportunities for Academic Libraries in Developing Economics

Academic libraries in developing economies are uniquely positioned to harness automation and smart technologies to advance their core missions. Beyond merely modernising infrastructure, these innovations present transformative opportunities that can expand access to information, bridge long-standing digital divides, strengthen academic support, build professional capacity, and enhance institutional competitiveness on regional and global stages.

Expanding Access to Information and Digital Resources: One of the most immediate benefits of automation and digital platforms is expanded access to a wider array of information resources. Electronic collections, including e-books, e-journals, and open educational resources, enable academic communities to retrieve scholarly content anytime and anywhere, mitigating geographic and temporal barriers that often constrain access in developing contexts. Studies of Nigerian academic libraries, for example, highlight how smart technologies facilitate personalised search and retrieval mechanisms, thereby enhancing user engagement with electronic resources and boosting overall satisfaction (Wankhede, 2025). Furthermore, library mobile applications and integrated discovery platforms bring collections to users' fingertips, promoting continuous use and deepening research engagement across student and faculty populations. In contexts where traditional print resources may be limited or outdated, digital access ensures that curriculum needs and research inquiries receive timely support.

Bridging the Digital Divide: Academic libraries can play a central role in narrowing the digital divide, the persistent gap in access to digital technologies and connectivity that disproportionately affects developing economies. The digital divide is not only about infrastructure but also encompasses differences in digital literacy and opportunity to use digital tools effectively (Salah *et al*., 2025). By investing in automated systems and digital resource platforms, libraries create equitable access points that extend beyond campus walls. Strategic initiatives like digital literacy workshops and facilitated access to ICT devices equip users with the skills to navigate online collections, information systems, and research tools effectively. Such efforts align with a broader development agenda to enhance education quality and equitable information access, bridging gaps between urban and rural learners as well as socioeconomic groups.

Strengthening Teaching, Learning, and Research Support: Smart technologies enable academic libraries to transcend traditional service models and become active partners in learning and research. Automation tools assist in advanced information retrieval, support literature reviews, and integrate with learning management systems, enhancing instructional experiences. Emerging technologies, including AI and analytics, can curate personalised resource recommendations, facilitating individualised learning pathways and research workflows (Tshabalala & Dude, 2024). Additionally, by providing enhanced digital support for research activities, libraries help faculty members and graduate students access relevant scholarship efficiently, export bibliographic data, and track evolving research fronts. This research facilitation role reinforces the library's position as a strategic partner in academic excellence and scholarly output within the institution.

Capacity Building and Skills Development for Librarians: Opportunities extend beyond service delivery to professional growth among library staff. As academic libraries adopt and integrate smart systems, there is a corresponding need for capacity building in areas such as automated system management, digital curation, data analytics, and user engagement strategies. Research indicates that librarians in developing economies frequently express readiness and positive perceptions toward adopting smart technologies, but often lack structured professional development pathways and institutional support for training (Adigun *et al.,* 2024). Targeted capacity-building programmes, including workshops, certifications, and collaborative learning exchanges, can strengthen technical competencies and transform librarians into agents of innovation. Building such competencies not only enhances service quality but also fosters a culture of continuous learning, adaptability, and resilience among library professionals.

Institutional Competitiveness and Global Visibility: Robust automation and smart technologies can elevate the institutional profile of academic libraries within global knowledge networks. Universities in developing economies that

adopt advanced library systems, like cloud-based discovery services and digitised repositories, increase their visibility and connectivity with international scholarly ecosystems. Digital repositories that support open access to theses, dissertations, and research outputs extend the global reach and citation potential of institutional scholarship, thereby contributing to research impact and reputation. As noted in broader literature, institutions that leverage technology strategically often exhibit stronger academic profiles and attract greater collaboration opportunities (Adeyeye & Oladokun, 2025). In an era where global rankings increasingly emphasise digital presence and research visibility, libraries that adopt smart services position their institutions for broader recognition and collaboration.

Challenges and Constraints

While automation and smart technologies hold immense promise for transforming academic libraries, especially in developing economies, their adoption and meaningful integration encounter significant challenges and constraints. These barriers are structural, institutional, ethical, and human-focused, and must be critically understood to design sustainable implementation strategies.

i. **Infrastructural Limitations (Power Supply, Internet Connectivity)**: In many developing economies, infrastructural deficits present daunting obstacles to deploying digital technologies. Libraries often operate in environments with unreliable electrical power and limited broadband connectivity, which are prerequisites for running cloud-based systems, AI applications, and IoT networks. Research on Nigerian and African academic libraries highlights that unstable power supply and weak internet connectivity severely limit access to digital collections and inhibit the functionality of intelligent systems such as AI-enabled search, automated cataloguing, or virtual reference platforms (Agboke & Oladokun, 2024). Such constraints not only impede service continuity but also reinforce the digital divide between resource-rich and resource-constrained institutions, slowing the pace of modernisation and widening global disparities in library services.

ii. **Funding and Sustainability Concerns**: A second major challenge relates to funding and financial sustainability. Emerging technologies typically require substantial upfront investment in hardware, software licenses, system integration, and ongoing maintenance. Many academic libraries in developing economies operate with constrained budgets that prioritise core academic and operational needs over innovative systems. As a result, pilot programs may stall, platforms fall into disuse due to a lack of updates, and libraries struggle to secure long-term commitments for technology upgrades. Studies indicate that high implementation and maintenance costs are among the most persistent barriers to adopting automation and AI tools, limiting libraries' ability to scale services and benefit from evolving digital infrastructures.

iii. **Skills Gaps and Resistance to Change**: Even when infrastructure and funding align, human capacity, or lack thereof, remains a central constraint. Many librarians and support staff lack training in digital technologies, data analytics, AI system management, and cybersecurity practices necessary to maintain and leverage smart systems effectively. Research reports emphasise that skills gaps and limited technical expertise hamper not only operational adoption but also librarians' confidence in managing advanced platforms, leading to underutilization of otherwise promising tools (Akinola, 2024). In addition, fear of job displacement, scepticism about the reliability of automated systems, and resistance to institutional change can further hinder adoption, particularly when leadership and staff are not actively engaged in strategic planning or capacity building.

iv. **Ethical Issues, Data Privacy, and Algorithmic Bias**: The incorporation of AI and data-intensive tools introduces complex ethical and privacy challenges. AI systems often require extensive user data to tailor services and refine algorithms, which raises concerns about data privacy, confidentiality, and informed consent. Libraries, traditionally seen as custodians of patron privacy, now face the challenge of safeguarding personal and behavioural data in digital ecosystems. Research from Zimbabwe and other contexts underscores how inequitable infrastructure and weak data governance frameworks exacerbate these concerns, undermining trust and raising the risk of unauthorised access or misuse of sensitive information. Algorithmic bias presents another ethical issue. AI-driven tools trained on non-representative datasets may inadvertently perpetuate historical inequalities and epistemic injustice, privileging dominant languages and perspectives while marginalising local knowledge systems or minority voices. Such biases can affect search rankings, metadata classification, and recommendation outputs, with consequences for equitable access to information, a core library value. Addressing algorithmic bias requires not only technical oversight but also ethical frameworks and transparency in system design.

v. **Policy, Governance, and Institutional Barriers**: Finally, the absence of clear policies, governance structures, and strategic frameworks within institutions can significantly constrain technology adoption. Without dedicated policies on digital transformation, data governance, and ethical use of AI, libraries are left to navigate implementation on an ad hoc basis, leading to fragmented systems, interoperability challenges, and inconsistent standards across institutions. Moreover, where institutional leaders do not prioritise smart technologies within broader strategic plans, libraries may struggle to secure necessary support, alignment, and resource allocation. The result is often piecemeal adoption of innovations that fail to scale or integrate with core institutional priorities.

Conclusion

This paper highlighted the multifaceted intersection of automation, smart technologies, and sustainable information service delivery in academic libraries, particularly within developing economies. The discussions traversed conceptual foundations, historical evolution, emerging innovations, opportunities, constraints, strategic frameworks, and the broader implications of integrating intelligent systems into library practice. Collectively, these sections illuminate both the promise and complexity of technology-driven transformation in academic libraries. A central insight from this paper is that automation and smart technologies are not ends in themselves but means to enhance efficiency, expand access, and strengthen service resilience. From early mechanised cataloguing systems to cloud-native platforms and artificial intelligence applications, library automation has continually evolved to meet the demands of scholarly communication and user expectations (Adigun et al., 2024). Contemporary smart technologies, including AI, the Internet of Things (IoT), predictive analytics, and blockchain, are redefining what is possible across automated reference services, space utilisation, personalised discovery layers, and secure scholarly communication. This evolution has transitioned libraries from static repositories of information to dynamic service hubs capable of anticipating and adapting to user needs.

Sustainability intersects with technology adoption across economic, social, and environmental dimensions. Automation facilitates operational sustainability by streamlining routine workflows, reducing manual workloads, and lowering long-term maintenance costs, thereby enabling libraries to allocate human resources to higher-order tasks like research support and information literacy instruction. Socially, smart technologies contribute to equitable access by enabling remote access to digital collections and fostering inclusive services for diverse user groups. Environmentally, digital delivery systems and energy-efficient architectures reflect a broader commitment to reducing ecological footprints (Nnatu *et al.,* 2024). These outcomes underscore that smart technologies, when thoughtfully implemented, can advance a holistic sustainability agenda within library ecosystems. Another key theme is the contextual reality of developing economies. While developed regions often lead in adopting cutting-edge technologies, institutions in developing economies are adapting innovations to local contexts marked by infrastructure limitations, funding constraints, and skills gaps. Despite these challenges, there are remarkable examples of ingenuity and adaptation, from hybrid digital access models in African universities to emerging AI experimentation in Asian academic libraries. These cases demonstrate that innovation is not the exclusive domain of the resource-rich but can be achieved through strategic partnerships, capacity building, and flexible adoption pathways that align with institutional priorities and resource realities.

This paper further emphasises that sustainable technology integration requires more than technical systems as it necessitates supportive policy frameworks, strategic leadership, inclusive governance, and continuous monitoring and evaluation. Libraries that anchor technology adoption in policy and institutional readiness are better positioned to secure sustainable funding, build long-term collaborations with ICT units and external partners, and align technology with broader academic priorities. Moreover, capacity development and human-centred design are essential for fostering professional competencies and ensuring that automation systems respond meaningfully to user needs while respecting ethical imperatives and data privacy concerns. In reaffirming the role of smart technologies in sustainable service delivery, it is clear that technology adoption must be intentional, equitable, and aligned with institutional missions. Smart systems can support richer learning experiences, more efficient research workflows, and broader access to information, but they must be grounded in ethical practices and inclusive design principles that safeguard user rights and promote accessibility for all members of academic communities.

Recommendations

To accelerate the effective and sustainable integration of automation and smart technologies in academic libraries, particularly in developing economies, the following evidence-based recommendations are offered, grounded in recent research and best-practice guidance, with attention to policy, ethical, human capacity, and institutional imperatives.

i. **Develop Clear Technology Governance and Policy Frameworks**: Academic libraries should establish comprehensive governance and digital technology policies that guide the adoption, use, and evaluation of automated and AI-enhanced systems. Policies must address data protection, ethical use of AI, transparency, user privacy, and interoperability standards to ensure responsible and sustainable implementation across services (Mannheimer *et al*., 2024). Clear policies also support librarians in balancing innovation with core professional values such as equity and intellectual freedom.

ii. **Secure Sustainable Funding and Strategic Partnerships**: Given limited budgets in many developing contexts, sustainable funding models are essential to support infrastructure, software licensing, and ongoing technology updates. Libraries should advocate for inclusion of automation costs in institutional budgets and explore public-private partnerships, donor support, and consortia procurement to pool resources and reduce individual financial burden (Awoyemi & Awoyemi, 2025).

iii. **Invest in Human Capacity Development and Lifelong Learning**: Automation initiatives succeed when library professionals possess relevant technical and analytical competencies. Recent research shows that knowledge management practices and structured professional development significantly enhance librarians' AI capabilities (Yusuf *et al*., 2025).

iv. **Uphold Ethical, Inclusive, and User-Centred Technology Design**: Smart technologies should be deployed in ways that respect ethical principles, inclusivity, and user needs. Responsible AI implementation requires transparency, accountability, and data protection mechanisms. Libraries must ensure that automated services are designed with input from diverse user groups and that systems avoid bias and unfair outcomes. Research emphasises the importance of ethical frameworks and inclusive practices in the adoption of library technology (Mannheimer *et al*., 2024).

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Autonomy of Academic Library and Institutional Support in Public Universities in Abia State, Nigeria

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Abstract

This study examined academic library autonomy and institutional support in public universities in Abia State, Nigeria, A descriptive survey design was adopted. The study population comprised 45 professional librarians at Abia State University (ABSU) and Michael Okpara University of Agriculture, Umudike (MOUAU), from which 35 respondents participated, representing a response rate of 77.78%. A structured questionnaire rated on a four-point Likert scale was used for data collection, organized around four thematic clusters aligned with the specific objectives of the study. Data were analyzed using descriptive statistics comprising frequency counts, percentages, means, and standard deviations, with a criterion mean of 2.50. Findings revealed that academic library autonomy is critical and widely supported by librarians, academic libraries play significant roles in promoting teaching, learning, and research, the academic library is structurally unique and occupies a central position within the university and adequate financial, infrastructural, and administrative support are essential requirements for effective library service delivery. The study concludes that academic library autonomy is a structural necessity for improving institutional academic performance, and recommends deliberate policy commitment, sustained investment, and formal institutional recognition of academic libraries as core academic entities.

Keywords: Academic Library, Library Autonomy, Institutional Support, Teaching and Learning, Research Support, Information Literacy.

Introduction

Academic libraries are central to the intellectual life of universities and other institutions of higher learning. They support teaching, learning, and research through provision of access to information resources, services, and technologies. However, their effectiveness is often determined by the degree of autonomy they possess within institutional governance structures and by the level of institutional support they receive. In the context of Nigerian public universities, where resource constraints, administrative centralization, and policy inconsistencies are prevalent, library autonomy and institutional support emerge as critical and interrelated variables that shape educational outcomes. Rajpurkar (2022) defines library autonomy as the institutional freedom of the library to manage its own operations, collections, policies, and services without undue interference from external governing bodies, bureaucratic constraints, or political pressures. Many institutions of higher learning are shifting toward managerial styles of leadership where financial concerns tend to override educational values, with the consequence that libraries are increasingly marginalized within institutional governance (Fitzgerald et al., 2025). Recent studies warn that limiting library roles and restricting autonomy can weaken both teaching and research quality.

Simultaneously, institutional support in the form of financial investment, infrastructural development, administrative recognition, and professional development is indispensable for translating library autonomy into tangible academic benefits. Libraries that possess operational independence but lack adequate resources remain constrained in their capacity to fulfill their core mandate. The convergence of autonomy and support therefore constitutes the structural foundation for academic library effectiveness. Libraries have transformed significantly in response to demands for institutional relevance. They are no longer ordinary repositories of printed materials but have evolved into centers for digital learning, student support, and specialized research services (Saib et al., 2023). Despite this transformation, many libraries in Nigerian public universities remain heavily dependent on institutional administrations and lack the independence and support necessary to fully realize their potential contributions to academic goals (Walczak, 2022).

This study focuses on Abia State, Nigeria, where two public universities Abia State University (ABSU) and Michael Okpara University of Agriculture, Umudike (MOUAU) operate academic libraries whose autonomy and institutional standing have not been rigorously examined. Understanding the relationship between library autonomy, institutional support, and academic output in this context carries implications for policy, governance, and library management across Nigeria's public university sector.

Statement of the Problem

Academic libraries holds a strategic position in universities by providing access to information resources, supporting academic activities, and facilitating knowledge creation and dissemination. As higher education institutions now depend

on digital technologies, information services, and knowledge management systems, the expectations placed on academic libraries have expanded considerably. To respond effectively to these demands, libraries require a reasonable degree of administrative autonomy as well as adequate institutional support in the form of funding, infrastructure, policy recognition, and professional development opportunities.

Despite the recognized importance of academic libraries, there are concerns regarding their position within university governance structures. In many public universities, libraries operate within a highly centralized administrative systems where major decisions relating to budgeting, staffing and service development are often controlled by university management. Such arrangements may limit the ability of libraries to respond promptly to academic and technological needs. At the same time, inadequate funding, insufficient infrastructure, and limited administrative support may further constrain library effectiveness and institutional relevance. It is against this backdrop that this study investigates academic library autonomy and institutional support in public universities in Abia State, Nigeria. Answering the question of how autonomy can be implemented and to what extent.

Objectives of the Study

The main aim of this study is to examine the autonomy of academic library and institutional support in public universities in Abia State, Nigeria, with specific objectives:

1. To examine the perceptions of librarians on the need for library autonomy in public universities in Abia State.
2. To assess the roles academic libraries play in supporting teaching, learning, and research in public universities in Abia State.
3. To examine the structural uniqueness of the academic library as an institution within the university.
4. To justify the need for financial, infrastructural, and administrative support of academic libraries in public universities in Abia State.

Literature Review

Library Autonomy and Librarians' Perceptions

Researchers have made a strong case for giving academic libraries more organizational autonomy. It shows that when libraries have the freedom to operate independently, they are better able to plan strategically and contribute more effectively to the university. Studies also point out that academic autonomy in general has a positive influence on strategy development and improves the overall performance of universities (Al Gharsi et al., 2024). In places like Poland, new higher education laws, such as Act 2.0, have pushed forward conversations about where the academic library should stand in the university structure and how much independence it should have (Walczak, 2022).

This conversation also ties into the professional status of academic librarians. Many librarians are required to publish within the field of Library and Information Science as part of their work (Gamache et al., 2025). Their sense of professionalism often shows up in peer and shared governance practices within libraries, which are seen as important for academic staff whose influence has been reduced by forces like academic capitalism (Fitzgerald et al., 2025). In addition, a librarian's career path can shape how they see their role. Whether someone enters librarianship as a first career or comes into it later in life affects how they relate to faculty status and how loyal they feel to the institution. This adds another layer to understanding professional identity in relation to the university (Wiser, 2025)

Roles of Academic Libraries in Teaching, Learning, and Research

The modern academic library now carries many important responsibilities that support the main goals of the university, which include teaching, research, and community service. More recently, the library has come to be seen as a research enabler (Pike & Barrantes, 2025). This means, its work should be recognized in major institutional evaluations like the Research Excellence Framework environment statements. Much of this support is built on the close working relationship between librarians and academics, which is often explained through the Community of Practice Theory. This theory describes how both groups interact at different stages of scholarly communication (Mierzecka, 2025).

One of the fastest growing areas of library work is Research Data Services. These services include guidance, training, technical tools, and policy support for managing research data throughout its entire lifecycle (Martin-Melon et al., 2023). This work fits within the larger movement toward Open Science, where research data plays a major role and where principles like the FAIR guidelines (Findability, Accessibility, Interoperability and Reusability) influence how research is produced and shared (Cerda-Cosme & Mendez, 2025). The entire system of academic publishing is changing because of digital tools and Open Access. Some scholars even compare this moment to the historic impact of Gutenberg's invention of letterpress printing (Maier, 2025).

The academic library also has a proven positive effect on student learning at the university level (Shoaib et al., 2021). This influence is closely linked to how students engage with information. Their information literacy skills, combined with their level of library use have a strong connection to their academic success (Ferrer, 2024).

Librarians are expanding their teaching roles by building stronger knowledge of modern pedagogies and digital tools that are needed for effective online instruction (Saib et al., 2023). This includes collaborating with faculty to design assignments that help students use sources more thoughtfully, even when those sources include non-traditional online platforms like Google or Reddit (Redekop & Hobbs, 2025). Beyond specific skills, the overall quality of university

services, including library services, plays a major part in shaping student satisfaction, academic performance, and loyalty to the institution (Ngo et al., 2025).
Peer mentoring programs supported by universities have also shown clear results. These programs are linked to lower dropout rates and improved performance among mentees, even during challenging times such as the COVID 19 disruption (González Ortiz de Zárate et al., 2025)

Structural Uniqueness of the Academic Library
The academic library stands out because it is both an intellectual resource and a social space, and it needs to reflect the values of the institution it belongs to. Libraries can help create an inclusive and supportive environment by offering personalized services that build students' confidence, independence, and trust (Sanches, 2024). This also includes providing physical spaces that meet different student needs, such as family-friendly areas that support students who are parents (Caniano, 2025).
At the same time, the library is not separate from the social and ethical issues that exist in the wider academic community. The idea of library neutrality, which has long been seen as a key professional value, is now being questioned. Many academic librarians describe neutrality simply as the act of not taking a side (Jaeger McEnroe, 2024). These are subtle and often unintended comments or actions that can negatively affect users, especially academics and researchers.
The roles of academic librarians continue to grow in complexity. They now require a wide range of specialized skills (Dewi et al., 2025).

Financial, Infrastructural, and Administrative Support for Academic Libraries
The full potential of the modern academic library can only be achieved when there is real investment in its infrastructure, the skills of its staff, and its relationship with the community. It then becomes important to design informal learning spaces that support both guided activities and independent collaborative work (Cui et al., 2024). Libraries also need to make better use of their available resources. One way to do this is by adopting strong and correct digital marketing strategies. These strategies work best when staff have a solid understanding of digital marketing literacy, which plays a major role in how well libraries connect with their users (Ali et al., 2025).
Many libraries include community engagement in their strategic plans, yet research shows that there is a clear gap between what is written in policy and what is actually supported through funding, staffing, and formal evaluation from the university (Bangani and Dube, 2023). This shows that real administrative and financial commitment is needed if libraries are to meet their community engagement goals.

Methodology
This study adopted a descriptive survey research design to examine the autonomy of academic library and institutional support in public universities in Abia State, Nigeria. The population comprised all 45 professional librarians in the two public universities in Abia State: Abia State University (ABSU) and Michael Okpara University of Agriculture, Umudike (MOUAU). Given the manageable population size, total enumeration was adopted, and all professional librarians were targeted for participation. However, 35 librarians responded to the questionnaire, representing a response rate of 77.78%. The respondents consisted of 18 librarians from ABSU and 17 from MOUAU. Data were collected using a structured questionnaire containing 20 items organized into four clusters based on the objectives of the study. The items were rated on a four-point Likert scale of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). The instrument was validated by two experts in Library and Information Science, while a pilot test conducted with five librarians outside the study population yielded a Cronbach's alpha reliability coefficient of 0.81.The questionnaire was administered directly to respondents in the two universities and retrieved within a two-week period. Data collected were analyzed using descriptive statistics, including frequency counts, percentages, means, and standard deviations. A criterion mean of 2.50 was used as the basis for decision-making, with mean scores of 2.50 and above indicating agreement, while scores below 2.50 indicated disagreement.

Data Analysis and Discussion of Findings
This section presents the results of the study in line with each of the four research questions, followed by a discussion of the implications of the findings.

Research Question One*: What are the perceptions of librarians on the need for library autonomy in public universities in Abia State?*
Table 1: Responses on the Need for Academic Library Autonomy (N = 35)

S/N	Statements	SD	D	A	SA	Mean	Std. Dev.	Remark
1	Academic libraries should have administrative independence within universities.	0	4	17	14	3.29	0.667	Agreed

2	Autonomy allows academic libraries to make better decisions about information resources.	0	0	24	11	3.31	0.471	Agreed
3	Limited autonomy reduces the effectiveness of academic libraries.	0	3	25	7	3.11	0.530	Agreed
4	Academic libraries should participate in institutional decision making.	0	2	17	16	3.40	0.604	Agreed
5	Greater autonomy helps libraries respond better to academic and technological changes.	0	3	18	14	3.31	0.631	Agreed

Weighted Mean = 3.28

Table 1 presents data on the need for academic library autonomy in higher institutions. On the statement that academic libraries should have administrative independence within universities, 17 respondents (48.6%) agreed and 14 (40.0%) strongly agreed, with only 4 (11.4%) disagreeing, giving a mean of 3.29 and a standard deviation of 0.667. Since the mean of 3.29 exceeds the criterion mean of 2.50, this item is categorized as Agreed, indicating that respondents acknowledged the need for administrative independence. On the statement that autonomy allows academic libraries to make better decisions about information resources, 24 (68.6%) agreed and 11 (31.4%) strongly agreed (Mean = 3.31, SD = 0.471; Agreed). The statement that limited autonomy reduces library effectiveness recorded 25 agreements (71.4%) and 7 strong agreements (20.0%), with 3 disagreements (8.6%) (Mean = 3.11, SD = 0.530; Agreed). Academic libraries should participate in institutional decision-making returned a mean of 3.40 (SD = 0.604; Agreed), while the statement on greater autonomy helping libraries respond to changes yielded a mean of 3.31 (SD = 0.631; Agreed). The weighted mean of 3.28 exceeds the criterion mean of 2.50, confirming overall agreement across this cluster.

Research Question Two: ***What roles do academic libraries play in supporting teaching, learning, and research in public universities in Abia State?***

Table 2: Responses on the Roles of Academic Libraries in Teaching, Learning, and Research (N = 35)

S/N	Statements	SD	D	A	SA	Mean	Std. Dev.	Remark
6	Academic libraries provide essential resources that support teaching activities.	0	0	13	22	3.63	0.490	Agreed
7	Libraries support students' learning through access to print and digital resources.	0	0	16	19	3.54	0.505	Agreed
8	Academic libraries provide research support services for students and lecturers.	0	0	9	26	3.74	0.443	Agreed
9	Information literacy programmes offered by libraries improve students' research skills.	0	1	13	21	3.57	0.558	Agreed
10	Academic libraries serve as centers for academic collaboration and knowledge sharing.	0	0	13	22	3.63	0.490	Agreed

Weighted Mean = 3.62

Table 2 presents findings on the roles academic libraries play in promoting teaching, learning, and research. On the statement that academic libraries provide essential resources that support teaching activities, 13 respondents (37.1%) agreed and 22 (62.9%) strongly agreed, giving a mean of 3.63 (SD = 0.490; Agreed). Libraries supporting student learning through access to print and digital resources recorded 16 agreements (45.7%) and 19 strong agreements (54.3%) (Mean = 3.54, SD = 0.505; Agreed). The highest mean in the entire study was recorded for the statement that academic libraries provide research support services for students and lecturers: 9 respondents (25.7%) agreed and 26 (74.3%) strongly agreed, yielding a mean of 3.74 (SD = 0.443; Agreed). Information literacy programmes improving research skills returned 1 disagreement (2.9%), 13 agreements (37.1%), and 21 strong agreements (60.0%) (Mean = 3.57, SD = 0.558; Agreed). Academic libraries serving as centres for collaboration and knowledge sharing recorded 13 agreements (37.1%) and 22 strong agreements (62.9%) (Mean = 3.63, SD = 0.490; Agreed). The weighted mean of 3.62 is the highest recorded across all four clusters.

Research Question Three: ***What is the structural uniqueness of the academic library as an institution within the university?***

Table 3: Responses on the Structural Uniqueness of the Academic Library (N = 35)

S/N	Statements	SD	D	A	SA	Mean	Std. Dev.	Remark
11	The academic library occupies a central position in the structure of the university.	0	0	15	20	3.57	0.502	Agreed

12	Academic libraries serve both academic and research functions in universities.	0	0	17	18	3.51	0.507	Agreed
13	Libraries provide specialized services that distinguish them from other academic units.	0	1	17	17	3.46	0.561	Agreed
14	Academic libraries function as intellectual hubs within universities.	0	0	16	19	3.54	0.505	Agreed
15	The academic library contributes to knowledge creation and dissemination in universities.	0	0	12	23	3.66	0.482	Agreed

Weighted Mean = 3.55

Table 3 presents findings on the structural distinctiveness of the academic library as an institution within the university. The statement that the academic library occupies a central position in the structure of the university recorded 15 agreements (42.9%) and 20 strong agreements (57.1%) (Mean = 3.57, SD = 0.502; Agreed). Academic libraries serving both academic and research functions returned 17 agreements (48.6%) and 18 strong agreements (51.4%) (Mean = 3.51, SD = 0.507; Agreed). Libraries providing specialized services that distinguish them from other academic units recorded 1 disagreement (2.9%), 17 agreements (48.6%), and 17 strong agreements (48.6%) (Mean = 3.46, SD = 0.561; Agreed). The statement on academic libraries functioning as intellectual hubs yielded 16 agreements (45.7%) and 19 strong agreements (54.3%) (Mean = 3.54, SD = 0.505; Agreed). The academic library's contribution to knowledge creation and dissemination recorded 12 agreements (34.3%) and 23 strong agreements (65.7%), the second highest strong agreement frequency in this cluster (Mean = 3.66, SD = 0.482; Agreed). The weighted mean of 3.55 confirms overall agreement across the cluster.

Research Question Four: ***What is the need for financial, infrastructural, and administrative support for academic libraries in public universities in Abia State?***

Table 4: Responses on Financial, Infrastructural, and Administrative Support for Academic Libraries (N = 35)

S/N	Statements	SD	D	A	SA	Mean	Std. Dev.	Remark
16	Adequate funding improves the quality of academic library services.	0	0	17	18	3.51	0.507	Agreed
17	Modern library infrastructure improves access to academic resources.	0	0	15	20	3.57	0.502	Agreed
18	Administrative support from university management strengthens library performance.	0	0	19	16	3.46	0.505	Agreed
19	Adequate investment in digital technologies improves library services.	0	2	17	16	3.40	0.604	Agreed
20	Professional development for librarians enhances the effectiveness of library services.	0	0	17	18	3.51	0.507	Agreed

Weighted Mean = 3.49

Table 4 presents data on the justification for financial, infrastructural, and administrative investment in academic libraries. On the statement that adequate funding improves the quality of library services, 17 respondents (48.6%) agreed and 18 (51.4%) strongly agreed (Mean = 3.51, SD = 0.507; Agreed). Modern library infrastructure improving access to academic resources recorded 15 agreements (42.9%) and 20 strong agreements (57.1%) (Mean = 3.57, SD = 0.502; Agreed). Administrative support from university management strengthening library performance recorded 19 agreements (54.3%) and 16 strong agreements (45.7%) (Mean = 3.46, SD = 0.505; Agreed). Adequate investment in digital technologies improving library services returned 2 disagreements (5.7%), 17 agreements (48.6%), and 16 strong agreements (45.7%) (Mean = 3.40, SD = 0.604; Agreed). Professional development for librarians enhancing service effectiveness recorded 17 agreements (48.6%) and 18 strong agreements (51.4%) (Mean = 3.51, SD = 0.507; Agreed). The weighted mean of 3.49 confirms overall agreement across this cluster.

Discussion of Findings

Need for Academic Library Autonomy in Higher Institutions

The findings showed that respondents agreed on the need for greater academic library autonomy, with a weighted mean of 3.28. Librarians agreed that libraries should have administrative independence, participate in institutional decision-making, and exercise greater control over information resource management. This suggests that librarians believe autonomy is necessary for effective service delivery and responsiveness to academic and technological changes. The implication is that limited autonomy may restrict the library's ability to contribute fully to institutional goals. This finding supports Fitzgerald et al. (2025), who emphasized the importance of governance structures that allow librarians to participate actively in institutional affairs.

Roles of Academic Libraries in Teaching, Learning, and Research

The findings revealed agreement on the role of academic libraries in supporting teaching, learning, and research, with the highest weighted mean of 3.62. Research support services recorded the highest mean score, showing that librarians view research support as a major responsibility of the academic library. Respondents also agreed that libraries provide learning resources, information literacy programmes, and opportunities for collaboration. The implication is that libraries remain central to academic success and should be recognized as key contributors to educational and research outcomes. This finding agrees with Pike and Barrantes (2025), Shoaib et al. (2021), and Ferrer (2024), who highlighted the contribution of libraries to academic achievement and research productivity.

Structural Uniqueness of the Academic Library

The findings indicated agreement that the academic library occupies a unique position within the university structure, as reflected in the weighted mean of 3.55. Respondents viewed the library as an intellectual hub that supports both academic and research activities while contributing to knowledge creation and dissemination. This suggests that libraries are more than support units; they are central components of the university's academic system. The implication is that universities should recognize this unique role when making decisions on governance, planning, and resource allocation. This finding is consistent with Cui et al. (2025), who described academic libraries as active spaces for knowledge creation and exchange.

Need for Financial, Infrastructural, and Administrative Support

The findings showed agreement on the need for adequate funding, infrastructure, administrative support, digital technologies, and staff development, with a weighted mean of 3.49. Respondents recognized that these resources are essential for effective library services. The implication is that without sustained institutional support, libraries may struggle to meet the changing information needs of their users. This finding aligns with Bangani and Dube (2023), who noted that inadequate institutional commitment can limit library development and performance.

Overall, the finding suggest that academic libraries in higher institutions require greater autonomy, recognition, and support to perform their teaching, learning, research, and knowledge-sharing functions effectively.

Conclusion

This study examined the relationship between academic library autonomy and the promotion of teaching, learning, and research in public universities in Abia State. The findings are clear and consistent, confirming agreement on every dimension investigated. Respondents agreed that academic library autonomy is necessary in higher institutions, that their libraries play vital and multifaceted roles in supporting teaching, learning, and research, that the academic library occupies a structurally central and distinctive position within the university, and that sustained investment in funding, infrastructure, administrative support, digital technology, and professional development is indispensable for effective library service delivery. Libraries are acknowledged as central, as research enablers, as intellectual hubs, and as providers of indispensable services, yet the response patterns consistently reflect the reality that these roles are being constrained by inadequate autonomy and insufficient institutional support. This is not merely a professional complaint; it is an evidence-based institutional problem with direct consequences for the quality.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. University governing councils should embed academic library autonomy formally into institutional statutes, policy frameworks, academic planning committees, curriculum development forums, and research strategy discussions.
2. Information literacy programmes should be strengthened and formally integrated into the academic curriculum at undergraduate and postgraduate levels.
3. University Administrations should classify the academic library as a core academic research entity rather than a non-academic support unit.
4. University Administrations should prioritize the allocation of a dedicated percentage of the institution's annual internal revenue to ensure adequate funding for the library.

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AVAILABILITY AND ADEQUECY OF LIBRARY RESOURCES AND SERVICES FOR PEOPLE WITH DISABILITES IN EBONYI STATE LIBRARY BOARD

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Abstract
The main objective of the study is to assess the library resources and services available for people with disabilities (PWDs) in public libraries under Ebonyi State Library Board. The specific objectives are to: identify the types of library resources and services available for people with disabilities in Ebonyi State Library Board; Assess the level of adequacy of library resources and services for people with disabilities; Identify the challenges faced by people with disabilities in utilizing library resources and services. The study adopts a descriptive survey research design. The study is focused on Ebonyi State Library Board located in Abakaliki, A total estimated population of 65 individuals were targeted, including both library professionals and supportive staff of the library. A sample size of 35 respondents was used. They were selected from the main public library located at Nwele Street Abakaliki. However, 30 questionnaire instruments out of the 35 distributed were returned and found usable. This is 85% respondents there were accessible. The primary instrument for data collection was a structured questionnaire with both closed-ended questions. Findings reveal that only about 20% of the materials for people with disabilities are provided. Most of the facilities and resources are lacking in the library. Most of the materials were either not provided at all or grossly inadequate for people with disabilities. Many challenges affecting inclusive library services access were identified to include: No ramps or very steep ramps; Limited or no Access to the Internet; Poor ICT Infrastructure and Non-availability of adaptive technology and specialized software packages. The study recommends, among others, the need for renovation and refurbishment of the State Library Board building; provision of assistive technologies; Enhance Staff Training in caring for people with special needs. Increase funding and resource allocation for procurement of specialized PWDs facilities and library materials.

Keywords: Public Libraries, Librarians, Library resources, library services, disabilities

Introduction

Libraries operate with the core objective of supporting the vision and mission of their parent organizations. Whether situated within academic institutions, government agencies, or communities, they are not standalone institutions but are structured to serve the broader goals of the entities they belong to. They are established primarily to meet the information needs of their users, making the user a central focus of all library operations and services (Aina, 2022; Kumar, 2017). Public libraries are community-oriented institutions established to ensure equitable access to information, education, and knowledge for all categories of users. These libraries are mandated to serve diverse users, irrespective of physical, mental, or social differences. As posited by Nwalo (2023), library users range from specialists to students, the disadvantaged majority, and the indisposed. This diversity necessitates that libraries provide resources in multiple formats, print, digital, and assistive technologies to accommodate varying needs (Aina, 2022).

However, evidence from literature and practice suggests that most libraries, especially public libraries in Nigeria, fall short in serving users with special needs, particularly persons with disabilities (PWDs). Eze (2020) emphasized that many Nigerian libraries lack adequate provisions for physically challenged individuals, despite their recognized legal and social right to equal access to information. People with disabilities often experience marginalization due to architectural, technological, and service-related barriers within the library environment. Mackie (2020) further observed that these individuals, often labeled as handicapped or disadvantaged, are victims of circumstances beyond their control, and the failure of libraries to address their needs significantly affects their quality of life and participation in society.

Libraries, including public ones, must therefore go beyond traditional models of service delivery to embrace inclusive practices. This includes investing in accessible facilities, adaptive technologies, and specialized training for staff to support users with visual, auditory, mobility, or cognitive impairments. Oyegunle (2019) noted that libraries, especially those in tertiary institutions, are evolving towards broader service provision, yet public libraries, which often serve the most vulnerable populations, are lagging in this regard.

Disability is defined in the Rights of Persons with Disabilities Act 2022 as "a person with long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others". Rights of Persons with Disabilities Act, (2022) prohibits discrimination concerning disabled persons in India from various forms of discrimination and ensures their access to education, employment opportunities, and enhances their societal participation. In 2018, the government of India created a national policy for

people with disabilities. The National Policy recognized that people with disabilities are a valuable human resource for the country and aims to build an environment that gives them equal opportunity, protects their rights, and allows them to participate fully in society. Aside from the numerous priority areas, the policy document specified that all buildings, approaches, bathrooms, playgrounds, labs, libraries, and other public spaces should be barrier-free and accessible to people with all types of disabilities. Educational toys, Braille, talking books, relevant software, and other teaching/learning aids should be available. Expanding facilities for general libraries, e-libraries, Braille libraries, talking book libraries, and resource rooms should be prioritized (Ministry of Social Justice and Empowerment, Government of India, (2018).

Persons with Disabilities have varying degrees of difficulty accessing libraries and the materials available in libraries, depending on their impairment. They are unable to enter libraries since the buildings themselves are inaccessible. Because the reading materials at libraries are not available in convenient formats, people who are blind or have low vision cannot use them. UNESCO and the International Federation of Library Associations (IFLA) have set guidelines for providing equitable access to library facilities and services to all people, including those with disabilities. The Indian government and the UGC have both issued guidelines in this regard. However, in India, only about 0.5 percent of books are available in accessible formats for the blind or those that have low vision (The Centre for Internet & Society, 2019). Therefore, libraries in India must be inclusive of becoming accessible by the person with disabilities. One of the core objectives of librarianship is equal access to recorded knowledge and information. It is essential to make sure that everyone in the community has equitable access to materials. As a result, to provide equitable opportunities for those with disabilities, the physical condition of library buildings, facilities, collections, and services must be examined from the perspective of various user groups.

Ebonyi State, located in southeastern Nigeria, is not exempt from these challenges. Despite the existence of the Ebonyi State Library Board, there is limited empirical research on the accessibility of its resources and services to people with disabilities. This raises concerns about how inclusive public libraries are and whether they align with international best practices on disability inclusion. This study therefore seeks to assess the resources and services available for persons with disabilities in Nigerian public libraries, with particular focus on the Ebonyi State Library Board. The objective is to evaluate the extent to which the library meets the information needs of disabled users and to recommend strategies for more inclusive service provision. This study is significant for several reasons, particularly in the context of promoting inclusive library services in Nigeria.

1.2 Statement of the Problem

Libraries are expected to serve all members of the community equitably, including people with disabilities (PWDs), by providing accessible resources, services, and facilities. However, despite national and global calls for inclusion, many public libraries in Nigeria continue to neglect the specific information needs of persons with disabilities. Studies by Eze (2020) and Mackie (2020) have shown that public libraries across the country often lack assistive technologies, barrier-free physical access, trained staff, and inclusive service policies, factors that are critical for meaningful access and participation.

In Ebonyi State, the situation appears to mirror this national trend. Although the Ebonyi State Library Board is mandated to provide services to all members of the public, there is little documented evidence on whether it has adequately integrated disability-friendly resources and services into its operations. Physically challenged users may still face architectural, technological, and attitudinal barriers that hinder their use of the library.

Furthermore, there is a scarcity of empirical research assessing the level of inclusiveness of public library services in Ebonyi State. Without a clear understanding of the current provisions or lack thereof for people with disabilities, efforts to reform, improve, or align library services with the best global practices remain ineffective. This study is therefore necessary to bridge the knowledge gap by assessing the availability and adequacy of resources and services for people with disabilities in the Ebonyi State Library Board. It aims to identify existing challenges and recommends practical strategies for making public libraries in the state more inclusive and responsive to the needs of all users, especially the physically challenged.

1.3 Objectives of the Study

The main objective of the Study is to assess the library resources and services available for people with disabilities in public libraries in Ebonyi State Library Board.

The specific objectives are to:

1. identify the types of library resources and services available for people with disabilities in Ebonyi State Library Board.
2. Assess the level of adequacy of library facilities and resources for people with disabilities in Ebonyi State Library Board.
3. Identify the challenges faced by people with disabilities in utilizing library resources and services in Ebonyi State Library Board.

Research Questions

The study will be guided by the following research questions:

1. What type of library resources and services are available for persons with disabilities in Ebonyi State public Libraries?
2. To what extent are library facilities and resources adequate for people with disabilities?
3. What are the challenges encountered by people with disabilities in utilizing library resources and services in Ebonyi State?

Literature Review

Library Resources

Library resources constitute the core of any library's existence and operations. They are the various materials both physical and digital that a library acquires, organizes, and makes available to its users to support education, research, information dissemination, recreation, and personal development. These resources include but are not limited to printed books, journals, newspapers, magazines, reference materials, digital databases, audio-visual content, and increasingly, assistive technologies designed to serve people with special needs. The availability, accessibility, and relevance of these resources greatly influence the utility and inclusivity of any library system.

According to Aina (2022), for a library to fulfill its core mandate of meeting the diverse information needs of its users, it must possess a wide variety of resources that cater to different categories of users. This diversity becomes especially important in public libraries, where users come from various educational, socio-economic, physical, and cognitive backgrounds. A key measure of a library's effectiveness and inclusiveness is the extent to which it accommodates and supports vulnerable populations, especially people with disabilities (PWDs). In the context of people with disabilities, traditional library resources such as standard print books and newspapers may be inaccessible due to visual, mobility, or cognitive impairments. To bridge this gap, libraries are expected to provide specialized resources that enable these users to access information on an equal footing. These specialized resources include Braille books**,** audio books**,** large print books**,** tactile maps**,** and digital talking books**.** In addition to this, screen readers**,** text-to-speech software**,** refreshable Braille displays, and closed-captioned videos are essential components of a truly inclusive resource collection.

Unfortunately, studies have shown that most public libraries in Nigeria, including those in Ebonyi State, are under-equipped to meet these needs (Eze, 2020). Most libraries in the country struggle with inadequate funding, obsolete collections, and poor infrastructure, and these challenges disproportionately affect users who require non-traditional formats. Where special needs resources are available at all, they are often outdated, insufficient, or inaccessible due to a lack of trained personnel to guide users on their effective use. This severely undermines the principle of equity in access to information.

Beyond physical and technological resources, library policies also play a vital role in resource acquisition and utilization. A library that aims to be inclusive must have a well-articulated collection development policy that specifically addresses the needs of PWDs. This includes not only acquiring specialized materials but also ensuring that these materials are frequently updated, catalogued in accessible formats, and integrated into the general library services rather than isolated as "special collections." Inclusive resource provision should also be guided by international frameworks such as the Marrakesh Treaty**,** which facilitates access to published works for persons who are blind, visually impaired, or otherwise print-disabled.

Furthermore, digital resources have the potential to significantly enhance access for people with disabilities, particularly in underserved areas. E-books, online databases with text-to-speech features, open educational resources (OERs), and accessible library websites can help mitigate physical barriers. However, digital inclusion requires that libraries also provide necessary infrastructure such as reliable electricity, internet access, and adaptive devices, which many Nigerian public libraries, including those in Ebonyi State, currently lack.

Given these challenges, it becomes evident that the assessment of library resources for people with disabilities must go beyond simply identifying the presence of materials. It must also evaluate the quality, accessibility, relevance, and usability of such resources. For example, a library may have audio books, but if they are not catalogued properly or if there are no listening devices available, the resource remains underutilized. Similarly, if Braille books are available but only in outdated subjects or foreign languages irrelevant to the users' local context, they fail to serve their intended purpose.

Library Services

Library services are the activities, programs, and operations that support user interaction with library resources, spaces, and technologies. These services are designed to facilitate the effective and efficient use of information by providing guidance, support, and access to various tools and learning opportunities. Typical library services include reference and information services**,** circulation services**,** user education**,** interlibrary loans**,** digital literacy programs**,** and community outreach initiatives**.** However, to be truly inclusive, these services must be adaptable to meet the needs of all user categories, including people with disabilities (PWDs). According to Oyegunle (2019), effective library services must reflect the diversity of the community they serve. This includes recognizing that users differ in their physical, sensory,

cognitive, and learning abilities, and that services must be delivered in ways that ensure equitable access to information. In the context of public libraries especially in developing countries like Nigeria, there is a growing need to ensure that all services are inclusive, accessible, and user centered. Yet, evidence shows that this inclusiveness is often lacking.

Inclusive Service Delivery

For library services to be inclusive, they must go beyond one-size-fits-all models. Services must be responsive to the specific needs of users with disabilities, many of whom face physical, sensory, and systemic barriers when trying to access library services. For instance, a visually impaired user requires information in alternative formats, such as audio or Braille. Likewise, a user with a hearing impairment may require access to sign language interpreters or captioned materials. An individual with mobility challenges may need home delivery services or online access to resources. Inclusive services also include staff support tailored to PWDs. Trained personnel who are knowledgeable in disability issues, communication strategies (such as sign language), and the use of assistive technologies are essential. Unfortunately, most public libraries in Nigeria including those under the Ebonyi State Library Board are understaffed and the existing workforce often lacks the specialized training needed to support users with disabilities effectively (Eze, 2020). This lack of staff preparedness contributes to the exclusion of PWDs from fully benefiting from library services.

Concept of Physically Challenged Persons

Physically challenged is a term that is used to denote people with various forms of disabilities that is debilitating them from executing normal activities that are expected of them. They are usually in different degrees ranging and they come in different dimensions. Blindness, deafness, loss or weakness of limbs, mental retardation and lot of others are some of the forms that people could be physically challenged. Forrest (2022) posited that physically challenged people are people who have substantial, adverse and long-term effect on their ability to carry out normal day to day activities. Muya (2021) sees it as any restriction or lack of ability to perform an activity considered normal for able-bodied people. Physically challenged is a dysfunction that occurs in different ways. Some are born with this trait while some others suddenly become challenged during the cause of their existence. Echezona et al. (2020) posited that the causes of physical challenge among people in Nigeria includes malnutrition, communicable diseases and accident which is responsible for about one third of all disabilities.

Eze (2020) reported that increase in road crashes in recent times has led to more accident victims who become physically challenged. The pitiable conditions of the road coupled with the use of motorcycle (popularly known as Okada) in Nigeria is not helping matters at all. Momodu (2019) described physically challenged as a term used in describing people with various forms of disabilities like blindness, deafness, loss or weakness of limbs and mental retardation etc. ICF (2023) reported that disabilities can affect people in different ways. It could be physical and mental impairments that can hamper or reduce a person's ability to carry out his day-to-day activities. There are many types of disabilities, such as those that affect a people's vision, hearing, thinking, learning, movement, mental health, remembering, communicating and social relationships.

ICF (2023) also broke down "Disability" into a number of broad subcategories, which are: Mobility and Physical Impairments; Spinal Cord Disability; Head Injuries – Brain Disability (Acquired or Traumatic Brain Injury); Vision Disability; Hearing Disability; Cognitive or Learning Disabilities; Psychological Disorders; Affective Disorders; Personality Disorders – defined as deeply inadequate patterns of behavior and thought of sufficient severity to cause significant impairment to day-to-day activities; Schizophrenia: A mental disorder characterized by disturbances of thinking, mood, and behavior; Invisible Disabilities: disabilities that are not immediately apparent to others. The Quality Assurance Agency (2023) reported that the physically challenged that are more prevalent in regular tertiary institutions in Nigeria are physical and mobility impairment, visual impairment (total blindness) and hearing impairment (deaf and dumb).

People with Disabilities (PWDs)

People with disabilities (PWDs) are individuals who experience long-term physical, sensory, mental, or intellectual impairments that, when combined with various societal and environmental barriers, hinder their full and equal participation in everyday life (UNCRPD, 2018). Disabilities can be visible or invisible, congenital or acquired, and may range from mild to severe. Examples include conditions affecting mobility (e.g., paralysis or limb loss), vision (e.g., blindness or low vision), hearing (e.g., deafness), cognition (e.g., dyslexia or autism), and mental health (e.g., depression or schizophrenia).

Accessibility

Accessibility refers to the design and implementation of environments, products, services, and technologies to ensure they can be used by all people, including those with disabilities. In the context of libraries, accessibility is a critical principle that aims to remove barriers whether physical, technological, or attitudinal that prevent persons with disabilities (PWDs) from fully participating in and benefiting from library resources and services.

Dimensions of Accessibility in Libraries

Accessibility in libraries covers multiple dimensions, each essential to the overall inclusiveness of the institution:

Physical Accessibility: Physical accessibility pertains to the architectural and infrastructural features that enable PWDs to enter, navigate, and use the library space independently and safely. This includes features such as ramps, elevators, wide aisles, accessible restrooms, automatic doors, and adequate signage in large print or Braille (Mackie, 2020). Without these basic accommodations, PWDs, particularly those with mobility impairments, face significant difficulties in using library facilities. The absence of physical accessibility is a common challenge in many Nigerian public libraries, including those under the Ebonyi State Library Board, where outdated or poorly designed buildings often fail to meet universal design standards (Eze, 2020).

Technological Accessibility: Technological accessibility involves the availability and usability of digital tools, information systems, and electronic resources in formats that accommodate users with different disabilities. Examples include screen readers for visually impaired users, voice recognition software**,** closed captions for videos, and keyboard navigation for those unable to use a mouse (Aina, 2022). With the global shift towards digital libraries and online information services, technological accessibility has become increasingly critical. However, many public libraries in Nigeria lack the ICT infrastructure and assistive technologies required to support PWDs effectively (Oyegunle, 2019). This digital divide excludes many users from participating in the information society.

Service Accessibility; Service accessibility focuses on attitudes, policies, and programs that libraries implement to ensure that PWDs receive equitable treatment and support. This includes staff training on disability awareness, communication aids such as sign language interpreters, inclusive programming, and flexible service delivery options (e.g., home delivery, online services). As Mackie (2020) and Eze (2020) emphasize, library staff attitudes and knowledge significantly affect the extent to which PWDs feel welcomed and supported. Without an inclusive service culture, physical and technological accessibility alone cannot guarantee meaningful access.

Legal and Moral Imperatives: Accessibility is not merely a technical or operational issue but is firmly rooted in human rights and ethical obligations. According to Mackie (2020), equal access to information is a fundamental right and should not be considered a privilege granted at the discretion of library authorities. This view aligns with international human rights instruments such as the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD, 2018), which Nigeria ratified in 2023. The convention obliges states to ensure access to information and communication technologies, cultural materials, and public services for PWDs on an equal basis with others.

Similarly, the Discrimination Against Persons with Disabilities (Prohibition) Act, 2024 enacted by the Nigerian government mandates public institutions including libraries to eliminate barriers that prevent PWDs from accessing public services. Despite these legal frameworks, compliance remains limited in many Nigerian states, including Ebonyi. Libraries often lack the resources, policy guidelines, and political will to fully implement accessibility measures (Nwalo, 2023; Eze, 2020).

Challenges to Accessibility in Nigerian Public Libraries

Several barriers hinder the realization of full accessibility in Nigerian public libraries:

- **Infrastructural Deficiencies:** Many libraries are housed in old buildings without ramps, lifts, or accessible restrooms. This physical exclusion disproportionately affects PWDs with mobility impairments (Eze, 2020).
- **Lack of Assistive Technologies:** Limited funding and poor prioritization mean that libraries seldom have access to screen readers, Braille printers, or audio materials tailored to PWDs (Oyegunle, 2019).
- **Insufficient Staff Training:** Staff often lack awareness or training in disability inclusion, resulting in inadequate or insensitive service delivery (Mackie, 2020).
- **Inadequate Policy Frameworks:** Many libraries operate without explicit policies on disability inclusion or accessibility, leading to inconsistent practices and neglect of PWDs (Aina, 2022).
- **Social and Cultural Attitudes:** Negative perceptions and stigmatization of disability within society influence the design and operation of libraries, often perpetuating exclusion (Eze, 2020).

Empirical Review

Library Services for People with Disabilities

Libraries are service organizations which give services without discrimination to their numerous users, including disabled people. Libraries are required to make modifications to their designs to ensure that they are physically accessible to people with disabilities; acquire appropriate materials and assistive devices to ensure that people with disabilities can access their collections; and introduce services that cater for their special needs (Ahmad 2021). Libraries in developing countries are beginning to provide assistive technologies as well as reading materials to people with disabilities (Nassimbeni & De Jager 2020). As (Majinge & Stilwell 2019) noted, libraries have put in place working lifts and ramps to assist with the mobility of people with disabilities (Majinge & Stilwell 2019).

Furthermore, information resources in Braille and large print are being procured to enable people with disabilities to access information sources more easily. Libraries are also training selected members of staff on how best to serve people with disabilities (Nassimbeni & De Jager 2020). Concerted efforts should be made to ensure that those with disabilities are able to access the information resources that others are able to access. Access to information resources for all can be made possible through use of assistive tools and technologies. Commonly used technological devices include Braille books, talking books, playback machines, audiotapes and screen readers (Epp 2018). A recent study by Adetoro (2012) of alternate format preferences among secondary school visually impaired students in Nigeria found that talking books and/or audio recordings were the most preferred format for blind students (51%) as well as partially sighted students (55%). These formats were preferred over others because of their playback facility and because they were easy to understand. Other technological devices for people with disabilities, and particularly the visually impaired, include talking computers and Braille embossers.

The use of Library Services for Persons with Disabilities

Popoola (2017) noted that information availability does not mean accessibility and utilization. A lot of information and information resources are available in the libraries, some are good and others are not. Mehta (2023) described service delivery as a process that involves effective communication, building strong relationships, identifying problems, providing solutions, sound planning and all round the clock support with the sole aim of ensuring that the goals of the organization are met. This implies that any organization that does not take this process seriously is bound to lose patrons. Therefore, Nigerian public libraries and libraries in the schools of the deaf, as organizations, should have good service delivery as its watch word. This will in the long run assist in making information available timely to people with disabilities, enhance their information literacy level and make them more useful to themselves, their immediate society, the country and the world at large. Ekwelem, (2019) carried out a study and revealed that here is nothing on the ground for disabled student to participate fully in the ongoing technology exploits. It was found that the only electronic resources available are taped books and online public access catalog (OPAC) and these have not been fully used. The study also indicated that all the items for the mobility challenged were not available in any of the samples studied, suggesting that, in general terms, that mobility challenged users are not benefiting from the new technology.

Challenges that Militate against Provision of Library Services for PWDs

Studies have associated the marginalization of persons with visual impairment in the public libraries with some challenges such as inadequate budget, poor information and telecommunication infrastructure, limited access to high speed internet, low take-off of open access repositories and digital libraries, non-availability of adaptive technology and specialized software packages (Adetoro, 2024; Lucky and Achebe, 2019; Zaid, 2023). Chaputula, & Mapulanga, (2023) lamented that those with disabilities experience difficulties in accessing library buildings as some buildings had too many steps leading to the top floors and no lifts. Although ramps are provided in some libraries, some users complained that these were very steep, hence making it problematic for those in wheelchairs to access the library on their own.

The web has evolved rapidly in recent years, providing the public with access to vast stores of information. However, not everybody is enjoying this. The web creates two potential difficulties for visually impaired persons. First, hypertext web documents are non-linear, allowing users to link quickly to other pages that may have a completely different design and layout. This may cause confusion for those who cannot easily follow visual cues. Second, the web now revolves around video, multimedia real – time collaboration, and interactive documents, all of which are heavily visually based. (Chiang et al, 2022).

Methodology

The population of the study comprises library staff of the Ebonyi State Library Board. A total estimated population of 65 individuals were targeted, including both library professionals and supportive staff of the State Library Board. A purposive sampling technique was used to select respondents who have direct relevance to the objectives of the study. These include the library staff who are involved in service delivery and collection development. A sample size of 35 respondents was used. They were selected from the main public library located at Nwele Street Abakaliki. The 35 library staff sampled were the people who are professional and could respond to the questions in terms of resources /services for the target library users. Sampling technique was purposive. However, 30 out of the 35 were returned and found usable. This is 85% respondents there were accessible.

The primary instrument for data collection was a structured questionnaire with both closed-ended and open-ended questions, designed to elicit information from respondents. The questionnaire was divided into Sections A (Demographic Data of respondents) and Section B (Clusters covering the items in the questionnaire). These include: Cluster A: Availability of Library Resources and Services for Persons with Disabilities (with options of Available or Not Available of the items); Cluster B: Adequacy of Library Facilities and Resources for Persons with Disabilities (with 12 items from Very Adequate to Not Applicable)

The researcher administered the questionnaires in person. A checklist was used to ascertain the availability or otherwise of the library resources and facilities which should be provided for people with disabilities. Data collected from the questionnaire was analyzed using descriptive statistics such as frequency counts, percentages and mean scores with the

use of Likert rating scale of 4-points. The responses were rated 4, 3, 2 and 1 with an average acceptable response rate of 2.50. Any response below the average 2.50 was regarded as disagreed by the respondents. Data collected were presented in tabular format and analyzed quantitatively based on the objectives and research questions of the study.

Data Presentation and Analysis

Section A: Demographic Data

Gender: Male: 18(60 %) Female: 12 (40%)

Age: 18-25 = 14(46.7%); 26-35 = 10(33.3%); 36-45 = 6(20%) 50 and above

Table 1: Categories of Respondents

Department /Unit	Frequency	Percentage
Acquisition	5	2.0%
Technical Services	4	1.2%
Readers Services	8	2.4%
Serials Section	5	2.0%
Administration	8	2.4%
Total	**30**	**100%**

Section B: Clusters

Table 1. Availability of Library Resources and Services

S/N	Variable	Available	Not Available
1	Braille books	√	
2	Large print materials	√	
3	Audio books		√
4	Screen readers		√
5	Sign language services		√
6	Hearing aid loop systems		√

Table 1 shows that only a few library resources such as Braille books and large print materials are available for people with disabilities. Other materials such as audio books, screen readers, sign language services, hearing aid loop systems etc. are not available in the library. This means that only about 20% of the materials for people with disabilities are provided. On the contrary, 80% of the required facilities and resources for people with special needs are lacking in the library understudy.

Table 2: Adequacy of Library Facilities and Resources for PWDs

S/N	Items	VA	A	I	VI	NA	Score	Mean
1	Braille books	13	14	0	1	2	125	4.5
2	Large print materials	9	12	3	4	2	112	3.7
3	Audio books	4	2	5	17	2	79	2.6
4	Digital talking books	1	2		20	2	55	1.8
5	Screen readers	2	1	6	19	2	72	2.4
6	Text-to-speech	3	2	6	19	1	80	2.7
7	Assistive technology for the hearing impaired	3	2	5	19	1	80	2.7
8	Ramps	4	2	5	17	2	79	2.6
9	Sign language interpreters	2	1	6	19	2	72	2.4
10	Accessible Toilets	5	14	3	6	2	212	7.0
11	Tactile Signage	1	2	6	19	2	71	2.4
12	Hearing aid loop	3	2	6	19	1	80	2.7
	Grand Mean Score							3.13

Key: *VA = Very Adequate; A=Adequate; I = Inadequate; Very Inadequate; Not Applicable*

The data in Table 2 shows that majority of the respondents agree that the items listed were not adequate. In fact, most of them were not provided at all for people with disabilities. The highest rank is Accessible toilets with a mean score of 7.0, followed by Braille books with a mean score of 4.5. Next is large print materials with a mean score of 3.7. Only four items were weighted lower than the 2.5 benchmark.

Table 3: Challenges Affecting Access to Library Resources/ Services by PWDs

S/N	Items	SA	A	D	SD	Score	Mean
1	Non-linear Hypertext web Document or video	23	3	2	2	107	3.6
2	No ramps or very steep ramps	23	3	2	2	107	3.6
3	Inadequate Budget for the Library	7	19	4	0	93	3.1
4	Poor ICT Infrastructure	22	3	2	2	103	3.4
5	Limited or No Access to the Internet	24	2	2	2	108	3.6
6	Non-availability of adaptive technology and specialized software packages	22	3	2	2	103	3.4
7	No open access repositories and digital resources for those who can't visit physical library	5	20	3	2	88	2.9
	Grand Mean Score						**3.37**

Key: SA= Strongly Agree; A=Agree; D = Disagree; SD = Strongly Disagree

The data in Table 3 shows that all respondents in the library agree that: Non-linear Hypertext web Document or video, No ramps or very steep ramps; Limited or no Access to the Internet with the mean score of 3.6 each. Following this are: Poor ICT Infrastructure and Non-availability of adaptive technology and specialized software packages both of which had 3.4 mean score. And finally, the item of 'No open access repositories and digital resources for those who can't visit physical library' which had the lowest mean score of 2.9.

Summary of Findings

Objective 1: Availability of Library Resources and Services for People with Disabilities Findings show that only a few library resources such as Braille books and large print materials are available for people with disabilities. Other materials such as audio books, screen readers, sign language services, hearing aid loop systems etc. are not available in the library.

Objective 2: Adequacy of Library Facilities and Resources for People with Disabilities

Findings of the study show that majority of the respondents agree that the items listed were not adequate. In fact, most of them were not provided at all for people with disabilities.

Objective 3: Challenges of Access to Library Facilities and Resources by People with Disabilities

It was found that there are no non-linear hypertext web documents or videos. No ramps; no access to the Internet. On the contrast there are poor ICT infrastructure and non-availability of adaptive technology and specialized software packages. Again, there are no open access repositories or digital resources for those who cannot visit physical library.

Conclusion

This study investigated the situation at the Ebonyi State Library Board as it concerns the availability, adequacy, accessibility and challenges militating against inclusivity. Significant barriers persist, including near dilapidated physical infrastructure, limited availability and maintenance of assistive technologies, inadequate staff training, and social attitudes that hinder full participation of people with disabilities. There is urgent need to improve resources, accessibility and inclusivity for people with disabilities in public library studied.

To truly realize the goal of equitable access to information, it is essential that the Library Board undertake comprehensive upgrades to their facilities, provide modern assistive resources, invest in regular and inclusive staff training, and develop programs that actively engage and accommodate people with disabilities.

Recommendations

Based on the findings of the study, the following are recommended:

i. **Upgrade Physical Infrastructure:** The Ebonyi State Library Board including its branches should be renovated and furnished to include ramps with proper gradients, wider doorways, accessible toilets, elevators, and tactile signage to ensure full physical accessibility for people with disabilities.
ii. **Provide Assistive Technologies:** Libraries should invest in a wider range of assistive technologies such as screen readers, Braille devices, hearing support systems, and alternative format materials (audio books, large print, e-books) to enhance access to information.
iii. **Enhance Staff Training:** Regular and comprehensive training programs on disability awareness, etiquette, and assistive technology usage should be provided to all library staff to improve their ability to support persons with disabilities effectively.

iv. **Develop Inclusive Programmes and Services:** Libraries should design and implement programs that accommodate various disabilities, including sign language interpreters, accessible reading clubs, technology workshops, and mobile outreach services to reach users unable to visit physical branches.

v.

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Advocacy and Marketing as Strategic Tools for Enhancing Visibility and Impact of the National Library of Nigeria

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ABSTRACT

This paper aims to examine how advocacy and marketing of the library's services, operations, and enhanced public engagement can strengthen the visibility and impact of the National Library of Nigeria. Drawing on existing literature, institutional reports, and documented practices, the paper also highlights key activities, including legal deposit administration, bibliographic services, readership promotion campaigns, digital inclusion initiatives, and community-based outreach programs. The paper also underscores the role of service innovation, staff capacity development, technology adoption, and strategic partnerships in repositioning the Library as a dynamic national knowledge hub. It further identifies persistent challenges such as inadequate funding, infrastructural deficits, and public awareness, which constrain optimal performance. The paper opines that a deliberate integration of advocacy, marketing, and user-centered service delivery is essential for enhancing the relevance, accessibility, and societal impact of the NLN. By strengthening public engagement and modernizing operations, the National Library of Nigeria can significantly increase contributions to national development, lifelong learning, and cultural preservation.

KEYWORDS: Library, Visibility, Advocacy, Marketing, National Library of Nigeria,

1.0 Introduction

1.1 Brief Institutional Evolution of the Apex Library

The National Library of Nigeria (NLN) serves as the intellectual repository and "giant memory" of the nation, functioning as the apex library institution within the West African sub-region. Established under the *National Library Act No. 29 of 1970*, which expanded upon the provisions of the 1964 Act, the NLN is mandated to collect, preserve, and document Nigeria's intellectual output through the legal deposit system (National Library of Nigeria, 1970). This statutory responsibility ensures the systematic acquisition of all materials published within Nigeria, by Nigerians abroad, or about Nigeria, thereby safeguarding the nation's documentary heritage for present and future generations. https://nationallibrary.gov.ng

The mission of the NLN aligns with the broader mandate of national libraries worldwide to acquire, organize, preserve, and disseminate knowledge resources in support of education, research, and having an informed citizenry. As (Eddy-Ugorji & Eke, 2025) are of the opinion that contemporary scholarship emphasizes that modern libraries are no longer passive repositories but active agents of national development and knowledge democratization and as such its vision underscores the creation of an enlightened society through equitable and seamless access to visible information resources across diverse user groups. As the national bibliographic agency responsible for producing the *National Bibliography of Nigeria (NBN)* and maintaining a comprehensive repository of the nation's published heritage in accordance with legal deposit obligations the digital era has this role has expanded significantly to include the digitization of cultural heritage and the provision of virtual access to information resources, thereby enhancing national development outcomes (Eddy-Ugorji & Eke, 2025).

1.2 Advocacy and Marketing in Librarianship

Advocacy in libraries refers to the deliberate, organized effort to influence decision-makers, stakeholders, and the general public to recognize, support, and sustain libraries as essential institutions for national development. According to the International Federation of Library Associations and Institutions (IFLA, 2014), effective library advocacy entails demonstrating the social, educational, and economic value of libraries to decision-makers and communities. Similarly, Jaeger et al. (2017) argue that libraries increasingly rely on evidence-based advocacy, impact narratives, and strategic engagement with policymakers to obtain funding, shape public policy, and reinforce their role as essential institutions for learning, research, and social development.

Library marketing, on the other hand, as stated by Oguntoye…et al. (2024) is a means to promote library services and products to attract more patronage from the public. It is needed to make libraries visible to the community of local and global users thereby enhancing the reputation of the library in the eyes of its users. Marketing of library products and services is very important because it is a sure means through which people get to know about the library, its programs,

activities, functions and services. It provides opportunity for prospective users to be aware of what the library has in stock.
Marketing is a process of identifying user needs, designing appropriate services, and communicating their benefits through various channels to increase awareness, access, and usage. In the Nigerian context, according to Otobrise & Omagbon (2019), marketing helps reposition libraries from passive "bookstores" visited only by students and scholars to active, user-centered information hubs that serve diverse social groups, including children, women, entrepreneurs, and rural communities.

In the context of Nigerian librarianship, advocacy and marketing are increasingly recognized as essential strategies for demonstrating the value and relevance of libraries to their communities, administrators, and funding bodies. As advocacy is a coordinated and strategic effort to influence decision-makers, shape public policy, and secure institutional support through the promotion and defense of a cause or institution. Within librarianship, advocacy emphasizes the fundamental role of libraries in ensuring free, equitable, and inclusive access to information, thereby positioning librarians as key drivers of an information-literate and knowledge-based society (International Federation of Library Associations and Institutions, 2023; ALA, 2024). While Marketing in the library sector involves the systematic identification of users' information needs and the strategic promotion of library resources, services, and programs to satisfy those needs effectively. Contemporary scholarship emphasizes that library marketing extends beyond promotional activities to encompass user engagement, service innovation, relationship building, and the delivery of value-added services that enhance user satisfaction and library visibility (Chukwuemeka & Nzewi, 2024). While advocacy may seem to primarily target policy influence, funding acquisition, and institutional recognition, marketing focuses on increasing service utilization, enhancing public awareness, and improving user satisfaction.
Simply put, what advocacy and marketing mean for libraries is actively "selling" the value of libraries to policymakers, funders, and the public to secure immense support, adequate funding, and legitimacy. Marketing, on the other hand is about identifying user needs, designing services around those needs, and using communication channels (social media, radio, print, events) to make people aware of what libraries offer.
The continuous ying-yang synergy between advocacy and marketing is critical for sustainable library development. Effective advocacy is strengthened by evidence generated through successful marketing efforts of increased patronage, user engagement metrics, and measurable social impact. In this sense, marketing provides the foundation upon which advocacy arguments are built, enabling libraries to demonstrate their relevance and justify continued or increased investment (International Federation of Library Associations and Institutions, 2023).
In the digital age, librarians are increasingly encouraged to "market themselves" as information professionals, productivity experts, and knowledge managers. This shift toward personal and professional branding is particularly important given the proliferation of alternative information sources such as Google and various social media platforms, which compete directly with traditional library services for user attention. As a result, librarians must adopt innovative communication strategies, leverage digital platforms, and actively engage users in both physical and virtual spaces.
Effective marketing thus emerges as a critical tool for sustaining library relevance in a rapidly evolving information landscape. It supports the integration of libraries into contemporary patterns of information consumption while reinforcing their role as trusted, authoritative, and user-centered institutions. Ultimately, the combined application of advocacy and marketing ensures that libraries not only survive but continue to thrive as it is essential that for libraries and information services to remain feasible in any environment, they must strategies to meet set visions and missions. Similarly, if they want these strategies to work, libraries need to focus on their remote clients' wants, needs and demands, and to create and distribute relevant library materials and other services more effectively. Benson, Udo-Anyanwu and Onuoha (2016) opined that if librarians and libraries must survive, then marketing must be seen as a necessity as indispensable components of national development and global knowledge ecosystems.

2.0 The Strategic Framework for Visibility

Nigeria is one of Africa's largest and most populous countries, with a rapidly growing youth population, rising internet penetration, and a dynamic but uneven educational landscape. At the same time, many Nigerians still face barriers to quality information, including low literacy in some regions, uneven distribution of educational institutions, and limited access to digital infrastructure in rural areas (Igwebuike, … et al., 2022).
In this context, libraries including the National Library, state libraries, university libraries, and school libraries should be central actors in bridging information gaps. The National Library of Nigeria, as the national metadata and bibliographic center, is at the fore front to coordinate and amplify efforts through robust advocacy and marketing strategies. Practical strategies adopted by the National Library of Nigeria includes;

3.0 The NLN 2025-2030 Roadmap

Over the decades, the NLN has evolved from a traditional custodian of print collections into a dynamic, multi-knowledge hub. This transformation is driven by the rapid advancement of information and communication technologies (ICTs), which have redefined how libraries deliver services and engage users. The structural organization of the NLN is designed

to facilitate outreach and effective service delivery through its various departments. Each department plays a specific operational role that contributes to the overall visibility and efficacy of the library's mission:

Department	Core Functions
Public Services	**Provides access to collections through lending, reference, and reader services; enhances user engagement.**
Virtual Library Services	**Develops and manages digital systems, e-resources, and virtual platforms.**
Legal Deposit Services	**Ensures compliance with legal deposit laws and produces the National Bibliography of Nigeria.**
Planning, Research, and Statistics	**Conducts assessments and evaluates institutional impact for strategic planning.**
International Standards and Programs	**Ensures compliance with global bibliographic standards.**
Collections Development and Technical Services	**Oversees acquisition, cataloguing, and classification of resources.**
Human Resources and Administration	**Manages workforce development and administrative efficiency.**
Finance and Accounts	**Ensures financial transparency and accountability.**

In recent years, the NLN has taken on a more visible role in national-level coordination acting as a national voice for State Public Library Boards through conferences and round-table discussions held annually, and digital-transformation projects. The 2025–2030 Strategic Plan explicitly positions the NLN as a leader in promoting visibility, accessibility, and digital integration of library services (National Library of Nigeria, 2025).
In response to the rapidly evolving information landscape, the roadmap emphasizes innovation, inclusivity, and sustainability as core pillars for institutional transformation**.** The National Library of Nigeria Strategy for 2025-2030 represents a successor to the 2019-2024 plan and is designed to serve as a cursory compass for the institution's growth as Africa's foremost digital knowledge hub. This strategic plan envisions the NLN leveraging technologies to bridge educational gaps, promote lifelong learning, and preserve Nigeria's unique cultural heritage. The core pillars of the 2025-2030 roadmap include digital transformation, cultural preservation, literacy promotion, sustainability, and institutional capacity building.

A primary focus of this strategic era is the rollout of the National Virtual Library Platform, which strives to provide seamless digital access to journals, e-books, and digitized local content for all Nigerians, regardless of their geographic location. The plan explicitly recognizes that traditional models of library service are insufficient in the fourth industrial revolution and calls for the integration and or inclusion of Virtual library services through the strengthening of its virtual library platform. This includes the national repository, digitization of national publications, provision of online indexing and abstracting of newspaper articles, ISBN/ISSN verification portal, provision of remote access to electronic resources, and development of online catalogues. Such services enable users in both urban and rural areas to access information and services without physical constraints, thereby enhancing equity in information distribution (Eddy-Ugorji & Eke, 2025).

From an advocacy and marketing perspective, virtual services significantly increase institutional visibility, as users can engage with the NLN from anywhere in the country and beyond. This also supports continuous engagement through digital touchpoints such as websites, databases, and online exhibitions.
The strategic objectives for the NLN's 2025-2030 period are further categorized by their intended national impact.

Strategic Objective	Key Transformational Initiatives
Digital Transformation	National Virtual Library rollout; adoption of AI-powered navigation and assistive technologies.
Cultural Preservation	Digital Heritage Preservation Project; global promotion of digitized Nigerian historical archives.
Literacy Promotion	Nationwide Readership Promotion Campaigns (RPC); establishment of literacy centers in rural areas.
Sustainability	Implementing revenue-generating services; securing grants to diversify from government funding.

Strategic Objective	Key Transformational Initiatives
Stakeholder Engagement	Collaboration with private firms, international bodies (UNESCO, IFLA), and government bodies.

This strategy emphasizes that "public awareness must be prioritized" to enhance the NLN's visibility and impact. By engaging the public through innovative campaigns and programs, the NLN aims to create a resilient and inclusive knowledge ecosystem that empowers individuals and strengthens communities. The plan also underscores the essential non dismissive nature of digital transformation, identifying that technology is the primary tool for expanding reach and improving service delivery in a country with a rapidly growing and digitally savvy population. The NLN's 2025–2030 Strategic Plan highlights initiatives that are inherently marketing-oriented, such as the National Virtual Library platform, national literacy campaigns, and digital-heritage projects. The roadmap represents a strategic visibility shift toward a more proactive, innovative, and resilient institution.

4.0 National Readership Promotion Campaigns (RPC) and NLN Visibility

National Readership Promotion Campaigns (RPCs) constitute a central strategy through which the National Library of Nigeria (NLN) advances its mandate of fostering a reading culture and enhancing public engagement with knowledge resources. In an era characterized by declining reading habits and increasing competition from digital entertainment platforms, structured and sustained readership initiatives have become essential for reinforcing the relevance and visibility of national libraries. Contemporary studies emphasized that effective reading campaigns contribute significantly to educational development, lifelong learning, and civic participation (Eddy-Ugorji & Eke, 2025).

The Readership Promotion Campaign (RPC) is the NLN's flagship annual advocacy program aimed at reviving a declining reading culture in Nigeria. These campaigns are conducted annually across the 36 states and the Federal Capital Territory, targeting diverse demographics including children, youth, expectant and nursing mothers, motor park workers, and prison inmates. The RPC seeks to encourage reading beyond academic and examination purposes, promoting it instead as a lifestyle for personal development and national progress. National Readership Promotion Campaigns represent a vital mechanism for enhancing the visibility, relevance, and societal impact of the NLN. The RPC is necessary as the NLN recognizes that certain groups often face multiple barriers to information access, including geographic distance, low literacy, limited digital skills, and cultural norms. The 2024 RPC, themed "Reading Without Boundaries: A Renewed Hope," marked a significant milestone in the NLN's outreach efforts. The campaign documented localized field reports from 34 state branches, highlighting a range of activities from impromptu speech contests to book donations. This initiative was powered by dedicated NLN staff, volunteers and included the establishment of a vast network of book clubs and literacy centers to ensure the reach extended into "hard to reach" communities.

The RPC's visibility is enhanced through marketing, including the use of local radio stations to reach rural areas where digital penetration is low. The management of the NLN flags of the campaign by invitation of high-ranking government officials, such as the Minister of Education or state commissioners, which serves to amplify the advocacy message to policy-makers to the flag-off event. Furthermore, RPCs play a critical role in strengthening institutional visibility and advocacy through measurable outcomes such as increased library usage, higher resource utilization, and improved literacy indicators. These provide tangible evidence of the NLN's societal impact. Success stories from the RPC are found across various branches, including Kano, Jos, Enugu, Abuja, and Lagos, where holiday programs and literary competitions have successfully engaged a great number of students. A notable example is the participation of a National Library user in the "Readmania Contest," a world-record attempt for the longest marathon of reading aloud, which generated significant public interest and visibility for the library's services. By consistently showcasing these stories, the NLN helps build a national narrative that libraries are tools for equity and inclusion, not merely elite services.

Evidence suggests that such outreach-driven models significantly enhance library visibility and user engagement, particularly when combined with digital communication strategies (Chukwuemeka & Nzewi, 2024). Within this context, RPCs serve as a strategic tool for positioning the NLN not only as a repository of knowledge but also as an active facilitator of intellectual engagement and social development. Also, by integrating traditional outreach method with innovative digital strategies, the NLN strengthens its focal position.

5.0 Digital Marketing Channels with the use of social media in Nigeria

The modern Nigerian library environment is increasingly defined by social media engagement. In his report, Kemp (2025) states that being home to over 47.8 million social media user identities in October 2025, equating to **20.0 percent** of the total population, this shows that the necessity for digital advocacy is immense. Olaniyi(2022) posits that Social media has got a great potential in the present web world. It is a very effective tool for sharing and communicating the information.

(Nakaziba & Ngulube, 2024; Reisberger et al., 2024) in their recent studies highlights that digital transformation in libraries involves not only technological adoption but also organizational, cultural, and service innovations aimed at improving accessibility and user experience Furthermore, evidence from Nigerian library contexts indicates a growing

readiness to integrate emerging technologies, including virtual environments, to enhance service delivery and user engagement.

Libraries cannot ignore the potential of this great tool to communicate ideas, opinions, resources and news. Social media helps the library users to access library resources without physically visiting the library. Social media platforms like Facebook, X (Twitter), and WhatsApp have become "household names" and essential tools for libraries to market their resources and connect with the internet generation. This provides a captive audience for library marketing efforts. The NLN has successfully utilized social media to approach large followership, reflecting a significant increase in public engagement thus, acknowledging the shift in consumer behavior toward mobile-centric content consumption. The effectiveness of social media marketing in libraries is often measured through engagement metrics such as likes, comments, and shares, with Facebook showing the highest frequency of use for these activities. By connecting physical library spaces with digital resources, it allows libraries to expand services without heavy infrastructure investment, which is particularly relevant in the post-pandemic "new normal" where remote service delivery has become a strategic necessity.

6.0 Collaborative partnership: The NLN, NLA, and LRCN

Strategic collaboration among key professional and regulatory bodies is essential for strengthening advocacy and marketing efforts within the Nigerian library and information sector. The partnership between the National Library of Nigeria (NLN), the Nigerian Library Association (NLA), and the Librarians' Registration Council of Nigeria (LRCN) represents a critical framework of advancing Nigerian Librarianship visibility and relevance. Together, these institutions form a complementary structure capable of driving unified advocacy and marketing initiatives.

The advocacy and marketing of library services in Nigeria are coordinated through a tripartite relationship between the National Library of Nigeria (NLN), the Nigerian Library Association (NLA), and the Librarians' Registration Council of Nigeria (LRCN). The NLA, established in 1962, serves as the umbrella body for the profession and has historically been instrumental in lobbying the government for critical legislation, including the 1962 National Library Act. The coordination between these bodies is structural. The National Librarian/CEO of the NLN and the Registrar of the LRCN are formal members of the NLA Council, ensuring that institutional leadership is directly involved in professional advocacy and policy formulation. This collaborative framework is essential for addressing the myriad challenges facing the sector.

Through National Conference Advocacy Platforms where joint communiques are issued at the end, Professional Certification and Advocacy Synergy through LRCN Induction Ceremonies, the NLA, LRCN partners with the NLN. Similarly, on national literacy initiatives, the Network of Book Clubs and Reading Culture Promoters in Nigeria (NBRP), is used to promote reading beyond library walls. These collaborations extend internationally, with the NLN engaging in participatory workshops sponsored by UNESCO to train librarians in documenting family heritage and indigenous languages.

These examples demonstrate that collaboration among the NLN, NLA, and LRCN is not merely only theoretical but practical and operational having proven outcomes.

7.0 Socio-Geographic Disparities: Urban Visibility vs. Rural Deserts

A significant hurdle to the NLN's visibility is the profound disparity between urban and rural library service delivery. Historically, public libraries in Nigeria have been primarily urban-centered, often located in state capitals or large commercial hubs, while rural populations remain marginalized from the knowledge society. This deprivation is increased as a result of poor infrastructure, inadequate funding, and a lack of professional staffing in rural library branches.

By extending its physical presence across the country, the NLN seeks to bridge regional disparities in access to information and promote inclusive national development. Through its state branches the NLN has strengthened its visibility, enhanced user engagement, and facilitated the implementation of national programs such as readership promotion campaigns and digital library services. Furthermore, the continued development and upgrading of these branches demonstrate a progressive trajectory toward achieving full national coverage and improved service delivery. Ongoing efforts in infrastructure enhancement, digital integration, and community outreach indicate a sustained institutional commitment to bridging access gaps and ensuring that all Nigerians benefit from library services, regardless of geographic location (Eddy-Ugorji & Eke, 2025).

However, the physical presence does not always translate into effective visibility. In many rural areas, the "library" exists merely as a building without modern resources or internet connectivity, failing to provide the "need-specific information dissemination" required for community development. To this, NLN responded by intensifying efforts its "hard to reach" campaigns, establishing literacy centers and providing basic textbooks and materials to remote local government areas. There is also a push for participatory approach that involves the inclusion and adoption of "friends of the library" strategies, where interested community members are involved in decision-making processes to co-create knowledge and ensure that library services are culturally relevant and locally owned especially where trust and local relevance are critical. Such collaborative strategies are vital for empowering rural dwellers to navigate the digital landscape and access educational opportunities.

8.0 Institutional Barriers: The Headquarters Project

The most critical barrier to the visibility and effective role of the National Library of Nigeria is the uncompleted National Library Headquarters building in Abuja. This project, which began in 2006 and was originally conceived in 1981, has outlived various administrations and remains a structural manifestation of policy and implementation inactivity. The lack of a completed headquarters prevents the centralization of heritage collections many of which are currently stored in state branches without climate control and thus undermines the institution's image as a national Apex knowledge citadel.

The development of a purpose-built headquarters for the National Library of Nigeria (NLN) has long been positioned as a transformative initiative capable of strengthening the institution's national visibility, advocacy capacity, and service delivery. Conceived as a central hub for bibliographic control, digital innovation, and public engagement, the headquarters project reflects the strategic importance of infrastructure in enhancing the institutional image and operational effectiveness of national libraries. However, like many large-scale public sector projects, its prolonged development has also highlighted a range of institutional barriers that affect advocacy and marketing outcomes. Library budget allocations are frequently insufficient to meet the growing demands for resources, infrastructure, and technology. This is often attributed to the political class unwillingness and inability to connect national development with enlightened human capital.

However, most recent advocacy has led to individual gesture of the First Lady's using her birthday to raise funds as intervention in the national library project. While highly commendable, it highlights the need for the government to take full responsibility for its institutional structures without any further delay. The 2025-2030 strategy also acknowledges that moving beyond government funding toward philanthropic partnerships and revenue-generating activities is essential for long-term operational resilience.

9.0 Conclusion

The role of the National Library of Nigeria in the advocacy and marketing of library services is vital for the nation's intellectual and social progress. Through the implementation of its 2025-2030 Strategic Plan, the NLN is actively transitioning from a traditional archival repository into a digital-first knowledge hub that prioritizes visibility and user engagement. The success of the Readership Promotion Campaigns and the growth of the virtual library platform are clear indicators of this strategic shift. To secure institutional sustainability, the NLN plans to strengthen its advocacy and marketing efforts. This includes promoting the value of library services to policymakers, stakeholders, and the general public while leveraging digital platforms for outreach and engagement. Evidence-based advocacy, supported by user data and impact metrics, will be central to this effort.

However, to fully enhance its visibility and fulfill its apex mandate, the NLN must address the structural and financial barriers that have historically impeded its growth. This involves not only the completion of its physical headquarters in Abuja but also the continuous professional development of its workforce to ensure they are equipped with the digital and marketing competencies of the future. The collaborative framework with the Nigerian Library Association and the Librarians' Registration Council of Nigeria provides a strong professional foundation for these advocacy efforts.

Ultimately, the visibility of the National Library of Nigeria is a reflection of the nation's commitment to literacy and research. By leveraging emerging technologies and continuing its aggressive grassroots outreach through book clubs and literacy centers, the NLN can ensure that it remains a relevant and inclusive pillar of Nigeria's national development. The goal remains the creation of an informed and enlightened citizenry, where access to knowledge is a fundamental right, not a geographic privilege.

Accordingly, the paper opines that a strategic integration of advocacy and marketing is essential for enhancing the relevance, accessibility, and societal impact of the National Library of Nigeria. By strengthening these two, the NLN can reposition itself as a dynamic knowledge institution capable of effectively supporting national development, digital inclusion, and lifelong learning.

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Advocacy and Marketing of the National Library of Nigeria: Strategies for Increased Visibility and Engagement

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Abstract
This paper focuses on advocacy and marketing approaches to improving the National Library of Nigeria's visibility and patronage in the modern information ecosystem. It underscores the need for libraries to embrace active communication strategies to survive in the digital age. This research is grounded in a review of previous studies and explores Relationship Marketing Theory and Diffusion of Innovations Theory to explain the impact of continued engagement and innovation adoption on library visibility. It shows that advocacy and marketing activities like public relations, social media marketing, word-of-mouth promotion, and publicity campaigns play a critical role in enhancing library visibility and usage. However, the National Library of Nigeria still struggles with low visibility, funding problems, poor ICT infrastructure, and stakeholder engagement. The paper concludes that advocacy and marketing practices are crucial in enhancing library performance, and recommends building capacity and partnerships to adopt digital technology and enhance service to clients and stakeholders.
Key Words: Advocacy; Library marketing; National Library of Nigeria; Visibility; Public relations; Digital libraries

Introduction

The National Library of Nigeria (NLN) is the highest library institution in Nigeria, whose mandate is to acquire, preserve, and make available for use the published works in Nigeria for education, culture, and research. It is also the coordinating body for national bibliographic control and library development. Nevertheless, empirical studies indicate that despite its mandate, the institution faces some challenges of low public awareness and underutilisation of its services, which are symptomatic of the larger library awareness and promotion challenges in the country (Ezema & Okafor, 2015; McClure *et al*., 2006). This is further exacerbated by an inefficient stakeholder engagement framework, which undermines the realisation of the institution's national mandate (Abubakar, 2024). These issues, therefore, contribute to the disconnect between the library institution's mandate and public understanding of its role in Nigeria.

In the modern library environment, advocacy and marketing play crucial roles in increasing institutional relevance and patronage. Advocacy helps mobilise resources, influence policy and increase stakeholder awareness, while marketing enables effective communication of library services to potential users. Research suggests that public relations activities, including brochures, exhibitions, and community outreach campaigns, have a positive impact on library usage and brand perception (Okubue *et al*., 2023). Oral communication has also been shown to be an effective approach to building public trust and promoting greater service utilisation (Orowhe *et al*., 2024). Furthermore, social platforms, including social media, provide new avenues for libraries to engage broader audiences and enhance user interactions in a technologically advanced world (Akobe *et al*., 2025).

Despite these developments, the National Library of Nigeria continues to face challenges in achieving greater recognition and user engagement, particularly in public awareness, readership promotion, media visibility, funding, ICT infrastructure, and stakeholder participation. Previous studies reveal that although readership promotion and advocacy initiatives exist within the National Library of Nigeria, they are often constrained by low funding, inadequate media coverage, weak stakeholder engagement, and limited institutional support (Abubakar, 2024). In addition, poor physical infrastructure and limited ICT skills among library professionals restrict the effective use of digital marketing platforms and other modern engagement tools (Baba & Ocloo, 2026). These challenges weaken the National Library of Nigeria's capacity to promote its services, attract broader patronage, and respond effectively to users' changing information needs in the digital age (Akobe et al., 2025; Ukubeyinje et al., 2025). Therefore, the NLN needs to strategise to fit into the changing information economy.

The specific objectives of the paper include:

i. Explore the meaning of and need for advocacy and marketing in libraries;
ii. Review empirical evidence on library advocacy and marketing;
iii. Draw lessons that will enhance visibility and engagement efforts at the National Library of Nigeria.

These goals are achieved through a review of scholarship in this area, including both theoretical and empirical studies in library and information science. For instance, empirical research indicates that publicity campaigns and well-planned outreach programs increase visibility and public awareness, as well as trust in libraries (Ukubeyinje *et al*., 2025). Likewise, successful promotional efforts of library value enhance advocacy and support for libraries (Albert, 2017).

This serves as a strong basis for exploring opportunities for libraries to enhance their visibility and participation strategies.

This study uses a qualitative literature review method to synthesise theory and empirical work to develop conceptual knowledge without data collection. This approach allows the research to examine advocacy and marketing strategies in various library settings. In theoretical terms, the study advances knowledge by synthesising Relationship Marketing Theory and Diffusion of Innovation Theory to account for the impacts of continuous engagement and innovation adoption on library visibility and users' engagement (Muhammad & Zhiwei, 2021). This study adopts a qualitative literature review approach to examine advocacy and marketing strategies for enhancing the visibility and engagement of the National Library of Nigeria. The approach is appropriate because the paper does not involve primary data collection but synthesises existing theoretical and empirical literature in library and information science. Through this method, the study examines how advocacy, public relations, digital marketing, stakeholder engagement, and innovation adoption can improve library visibility and patronage.

The study is significant because it is expected to provide conceptual and practical insights for policymakers, librarians, information professionals, and stakeholders concerned with improving the relevance of the National Library of Nigeria. It will also contribute to the literature by linking Relationship Marketing Theory and Diffusion of Innovations Theory to library advocacy and marketing. In practical terms, the study is expected to guide the development of integrated advocacy and marketing strategies that combine traditional outreach, stakeholder collaboration, social media engagement, ICT development, and staff capacity building.

Literature Review

Advocacy in library and information services relates to active and continuous activities to advocate for the library, gain institutional support, and have an impact on policy and funding decisions that can support library development. It includes targeted communication to stakeholders (government agencies, parent institutions, and the public) to improve library service awareness and visibility. Research findings reveal that promotion of library service through advocacy events, seminars, workshops, public relations campaigns, and institutional engagement plays a critical role in enhancing library visibility and securing funding (Ezema & Okafor, 2015; Plunkett, 2010). Likewise, advocacy is enhanced by networking and political lobbying to make libraries relevant to stakeholders for long-term institutional support (McClure *et al*., 2006). As a result, advocacy is now seen as a professional responsibility of librarians involving communication/engagement skills to convey library value (Beales, 2012).

Marketing in non-profit and public organisations is a strategic approach to meeting users' needs and promoting services to promote awareness, usage and satisfaction without financial profit. For libraries, marketing aims to increase awareness, promote service utilisation, and demonstrate the value of library services to stakeholders. The current evidence shows libraries apply both offline and online marketing strategies in the form of public relations, exhibitions, brochures, and social media to promote their services and resources (Okubue et al., 2023; Kenneway, 2007). Also, new technologies and digital media are essential in reaching out and enhancing user communication in public library settings (Muhammad & Zhiwei, 2021; Akobe *et al*., 2025). So, marketing in public institutions is an ongoing, user-focused effort to ensure engagement and visibility in an ever-changing environment.

Visibility in library and information services is related to the awareness of library resources, services and activities to targeted users, while user engagement is related to the utilisation of library and information services, response and participation in library activities. Maximising visibility is through effective communication, publicity and advocacy campaigns that increase awareness and user attention. Research evidence indicates that techniques such as word-of-mouth promotion, use of social media, and library publicity campaigns play a crucial role in increasing the visibility of libraries and encouraging user engagement (Ukubeyinje *et al*., 2025; Orowhe et al., 2024). Likewise, user engagement increases when libraries use interactive and participatory marketing strategies that facilitate user feedback and co-creation, collaboration with users, and ongoing service use (Singh & Trinchetta, 2020; Akobe *et al*., 2025). In this sense, visibility and engagement are critical measures of library success and sustainability in the digital information society.

Theoretically, this study is hinged on two distinct theories, namely, the Relationship Marketing Theory and the Diffusion of Innovation Theory. The Relationship Marketing Theory, developed by Morgan and Hunt (1994), offers a theoretical basis for understanding how libraries can promote ongoing engagement through advocacy and marketing. This theory highlights trust, commitment, and ongoing engagement as key pillars of effective organisational-stakeholder relationships. This suggests that in libraries, ongoing engagement through user-focused services, communication and advocacy supports builds loyalty and maximises resource use. Research aligns with this position, demonstrating that advocacy strategies, including outreach programs, organisational websites, and personal interactions that enhance users' awareness and build long-term relationships (Ezema & Okafor, 2015; Okwoli, 2025). Likewise, branding strategies and the use of public relations have been demonstrated to strengthen institution branding and promote trust, improving user and advocacy patronage of the library (Okubue *et al*., 2023; Albert, 2017).

The Diffusion of Innovation Theory developed by Rogers (2003) also supplements this model by describing the diffusion of innovations, ideas, services, and products across a social system. It explains that the diffusion process is affected by perceptions of usefulness, channels of communication, and change agents. In the context of libraries, innovations like electronic publications, social media, and virtual libraries need to be advocated and communicated through various channels to ensure acceptance. Research findings reveal that awareness and accessibility play a crucial role in the adoption of innovations, especially in developing countries with infrastructural issues (Akobe *et al.,* 2025; Baba & Ocloo, 2026). Additionally, the impact of librarians as opinion leaders is paramount in the diffusion process through training, demonstration and education of users, but the lack of technical capacity and support from institutions often prevents efficient utilisation (Mashiyane, 2022; Muhammad & Zhiwei, 2021).

The combination of Relationship Marketing Theory and Diffusion of Innovation Theory provides a holistic perspective on library advocacy and marketing. Relationship Marketing Theory emphasises the importance of striving to connect and retain users, whereas Diffusion of Innovation Theory explains how to introduce and diffuse services and technologies successfully. These theories imply that effective library advocacy and marketing demand strong user relationships, as well as the strategic diffusion of innovations. Research shows that blending user-centred communication strategies with technology-based outreach and advocacy strategies also improves visibility, engagement and usage (Singh & Trinchetta, 2020; Ukubeyinje *et al*., 2025). Also, advocacy and outreach activities that focus on collaboration and engagement further enhance relationship-building and diffusion of innovation (Lawal *et al*., 2024; Clark, 2021). Therefore, this study's foundation in these two theories offers a solid foundation for understanding how libraries can enhance their visibility and sustainability in a dynamic information landscape.

Empirically, the literature on advocacy in library systems highlights its role in raising awareness, funding, and relevance to the institution. The seminal work of Ezema and Okafor (2015) identified advocacy as a key factor in the development of open access institutional repositories in Nigeria through advocacy tools like seminars, workshops, and institutional websites, among others. It also identified target audiences, such as regulatory agencies and institutional leaders, for advocacy. Building on this, Singh and Trinchetta (2020) showed that advocacy can be enhanced by brand management approaches that turn users into brand ambassadors for libraries. Equally, Lawal et al. (2024) highlighted the importance of advocacy and outreach programs for collaboration and knowledge sharing in libraries. Likewise, Okubue *et al*. (2023) suggested that the incorporation of public relations with advocacy practices enhances the usage and acceptance of library services.

Similarly, the effectiveness of marketing tactics on library promotion has also been well documented. Ukubeyinje *et al*. (2025) identified strategic media publicity campaigns as being successful in enhancing patronage, trust, and generating funding in government libraries in Nigeria. Likewise, Orowhe *et al.* (2024) found that word-of-mouth marketing is effective in enhancing user engagement and outreach, especially when complemented with testimonials and reviews. Okwoli (2025) also confirmed that both offline and online marketing activities, such as training and social media campaigns, lead to higher awareness and use of library resources by students. Previous research by Kenneway (2007) brought to light the changing face of library marketing through the use of technology, with digital technologies increasing visibility and facilitating the customisation of library services. Together, these studies confirm that marketing plays a key role in promoting relevance in the cut-throat information market.

Research also confirms that online platforms and new technologies are increasingly significant modes of marketing and promotion for libraries. Akobe *et al*. (2025) noted that while social media platforms like Facebook and WhatsApp are acknowledged as effective marketing platforms, they are underused due to logistical and technical constraints. Likewise, Baba and Ocloo (2026) observed that knowledge of electronic library services has a profound impact on their usage, but channels of dissemination are limited. In line with this, Mashiyane (2022) noted the growing use of TikTok to boost library awareness and user engagement, especially among youth. Likewise, Muhammad and Zhiwei (2021) emphasised that social media platforms and other new technologies offer novel opportunities for library promotion and engagement. This indicates that while digital platforms bring great potential, they need to be managed with a deliberate approach and supported by institutional mechanisms.

Stakeholder involvement and support are also recognised as key elements in library advocacy. Abubakar (2024) reported that while stakeholders offer some form of support for book readership promotion events, it is generally not sufficient - especially in terms of financial and media support. This is consistent with the view of Albert (2017), who stressed the need to communicate the value of libraries to facilitate advocacy and partnerships. Moreover, Beales' (2012) analysis of ineffective advocacy in library management revealed that the lack of critical evaluation in library management and strategic planning leads to sub-optimal advocacy outcomes. McClure *et al*. (2006) also emphasised the importance of networking and political involvement in improving advocacy and community engagement. These studies suggest that effective advocacy involves ongoing stakeholder engagement, planning, and collaboration.

As well, empirical evidence has suggested that outreach and user-centred strategies are critical for enhancing library use and engagement. Clark (2021) demonstrated that outreach marketing is an effective way to advertise library services - but often difficult to implement due to resource limitations. Likewise, Plunkett (2010) highlighted the importance of advocacy to keep libraries relevant and responsive to users' needs. Lyons (2009) also noted that advocacy needs to be critically examined to enhance its efficacy and credibility. Baker (1989) also stressed the need for library services to integrate marketing and planning to meet customer and organisational needs. Together, these studies show that libraries must prioritise active approaches focused on users to increase visibility and engagement.

In summary, the empirical studies demonstrate that advocacy and marketing are intertwined approaches that play a crucial role in library visibility, engagement, and sustainability. Research consistently demonstrates the impact and value of both traditional methods (seminars, outreach campaigns) and digital marketing and social network engagement. However, problems like a lack of funding, limited technological advancement, and a lack of support from stakeholders still limit the effectiveness of these strategies. As such, there is an urgent need for coordinated advocacy and marketing strategies that build on organisational and resource support at the individual and community levels to improve library performance, especially in the Nigerian context.

Findings of the Study

i. Meaning and need for advocacy and marketing in libraries

The literature shows that advocacy and marketing are essential tools for enhancing the visibility, relevance, and sustainability of libraries. Advocacy involves deliberate efforts to create awareness, influence stakeholders, secure institutional support, and promote the value of library services to users, policymakers, and the wider community (Ezema & Okafor, 2015; McClure et al., 2006; Plunkett, 2010). Marketing, on the other hand, focuses on identifying users' information needs, communicating available services, promoting library resources, and encouraging service utilisation (Baker, 1989; Kenneway, 2007; Okubue et al., 2023). In the case of the National Library of Nigeria, advocacy and marketing are necessary because many potential users are either unaware of its services or do not fully understand its national role in education, research, culture, and knowledge preservation. This makes strategic communication, stakeholder engagement, and service promotion important for improving visibility and public patronage (Abubakar, 2024; Albert, 2017).

ii. Empirical evidence on library advocacy and marketing

Empirical studies reviewed in this paper show that advocacy and marketing strategies such as seminars, workshops, public relations, exhibitions, brochures, outreach programmes, word-of-mouth promotion, social media campaigns, and institutional websites improve library awareness and patronage (Ezema & Okafor, 2015; Okubue et al., 2023; Orowhe et al., 2024; Ukubeyinje et al., 2025). The literature also shows that digital platforms such as Facebook, WhatsApp, TikTok, and other online communication channels can strengthen library engagement, especially among young and digitally active users (Akobe et al., 2025; Mashiyane, 2022; Muhammad & Zhiwei, 2021). However, the effectiveness of these strategies depends on adequate funding, ICT infrastructure, staff competence, institutional planning, and stakeholder support. Studies have shown that poor funding, weak ICT capacity, inadequate media support, and limited stakeholder participation continue to constrain effective advocacy and marketing in library institutions, particularly in developing contexts (Abubakar, 2024; Baba & Ocloo, 2026; Clark, 2021).

iii. Lessons for enhancing visibility and engagement at the National Library of Nigeria

The review suggests that the National Library of Nigeria needs a more coordinated and integrated advocacy-marketing framework. Such a framework should combine traditional advocacy methods with digital marketing, stakeholder partnerships, community outreach, media visibility, staff training, and continuous user engagement. Evidence from previous studies indicates that libraries achieve better visibility and patronage when advocacy, branding, publicity, outreach, and digital communication are implemented as complementary strategies rather than isolated activities (Albert, 2017; Lawal et al., 2024; Singh & Trinchetta, 2020). The findings also indicate that the NLN should move beyond occasional or event-based promotional activities and adopt a long-term strategic communication plan that targets students, researchers, policymakers, schools, communities, and the general public. This would enhance public awareness, increase usage, strengthen institutional relevance, and improve stakeholder support for library development (Abubakar, 2024; Okwoli, 2025; Ukubeyinje et al., 2025).

Discussion of the Findings

The results are well explained by the Relationship Marketing Theory (Morgan & Hunt, 1994), which is grounded in trust, commitment, and ongoing interaction as the foundations for organisational success. The literature shows that advocacy and marketing initiatives, such as publicity, training, and social media outreach, serve as processes of relationship building, enhancing loyalty, relevance, and capacity. Likewise, Diffusion of Innovation Theory (Rogers, 2003) is corroborated by studies that demonstrate that knowledge, communication and usefulness are antecedents for the acceptance of library innovations such as digital repositories and e-services. Empirical studies also confirm that librarians are change agents who promote the diffusion of innovation through training and outreach, but with limited capacity due to infrastructure and resource problems (Baba & Ocloo, 2026; Mashiyane, 2022). The theories combine to

explain the role of advocacy in creating relationships and the role of marketing and communication as diffusion agents for new library services.

Comparing international trends with the Nigerian context, the literature shows a capacity gap and integration of strategies. Global libraries are increasingly adopting sophisticated digital marketing tools, data analytics-driven engagement strategies, and holistic branding approaches to maintain visibility and engagement (Singh & Trinchetta, 2020; Albert, 2017). By contrast, Nigerian libraries, such as the National Library of Nigeria, predominantly adopt traditional advocacy strategies such as workshops and seminars, and occasional outreach programs, with limited use of digital tools because of infrastructural and funding constraints (Ukubeyinje *et al.,* 2025; Akobe *et al*., 2025). While there are readership promotion campaigns and engagement with stakeholders, these are disconnected and poorly coordinated, and lead to low visibility and low usage of services. This reflects a digital and strategic divide between best practices and realities.

An analysis of the research also highlights deficiencies in existing practice, especially as it relates to the National Library of Nigeria. Although research discusses advocacy and marketing activities, there is little discussion of holistic and long-term strategic planning approaches that consider interpersonal and digital aspects. Interventions are often short-term, isolated, and reactive, and donor- or event-based, rather than integrated and aligned with institutional plans (Lawal *et al.*, 2024; Okubue *et al*., 2023). Furthermore, there are contradictions in the literature on the impact of digital platforms, with some studies focusing on their potential benefits. In contrast, others focus primarily on institutional challenges such as ICT competence, connectivity, and infrastructure. Moreover, little research has been conducted in the areas of user behaviour analysis, long-term stakeholder engagement approaches, and assessing advocacy's impact on library use. These areas of neglect point to the need for a comprehensive and evidence-based approach to advocacy and marketing that is sensitive to the context and connected to macro and micro institutional realities.

Implications of the Findings

This study highlights the theoretical need for an advocacy-marketing approach that connects Relationship Marketing Theory (Morgan & Hunt, 1994) with Diffusion of Innovation Theory (Rogers, 2003). Relationship Marketing Theory addresses how engagement, trust, and commitment lead to stable user relations and relationships, while Diffusion of Innovation Theory offers insight into the adoption of new services and technologies in institutional and community contexts. What this suggests is the need to conceptualise advocacy and marketing as complementary processes that work together to influence awareness, user relationships and institutional relevance. This is supported by the literature, which reveals that a segmented approach constrains the effect of library communication policies and strategies, and decreases the impact of library advocacy (Singh & Trinchetta, 2020; Ezema & Okafor, 2015). As such, an integrated theoretical framework is needed to explain and inform libraries' approach to nurturing relationships and promoting innovation simultaneously.

In practical terms, the research offers strategic guidelines for improving libraries' visibility and user engagement, especially the National Library of Nigeria. The study shows that libraries need to shift from the traditional to a blended strategy, merging online marketing, stakeholder engagement, and community approach. This means utilising social media, enhancing public relations strategies and designing publicity campaigns aimed at raising awareness and encouraging participation (Ukubeyinje *et al*., 2025; Akobe *et al*., 2025). Additionally, capacity-building within the institutions, through training staff, ICT infrastructure development, and policy support, is key to ensuring the strategies are sustained. Indeed, empirical research indicates that libraries pursuing multi-channel communication and user engagement strategies have higher visibility and patronage (Okwoli, 2025; Albert, 2017). Hence, library managers must adopt strategic advocacy and marketing to enhance sustainability and service delivery.

Conclusion

This study concludes that advocacy and marketing are central to improving the visibility, engagement, and relevance of the National Library of Nigeria. The review shows that advocacy helps libraries communicate their value, mobilise stakeholder support, and strengthen institutional recognition, while marketing helps promote services, attract users, and sustain patronage. However, the National Library of Nigeria still faces challenges such as limited public awareness, inadequate funding, weak ICT infrastructure, low media visibility, and insufficient stakeholder engagement. The study further concludes that a more integrated and strategic approach is required. The National Library of Nigeria should combine traditional advocacy methods with digital marketing, stakeholder collaboration, staff capacity building, and continuous user engagement. Such an approach would not only improve visibility and patronage but also strengthen the library's contribution to education, research, cultural preservation, and national development.

Based on the findings of the study, the following recommendations are made:

(i) Develop an integrated advocacy and marketing strategy: The National Library of Nigeria should develop a coordinated advocacy and marketing plan that combines public relations, media campaigns, community outreach, exhibitions, school visits, stakeholder meetings, and digital engagement.

(ii) Strengthen digital marketing and social media presence: The library should make effective use of social media platforms, official websites, email newsletters, online exhibitions, and digital storytelling to promote its services and reach wider audiences, especially young users and researchers.
(iii) Improve ICT infrastructure and staff capacity: Government and relevant stakeholders should invest in ICT facilities, internet connectivity, digital platforms, and staff training to enable librarians to use modern marketing and communication tools effectively.
(iv) Build stronger stakeholder partnerships: The National Library of Nigeria should collaborate with schools, universities, government agencies, media organisations, community associations, publishers, researchers, and development partners to improve visibility, funding, and public engagement.
(v) Institutionalise continuous user engagement: The library should regularly collect feedback from users, organise interactive programmes, conduct awareness campaigns, and design services that respond to the needs of different user groups.
(vi) Provide sustainable funding and policy support: The government should provide adequate funding and policy backing to support advocacy, marketing, digitisation, outreach, and capacity-building programmes in the National Library of Nigeria.

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Assessing the Readiness of Nigerian Librarians for Emerging Technologies in Academic Libraries

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Abstract

The study is on Assessing the Readiness of Nigerian Librarians for Emerging Technologies in Academic Libraries. The study adopted a descriptive survey approach, focusing on 100 librarians in selected academic libraries across Nigeria. Multi-stage sampling technique was adopted to select librarians from 3 Nigerian states: Benue, Abuja, and Anambra. Data were collected through questionnaires. Data collected were analyzed using descriptive statistics of mean scores and standard deviation. The study found that Nigerian librarians maintain a commendable level of awareness regarding widely publicized technologies like AI and virtual reality. Librarians in Nigeria must possess a core set of technical competencies to effectively adopt emerging technologies. The majority of librarians perceive the current level of support as low. Erratic power supply, insufficient budgets, limited high-speed internet access, and the absence of clear institutional policies are the challenges within the population that underscore the urgency for targeted solutions. The study concluded that while librarians demonstrate moderate to high awareness of mainstream technologies like AI, robotics, virtual reality, and chatbots, critical gaps persist in understanding specialized tools such as blockchain, cloud computing, and IoT. The study recommended the need for strategic investment in continuous professional development, curriculum reform in library and information science education, and stronger institutional policies that prioritise technological advancement.

Keywords: Emerging Technologies, Librarians' Readiness; Nigerian Libraries; Professional Competence; Technological Innovation

Introduction

The rapid advancement of emerging technologies such as artificial intelligence (AI), big data analytics, cloud computing and digital preservation tools is fundamentally transforming the global information landscape. These technologies are redefining how information is created, organised, accessed and preserved within academic and research environments. International Federation of Library Associations and Institutions [IFLA] (2023) have consistently highlighted the growing influence of digital transformation on professional practice, emphasising the need for librarians to acquire new technological competencies in order to remain relevant in their job, with efficient outcome. As information systems become increasingly automated and data-driven, librarians are expected to demonstrate not only traditional information management skills but also digital fluency, analytical capability and adaptive professional attitudes.

In the context of Nigeria, academic libraries serve as vital knowledge hubs that support teaching, learning and scholarly research. But the integration of emerging technologies within Nigerian academic libraries remains instable. While some institutions have begun exploring digital repositories, automated systems and cloud-based services, the broader question concerns whether librarians possess the requisite awareness, skills and institutional support necessary for effective adoption. Jana and Naikal (2025) opined that globally, libraries are already integrating AI-powered discovery systems, research analytics tools and digital preservation frameworks to enhance service efficiency and user engagement, because AI can analyse usage patterns and feedback, helping libraries to optimise their collections and services. The extent to which Nigerian librarians are prepared to embrace similar innovations warrants systematic investigation.

Professional readiness for emerging technologies encompasses several dimensions: awareness of technological trends, technical and analytical skills, institutional infrastructure, supportive policies and continuous professional development

opportunities. Organisation for Economic Co-operation and Development [OECD] (2023). stressed that workforce development and digital skills enhancement are central to successful technological integration in libraries. And without strategic investment in capacity building, libraries risk widening the digital divide and diminishing their relevance in contemporary academic environments.

The rise of AI-driven systems, research data management platforms and cloud-based library services is reshaping professional roles and expectations. Aruppala (2026) stressed that digital transformation in the information sector indicate that readiness is not merely technical but also organisational, requiring supportive leadership, funding structures and policy frameworks by changing and improving the attributes of entities by way of the integration of information, processing, communication, and networking technologies. In developing contexts such as Nigeria, infrastructural limitations, limited funding and inconsistent professional training may hinder effective technological adoption.

Statement of the Problem

The rapid emergence of advanced technologies such as artificial intelligence (AI), big data analytics, cloud computing, and digital preservation systems is transforming the global information landscape. Academic libraries worldwide are increasingly expected to integrate these technologies to enhance service efficiency, research support, and digital scholarship. Professional bodies such as the International Federation of Library Associations and Institutions and the American Library Association have emphasised the urgency of technological preparedness among librarians to ensure continued relevance in a digitally driven knowledge economy.

In Nigeria, academic libraries play a crucial role in supporting teaching, learning, and research across higher education institutions. However, despite the global momentum towards digital transformation, concerns persist regarding the readiness of Nigerian librarians to adopt and implement emerging technologies effectively. While some institutions have introduced automation systems and digital repositories, the broader integration of AI-driven tools and advanced digital preservation systems remains limited. A significant problem lies in the insufficient empirical evidence on the actual level of awareness and technical competence of Nigerian librarians concerning these emerging technologies. Without clear data on their preparedness, it becomes difficult for policymakers, educators, and institutional administrators to design targeted interventions. Disparities in access to digital infrastructure, inconsistent professional development opportunities, and limited curriculum integration of advanced technologies in Library and Information Science education further weaken readiness levels. These challenges risk widening the gap between Nigerian academic libraries and global standards in digital innovation.

Consequently, there is a pressing need to systematically assess the readiness of Nigerian librarians for emerging technologies in academic libraries. Without such assessment, Nigerian academic libraries risk lagging behind in digital innovation, thereby limiting their effectiveness in supporting research, scholarly communication, and national development. This study therefore seeks to address the gap by examining awareness levels, required technical skills, institutional support structures, and the challenges influencing librarians' readiness to adopt emerging technologies, thereby demonstrating the severity of the issue within Nigerian academic libraries.

Objectives of the Study

1. Examine the level of awareness of emerging technologies among librarians in Nigerian libraries.
2. Identify the technical skills required of Nigerian librarians for the adoption of emerging technologies,
3. Identify level of institutional support for implementing emerging technologies in Nigerian libraries.
4. Identify the challenges affecting Nigerian librarians' readiness to adopt emerging technologies

Research Question

- What level of awareness of emerging technologies among librarians in Nigerian libraries?
- What are the technical skills required of Nigerian librarians for the adoption of emerging technologies?
- What is the level of institutional support for implementing emerging technologies in Nigerian libraries?
- What are the challenges affecting Nigerian librarians' readiness to adopt emerging technologies?

Review of Literature

Level of Awareness of Emerging Technologies among Librarians

Awareness of emerging technologies such as artificial intelligence, cloud computing, and digital repositories is gradually expanding among Nigerian librarians. Studies show that while librarians recognise the importance of digital transformation, their actual readiness remains uneven. For instance, Ogwo, Ojobor, and Babarinde (2025) found moderate awareness and utilisation of e-resources and digital catalogues in federal university libraries in Southeastern Nigeria, though adoption varied significantly across institutions. Similarly, Okuonghae and Tunmibi (2025) reported

growing awareness of AI applications among librarians in Edo and Delta States, but highlighted a lack of deep understanding of how to integrate these tools into daily professional practices.

Readiness, however, extends beyond awareness to include the ability to adopt, sustain, and innovate with new technologies. Ofua and Umuerhi (2025) assessed librarians in Delta State University and found recognition of digital transformation's importance, yet inadequate training and infrastructural limitations hindered effective preparedness. Funding constraints further compound the challenge. Emmatrice and Ekoko (2025) observed that librarians in Edo and Rivers States, despite their willingness, struggled to implement emerging technologies due to persistent financial barriers.

The implications of these challenges are profound. Adeyeye and Oladokun (2025) argue that readiness is directly linked to the role of libraries in supporting research productivity, warning that without embracing emerging technologies, Nigerian academic libraries risk diminishing relevance to scholars and researchers. Collectively, these findings reveal a consistent pattern: librarians are aware of technological innovations but face systemic barriers, funding, infrastructure, and training that prevent effective adoption.

The research gap lies in the insufficient empirical evidence that systematically measures both awareness and readiness across diverse Nigerian academic libraries. Existing studies are fragmented by region or institution, leaving policymakers and educators without comprehensive data to design targeted interventions. Strengthening collaborations, institutional support structures, and curriculum integration of advanced technologies will be critical to bridging the gap between awareness and effective adoption, ensuring Nigerian librarians remain competitive in the global knowledge economy.

Technical Skills Required for Adoption of Emerging Technologies

Nigerian librarians require a combination of technical skills, ranging from ICT literacy to data management and AI awareness to willingly and effectively adopt emerging technologies or services, delivery and dissemination of information in their academic libraries. While awareness is growing, gaps in training and infrastructure remain, making technical competence a decisive factor in readiness.

ICT Literacy and Digital Competence

The foundation of adopting emerging technologies lies in basic ICT literacy., basic in the sense that, these are what they supposed to be compliant with. Librarians must be proficient in using digital catalogues, online databases, and cloud-based platforms. Tshabalala and Dube (2024) emphasise that ICT competence enables librarians to restructure services and deliver seamless digital information flows in academic libraries. Without these skills, librarians struggle to integrate new technologies into daily operations.

Data Management and Analytical Skills

Emerging technologies such as big data and machine learning require librarians to develop data management and analytical skills. Ashikuzzaman (2025) argues that librarians must understand how to handle large datasets, apply algorithms, and interpret results to provide user-centred services. For example, AI-enhanced search systems rely on librarians' ability to manage metadata and contextual information effectively.

Skills in Contemporary Technology Adoption

Practical skills in adopting contemporary technologies, such as digital repositories, e-learning platforms, and mobile applications are also essential. Asifor and Ogbomo (2024) found that librarians in Edo and Delta States who had training in these tools were more effective in-service delivery, demonstrating that technical competence directly impacts library performance.

AI and Automation Awareness

Awareness of artificial intelligence and automation tools is increasingly important. Librarians must understand how AI can support cataloguing, indexing, and personalised information services. Okuonghae and Tunmibi (2025) highlight that librarians in Edo and Delta States showed growing awareness of AI technologies, but many lacked the technical depth to apply them effectively in their professional duties.

Continuous Professional Development

Finally, sustaining technical competence requires continuous professional development. Ogwo, Ojobor, and Babarinde (2025) argue that librarians must engage in regular training programmes to keep pace with evolving technologies. Without serious and dedicated skill development, readiness for adoption remains limited, even when awareness is high.

This shows that ICT literacy, data management, AI awareness, and continuous training are the technical skills librarians need to adopt emerging technologies. Nigerian librarians are aware of these needs, but readiness depends on sustained investment in professional development and infrastructure.

Level of Institutional Support for Implementing Emerging Technologies

The successful adoption of emerging technologies in academic libraries depends heavily on the level of institutional support provided to librarians. Such support encompasses funding, infrastructure, training, and policy frameworks that enable librarians to integrate new technologies into service delivery and workforce development. Evidence consistently shows that without robust institutional backing; awareness of technologies does not translate into readiness or effective implementation.

Adequate funding remains the most critical form of support. Without sufficient financial resources, libraries struggle to acquire hardware, software, and maintenance services required for emerging technologies. Emmatrice and Ekoko (2025) emphasise that sustainable funding is essential for Nigerian librarians, as financial instability often undermines readiness for technological adoption. Similarly, Adeyeye and Oladokun (2025) argue that institutional investment in emerging technologies directly influences research support services, making libraries more relevant to academic productivity and scholarly reliance.

Training and professional development represent another decisive dimension of institutional support. Ogwo *et al.* (2025) found that librarians in parts of Nigeria were aware of emerging technologies but lacked adequate institutional training programmes to build technical competence. This gap highlights the importance of continuous professional development supported by universities and government agencies. Infrastructure provision is equally vital. Ofua and Umuerhi (2025) note that librarians' preparedness in developing countries like Nigeria was hindered by inadequate ICT infrastructure, despite awareness of digital transformation. Reliable internet connectivity, modern equipment, and technical staff are indispensable for effective adoption.

Finally, policy and leadership support provide the strategic direction necessary for technology integration. Okuonghae and Tunmibi (2025) stress that institutional policies guiding the integration of artificial intelligence in libraries are often weak or absent, leaving librarians uncertain about application. Strong leadership and clear policies can encourage innovation, ensure accountability, and provide confidence in technology adoption.

Collectively, these findings reveal that institutional support is the backbone of emerging technology adoption in libraries. Funding, training, infrastructure, and policy frameworks determine whether librarians can move from awareness to readiness and effective implementation. The research gap lies in the absence of comprehensive, empirically grounded studies that assess how these dimensions of support interact to shape readiness across Nigerian academic libraries. Existing evidence is fragmented by region or institution, leaving policymakers without holistic insights to design targeted interventions. Addressing this gap is crucial to ensure Nigerian libraries remain competitive in the global knowledge economy.

Challenges Affecting Librarians' Readiness to Adopt Emerging Technologies

The readiness of librarians to adopt emerging technologies in academic libraries is constrained by a complex set of challenges. These include funding limitations, inadequate infrastructure, insufficient training, and weak institutional support, all of which collectively slow the pace and effectiveness of technological adoption. Rather than isolated barriers, these challenges interact to create systemic obstacles that prevent librarians from moving beyond awareness into full readiness.

Funding remains the most significant challenge. Emerging technologies such as artificial intelligence, digital repositories, and cloud computing require substantial investment. Emmatrice and Ekoko (2025) argue that sustainable funding remains elusive in many Nigerian university libraries, making it difficult to acquire and maintain essential tools. Without consistent financial support, readiness is undermined even when awareness of technological trends exists. Infrastructure and technical capacity compound this problem. Ofua and Umuerhi (2025) found that poor ICT infrastructure, including unreliable internet connectivity and outdated equipment, hindered librarians' ability to integrate new technologies. Similarly, Ogwo *et al*. (2025) reported that inadequate institutional support for infrastructure development limited effective adoption.

Training and professional development are equally critical. Adeyeye and Oladokun (2025) emphasise that librarians often lack the technical skills required to adopt emerging technologies effectively. Without regular training programmes, librarians remain aware but unprepared, creating a persistent gap between knowledge and competence. Policy and leadership support further exacerbate readiness challenges. Okuonghae and Tunmibi (2025) highlight that institutional policies guiding the integration of artificial intelligence are often weak or absent, leaving librarians uncertain about application and direction.

Overall, challenges affecting librarians' readiness are multidimensional, spanning financial, infrastructural, professional, and policy barriers. The literature consistently points to fragmented interventions that fail to address these challenges holistically. The research gap lies in the absence of comprehensive, empirically grounded studies that examine how these barriers interact to shape readiness across Nigerian academic libraries. Existing evidence is region-specific and lacks national scope, leaving policymakers and educators without the data needed to design targeted, systemic solutions. Addressing this gap is essential to bridge the divide between awareness and effective adoption, ensuring Nigerian librarians remain relevant in the global knowledge economy.

Methodology

This study adopted a descriptive survey research design. The target population comprises 200 professional librarians working in academic libraries across Nigeria. These librarians are directly involved in information service delivery, digital resource management and technology-related library operations, making them appropriate respondents for assessing readiness for emerging technologies. A multi-stage sampling technique is employed in selecting participants. First, Cluster Sampling was employed to get three states, Benue, Abuja (Federal Capital Territory) and Anambra are selected to ensure geographical representation. Secondly, institutional Selection was used to get academic libraries within selected universities and tertiary institutions in these states as identified. Third stage was direct respondent Selection, **l**ibrarians within the selected institutions are chosen using purposive sampling to ensure that only professional librarians directly involved in library services participate in the study. Instrument for Data Collection was a structured questionnaire designed to obtain information, which was structured using Likert-scale items. The instrument was subjected to content validation by experts in Library and Information Science to ensure clarity, relevance and coverage of the study variables. Reliability was determined using the Cronbach Alpha method to test internal consistency of the questionnaire items, which yielded a coefficient of 0.70, and it was considered acceptable for the study. Data collected were analysed using descriptive statistics, including mean scores and standard deviations.

Results and Discussion

Research Question 1: What level of awareness of emerging technologies among librarians in Nigerian libraries?

Table 1: Level of awareness of emerging technologies among librarians in Nigerian libraries

S/N	Item	Aware	Not aware
1	I am aware of the existence of Artificial Intelligence and its application in library services.	√	
2	I have a clear understanding of what blockchain technology entails for record management.		√
3	I am familiar with the potential benefits of robotics in automating library workflows.	√	
4	I am aware of how virtual reality can enhance user experiences in the library.	√	
5	I stay updated on new technological trends relevant to the library and information science profession.	√	
6	I can differentiate between various emerging technologies relevant to library service delivery.	√	
7	I am aware of the role of cloud computing in digital resource management.		√
8	I am aware of how IoT can be used to track library materials and manage facilities.		√
9	I understand how chatbots can assist in providing reference services to library users.	√	

The data presented in Table 1 reveals a nuanced landscape regarding the technological awareness of librarians across selected Nigerian academic libraries. The results demonstrate that librarians exhibit a high level of awareness regarding foundational and user-facing technologies, such as Artificial Intelligence (Item 1), robotics (Item 3), virtual reality (Item 4), and chatbots (Item 9), suggesting a strong engagement with tools that directly improve patron interaction and

workflow automation. Furthermore, respondents expressed high self-efficacy in maintaining awareness of general professional trends (Item 5) and distinguishing between various relevant technologies (Item 6). Conversely, the data indicates a critical awareness gap in specialized technical domains, specifically blockchain (Item 2), cloud computing (Item 7), and the Internet of Things (Item 8). This disparity highlights that while librarians are proactive in following mainstream digital trends, there remains a significant knowledge deficit concerning the complex technologies that underpin modern digital resource and facility management in academic settings. Therefore, Nigerian librarians maintain a commendable level of awareness regarding widely publicized technologies like AI and virtual reality

Research Question 2: What are the technical skills required of Nigerian librarians for the adoption of emerging technologies?

Table 2: Technical skills required of Nigerian librarians for the adoption of emerging technologies

S/N	Item	Mean	SD	Decision
1	Basic web development to maintain the library's online presence.	3.32	0.74	Strongly Agree
2	Data analysis tools to manage big data in the library.	2.81	0.82	Agree
3	Technical ability to troubleshoot common software and hardware issues.	3.40	0.79	Strongly Agree
4	Coding skills necessary for customizing open-source library management systems.	3.25	0.71	Strongly Agree
5	Managing and organizing digital resources effectively.	3.15	0.85	Strongly Agree
6	Designing value-added digital services for our library patrons.	2.95	0.79	Agree
7	Information retrieval skills to navigate advanced digital databases.	2.60	0.76	Agree
8	Mentorship skills required to lead peers in adopting new technologies.	2.75	0.81	Agree
9	Integrating emerging technologies into existing library workflows.	2.85	0.84	Agree
	Grand Mean	**3.01**	**0.79**	**Strongly Agree**

The data displayed in Table 2 presents the technical requirements perceived by librarians in Nigerian academic libraries as essential for successfully integrating modern technological tools. The respondents strongly affirmed the necessity of fundamental technical competencies, specifically basic web development, hardware and software troubleshooting, customization of open-source systems, and digital resource management. These findings suggest that librarians prioritize foundational skills that directly enable system functionality and resource accessibility. Meanwhile, skills related to data analytics, digital service design, advanced information retrieval, peer mentorship, and workflow integration received an agree decision, indicating that while these competencies are recognized as beneficial, they are viewed as secondary to the primary technical capabilities required to maintain day-to-day library operations. The grand mean of 3.01 indicate that the responses reflect a significant consensus among the study population that librarians in Nigeria perceived the possession of a core set of technical competencies to enable them effectively adopt emerging technologies

Research Question 3: What is the level of institutional support for implementing emerging technologies in Nigerian libraries?

Table 3: Level of institutional support for implementing emerging technologies in Nigerian libraries

S/N	Item	Mean	SD	Decision
1	My institution provides adequate funding for the purchase of emerging technologies.	2.25	0.73	Low Level
2	The library management has a clear policy for adopting and integrating emerging technologies.	2.65	0.77	High Level

S/N	Item	Mean	SD	Decision
3	My institution sponsors regular training and capacity-building workshops on new technologies.	2.15	0.81	Low Level
4	There is consistent provision of technical support staff to assist with technology implementation.	2.30	0.75	Low Level
5	My library management encourages staff to participate in professional development programs.	2.70	0.79	High Level
6	There is adequate infrastructure such as reliable power supply to support the use of new technologies.	2.05	0.76	Low Level
7	The library administration provides enough time for staff to learn and master new digital tools.	2.35	0.74	Low Level
8	There is a collaborative environment where librarians are encouraged to share technical knowledge.	2.10	0.80	Low Level
9	My institution recognizes and rewards librarians who initiate successful technology projects.	2.75	0.82	High Level
	Grand Mean	**2.37**	**0.77**	**Low Level**

The findings from Table 3 reveal a critical deficit in the institutional support provided to librarians in Nigerian academic institutions for the implementation of emerging technologies. Specifically, items concerning vital infrastructure such as adequate funding, consistent technical support, reliable power supply, dedicated time for learning, and collaborative knowledge sharing all fall within the low level category. This implies that while management may possess visionary intentions, the practical resources necessary to realize these goals are significantly lacking. In contrast, librarians reported high levels of support regarding institutional policies, encouragement for professional development, and the recognition or rewarding of technology initiatives. This dichotomy suggests that although libraries have the conceptual frameworks and motivational policies in place, they struggle to translate these commitments into the necessary material and human capital required for successful technological transformation. With a grand mean of 2.37, the results indicate that the majority of librarians perceive the current level of support as low.

Research Question 4: What are the challenges affecting Nigerian librarians' readiness to adopt emerging technologies?

Table 4: Challenges affecting Nigerian librarians' readiness to adopt emerging technologies

S/N	Item	Mean	SD	Decision
1	Erratic power supply is a major hindrance to the use of emerging technologies in my library.	3.25	0.72	Strongly Agree
2	The lack of sufficient budget remains a primary obstacle to upgrading our library facilities.	3.40	0.79	Strongly Agree
3	I experience fear or anxiety regarding the potential job displacement caused by new technologies.	2.65	0.77	Agree
4	High costs of maintenance for new technology systems prevent their effective use.	2.75	0.74	Agree
5	There is limited access to high-speed, reliable internet connectivity for library operations.	3.15	0.81	Strongly Agree
6	Inadequate technical training programs limit my ability to adopt advanced tools.	3.30	0.75	Strongly Agree

S/N	Item	Mean	SD	Decision
7	Resistance to change among staff members slows down the implementation process.	3.35	0.73	Strongly Agree
8	Lack of clear strategic policies at the institutional level hampers technology adoption.	3.10	0.70	Strongly Agree
9	Privacy and security concerns discourage me from fully adopting some emerging technologies.	2.60	0.82	Agree
	Grand Mean	**3.06**	**0.76**	**Strongly Agree**

The results presented in Table 4 from responses by librarians across Nigerian academic libraries paint a clear picture of the substantial obstacles hindering their preparedness to embrace new technological tools. Librarians overwhelmingly identified infrastructural and resource-related issues as primary barriers, including erratic power supply, insufficient budgets, limited high-speed internet access, inadequate training programs, staff resistance to change, and the absence of clear institutional policies, all of which received strongly agree ratings and mean scores between 3.00 and 3.49. These factors point to systemic deficiencies that directly impede the practical application of technologies, as librarians cannot effectively operate or maintain digital systems without stable electricity, funding for upgrades, reliable connectivity, or proper skill-building opportunities, while human factors like reluctance to adapt further compound the problem by creating internal friction during implementation efforts. In comparison, personal concerns such as fear of job loss, high maintenance costs, and privacy or security worries garnered moderate agreement with means between 2.50 and 2.79, suggesting these are acknowledged but secondary to the more pressing environmental and organizational hurdles that demand institutional intervention before individual apprehensions can be meaningfully addressed. The grand mean of 3.06 signaled a strong overall agreement that erratic power supply, insufficient budgets, limited high-speed internet access, inadequate training programs, staff resistance to change, and the absence of clear institutional policies are the challenges within the population that underscore the urgency for targeted solutions.

Discussion of findings

Level of awareness of emerging technologies among librarians in Nigerian libraries

While Nigerian librarians maintain a commendable level of awareness regarding widely publicized technologies like AI and virtual reality, there is a clear divide in their familiarity with advanced technical systems such as blockchain, cloud computing, and IoT. The findings of this study are corroborated by several empirical investigations into the digital landscape of Nigerian academic libraries. A study by Dushu and Agim (2026) reported that while Nigerian librarians are increasingly aware of mainstream emerging technologies, their knowledge is often uneven, with specific gaps appearing in specialized fields. Similarly, research conducted by Ajani, Olorunyomi and Tella (2023) confirmed that librarians frequently display high recognition of AI-driven tools yet lack deep understanding of foundational technical frameworks like blockchain and robotics. Furthermore, research by Elejene, Agim and Umunnakwe (2025) observed that the adoption of diverse technological solutions in Nigerian academic institutions remains restricted, largely because librarians' awareness and technical familiarity are concentrated in areas that do not require high-level technical infrastructure, thereby reinforcing the observed awareness gaps.

Technical skills required of Nigerian librarians for the adoption of emerging technologies

The findings show a strong professional consensus that librarians in Nigeria must possess a core set of technical competencies like troubleshooting and web development to effectively adopt emerging technologies. There is also broad agreement that supplementary analytical, design, and leadership skills are equally important for a modernized library environment. These results align with several scholarly works that emphasize the evolving role of librarians in the digital age. A study by Agim, Abah and Ezejiofor (2025) highlighted that academic librarians in Nigeria increasingly view hands-on troubleshooting and web maintenance skills as the most critical foundation for technological adoption. Furthermore, research by Aprilyanti and Ilham (2022) argued that the shift toward data-driven library services necessitates not just technical proficiency but also the ability to integrate these tools into existing systems, which directly supports the moderate level of agreement found for workflow integration. Finally, investigations by Mayesti, Huang, Azmir and Adzan (2024) confirmed that while librarians recognize the importance of soft skills like peer mentorship, their primary focus remains on acquiring the technical coding and resource management skills needed to sustain current digital library infrastructures.

Level of institutional support for implementing emerging technologies in Nigerian libraries

The data demonstrates that Nigerian libraries face a significant gap between institutional policy and material reality. While library leadership provides clear direction and motivational support for professional development, there is a substantial lack of fundamental institutional backing in terms of funding, infrastructure, and technical support that is essential for the actual deployment of emerging technologies. These findings are consistent with recent literature examining the infrastructure and administrative landscape of Nigerian academic libraries. Research conducted by Ajani, Tella, Salawu and Abdullahi (2022) identified that while policy frameworks are increasingly present, severe limitations in funding and basic electricity infrastructure remain the primary constraints on technology implementation. Furthermore, a study by Ajani, Olorunyomi and Tella (2023) observed that librarians frequently report high levels of personal motivation supported by management encouragement, yet they simultaneously experience frustration due to the absence of technical support staff and adequate time for skill acquisition. Additionally, investigations by Fasola, Oyadeyi and Iyoro (2024) confirmed that the success of technology projects in Nigeria is often stalled by a lack of institutional reward mechanisms and tangible material support, which validates the low level of support reported for resource-intensive items despite the existence of positive institutional policies.

Challenges affecting Nigerian librarians' readiness to adopt emerging technologies

The table reveals that Nigerian librarians strongly recognize infrastructural deficits, funding shortages, training gaps, policy weaknesses, and staff resistance as the dominant challenges to technology adoption, as well as personal fears and cost concerns. The patterns observed in this study mirror findings from multiple investigations into Nigerian library contexts, where infrastructural limitations consistently emerge as dominant barriers to technological progress. For instance, research by Ekwueme, Babarotimi, Ajie, Ofodu and Ambrose (2024) demonstrated that unreliable power supply and budget constraints were cited by over 80 percent of respondents as the top impediments to digital tool deployment, closely aligning with the strong agreement on these items here. Similarly, a study by Aprilyanti and Ilham (2022) involving academic library staff found that inadequate training and policy frameworks significantly delayed technology integration, with 75 percent of participants expressing strong agreement on these challenges, much like the current results that prioritize such factors over individual anxieties. Complementing these, Hubert-Nwangwu and Ijantiku (2023) reported that while personal security concerns existed, they were far outweighed by systemic issues like internet access and staff resistance, reinforcing the hierarchical challenge structure evident in the table's mean scores and decisions.

Conclusion

This study assessing the readiness of Nigerian librarians for emerging technologies in academic libraries reveals a mixed landscape characterized by notable strengths alongside significant barriers that hinder comprehensive technological adoption. While librarians demonstrate moderate to high awareness of mainstream technologies like AI, robotics, virtual reality, and chatbots, critical gaps persist in understanding specialized tools such as blockchain, cloud computing, and IoT, alongside strong recognition of essential technical skills particularly in troubleshooting, web development, coding, and digital resource management. However, institutional support remains largely inadequate with low levels in funding, infrastructure, technical staff, training time, and collaboration, despite some policy and motivational strengths, and challenges are predominantly infrastructural including erratic power, budget shortages, poor internet, inadequate training, staff resistance, and policy gaps. Overall, these findings underscore that while human capital shows promise through skills and partial awareness, systemic institutional and environmental constraints pose the greatest threats to readiness, necessitating targeted interventions to bridge these divides for enhanced library service delivery.

Recommendations

The study recommended the following:

i. Library management and professional associations should organize targeted workshops and seminars focused on underrepresented technologies like blockchain, cloud computing, and IoT to elevate comprehensive awareness levels among librarians.

ii. Institutions should establish mandatory continuous professional training programs emphasizing hands-on skills in data analysis, workflow integration, and mentorship to build on existing strengths in core technical competencies.

iii. University administrations must prioritize budget allocations for technology purchases, reliable power infrastructure, dedicated technical support staff, and allocated learning time to overcome the prevailing low support environment.

iv. Government and library authorities should invest in stable electricity, high-speed internet connectivity, comprehensive training initiatives, and clear adoption policies while implementing change management strategies to reduce staff resistance and foster smoother technology integration.

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Assessment of Librarians' Readiness for Innovative Library Services

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Abstract

This study assessed the readiness of librarians for innovative library services. Five research questions were raised and answered, and four null hypotheses were tested at a 0.05 level of significance. Using a descriptive survey research design, the study adopted an accidental sampling technique to sample 139 librarians. A Google form was used to collect data from librarians through social media platforms. Data was collected through a structured questionnaire. Descriptive statistics of mean and standard deviation were used to analyse the data. The study found that there is a high level of digital literacy possessed by librarians in Nigeria for innovative library services. *To a high extent, librarians have recorded a change toward innovative library services*. *The data reflects very high availability infrastructure, such as uninterrupted power supply,* global electronic database subscriptions, and others. Training engagement of librarians for innovative services is mostly frequent. The study recommends that institutions should formalise peer-to-peer mentoring networks. Library administrators should move beyond one-off digital workshops *and focus on specialised certifications in Institutional Repository (IR) management and Data Analytics*. Regulatory bodies like the Librarians' Registration Council of Nigeria (LRCN) should lead a curriculum review to integrate emerging technologies like Blockchain, IoT, and AI-driven management into foundational LIS education.

Keywords: *Innovative Library Services, Librarians' Readiness, Digital Literacy, Infrastructure, Attitude, Training*

Introduction

The global landscape of information management is undergoing a seismic shift, driven by the rapid evolution of Information and Communication Technologies (ICTs). In the 21st century, innovative library services such as cloud-based management, AI-driven reference services, and Makerspaces have become the benchmark for institutional relevance (Omeluzor, Ugochi, & Izuakolam, 2020). In Nigeria, the transition toward these modern paradigms is a matter of professional survival. Empirical evidence suggests that the success of technological adoption depends heavily on the level of librarians' innovative skills. Antidius (2018) found moderate skills in the usage of ICTs among librarians. Innovative library services are not only beneficial but essential for libraries to stay relevant in the digital age (Dongre, 2025).

The history of librarianship in Nigeria has progressed from manual cataloguing and physical circulation to the adoption of Integrated Library Management Systems (ILMS) like Koha and DSpace. Despite these strides, the readiness of the library and information science professionals remains inconsistent. Readiness is a multi-dimensional construct. It begins with digital literacy, moving beyond basic computer operations to data management and digital curation. According to Baro, Eze, and Nkanu (2013), digital literacy is the fundamental requirement for navigating the complexities of the 21st-century information environment. Digital literacy is the foundational requirement for navigating 21st-century information environments. Baro et al. found that while many Nigerian librarians possess basic digital skills (word processing and internet surfing), there is a significant deficiency in high-level competencies such as data curation, digital preservation, and the management of Institutional Repositories (IRs).

"The evolution from traditional cataloguing systems to sophisticated digital platforms, the use of AI for user engagement, and the embrace of social media and mobile applications are testaments to libraries' commitment to remaining relevant in a rapidly changing information landscape" (Olayinka, Taiwo, & Ajayi, 2025, p. 118). The infrastructural landscape in Nigeria characterized by fluctuating power supply and bandwidth limitations, also dictates the ceiling of what librarians can realistically achieve (Okunlaya, Syed Abdullah, and Alias, 2022). Finally, the frequency and quality of training programs provided by institutions and professional bodies, such as the Nigerian Library Association (NLA), catalyse bridging the gap between current skills and future requirements for innovative library services. The psychological disposition of librarians toward change is a critical variable.

The physical and digital infrastructure in Nigeria remains a significant concern. Ojedokun and Okafor (2021) empirically demonstrated that many libraries suffer from infrastructural deficit, characterised by erratic power supply and low bandwidth. Their study found that even when software like Koha is installed, the lack of a stable local area network (LAN) often renders innovative services inaccessible to patrons. Training serves as the bridge between current skills and future requirements. Interreg V-A Latvian and Lithuanian (2019) observed that continuous improvement of the existing services and introducing innovative services, oriented toward all customer groups' specific needs, is required from libraries in the 21st century. Corroboratively, Dai (2024) posits that for the provision of innovative services,

libraries should pay attention to changes in user needs and behaviours and service expansion with other cultural institutions.

The challenges affecting readiness are multifaceted, Sharad and Neeta (2025) found that small institutions are facing trouble with funds, less-trained staff, and poor ICT infrastructure. Without funds, libraries cannot purchase modern hardware, pay for high-speed internet, or sponsor librarians for international certifications in digital librarianship. Despite the advancements, libraries face significant challenges that can hinder their ability to effectively deploy and utilise these digital technologies for innovative library services (Olayinka, Taiwo, & Ajayi, 2025).

Despite the proliferation of digital tools and the theoretical emphasis on modernising library services in Nigeria, there appears to be a disconnection between technological availability and innovative service delivery. Many libraries in Nigeria remain tethered to traditional models, or at best, hybrid models that fail to utilise the full potential of innovative technologies. There is a dearth of comprehensive data regarding whether Nigerian librarians possess the requisite digital literacy, the right professional attitude, and the necessary institutional support to implement truly innovative services. This study, therefore, seeks to evaluate the readiness of librarians in Nigeria to embrace and sustain innovative library services.

Research Questions

13. What is the level of digital literacy possessed by the librarians in Nigeria?
14. To what extent have librarians adjusted their attitudes toward innovative library services?
15. What infrastructures have been made available for innovative library services in Nigeria?
16. What training programs have librarians engaged in for innovative library services in Nigeria?
17. What are the challenges affecting librarians' readiness for innovative library services in Nigeria?

Hypotheses

HO_1: There is no significant difference in the mean scores of digital literacy possessed by male and female librarians in Nigeria.

HO_2: There is no significant difference in the attitudes of male and female librarians toward innovative library services in Nigeria.

HO_3: There is no significant difference in the perception of available infrastructure for innovative library services between male and female librarians in Nigeria.

HO_4: There is no significant difference in the level of engagement in training programs for innovative library services between male and female librarians in Nigeria.

Literature Review

Empirical evidence suggests a competency gap where librarians are proficient in basic digital tasks but struggle with advanced technical applications. Studies by Baro, Eze, and Nkanu (2013) and Okeji, Tralagba, and Obi (2019) found that most librarians possess high proficiency in internet surfing, emailing, and word processing. However, they scored low in advanced areas like data curation, metadata management, and programming. A striking finding by Okeji et al is that librarians often sponsor themselves for digital training (at least twice a year) due to a lack of institutional sponsorship. Okoro and Shittu (2025) found that digital literacy skills had a positive and significant influence on innovative service delivery, and digital literacy indicators such as photo-visual literacy skill, branching literacy skill, and socio-emotional literacy skills had a positive and significant relative influence on innovative service delivery.

Librarians generally exhibit a positive perception but mixed behavioural readiness. Emezie (2018) found that over 73% of librarians in her study had adopted innovative products and services to some extent, indicating a strong professional willingness to evolve. To achieve the primary goal of libraries is to provide the right information to the right reader at the right time. Libraries must provide effective and innovative services because it is assisting their user community based on their needs and demands (Munmi, 2025). Resistance is often not toward the technology itself, but stems from perceived ease of use. Adebambo, Sowemimo, Siddiqah, et al. (2023) found that 28 (73.7%) of the participant libraries have adopted innovative library products and services delivery. Out of this, 23 (60.5%) have adopted the concept to a great extent, and 3 (7.9%) have not adopted innovative products and services.

Infrastructure remains the most critical weak link in the readiness chain. The twin killers of innovation in Nigerian libraries are unreliable electricity and poor internet bandwidth. Ojedokun and Okafor (2021) found that these factors render even modern software (like Koha) unusable in many institutions. While over 50% of librarians are aware of technologies like AI and DSpace, fewer than 20% have the physical infrastructure to integrate them fully (NLAIT Survey, 2025).

Training is frequent but lacks depth and consistency. The Librarians' Registration Council of Nigeria (LRCN) and the Nigerian Library Association (NLA) are the primary organisers of training. Antidius (2018) observed that librarians obtained skills through on the job training, in-house classroom training organized by the UDSM Library, attend local and international seminars/workshops, international seminars/workshops and through professional training. High conference costs and lack of managerial support are the top reasons librarians fail to attend formal training programs.

Empirical findings converge on several systemic challenges, such as inadequate budgetary allocation, which is consistently cited as the primary barrier. This limits the ability to upgrade ICT facilities and sponsor staff (Abba & Saliu, 2022). There is a notable absence of well-defined and uniform library policies regarding digital transformation at the institutional level (Emezie & Nwaohiri, 2023). A synthesis of recent studies on the readiness of librarians for innovative services reveals a professional landscape characterised by high theoretical awareness but significant practical hurdles.

Theoretical Framework

For a study assessing the readiness and adoption of innovative services, the most robust theoretical foundation is the Technology Acceptance Model (TAM). Originally proposed by Fred Davis in 1989, TAM is one of the most influential extensions of Ajzen and Fishbein's Theory of Reasoned Action (TRA). It is specifically designed to explain computer usage behaviour. Perceived Usefulness (PU): This refers to the degree to which a librarian believes that using a particular innovative service (like an AI-based reference tool or Koha ILMS) would enhance their professional performance. If librarians in Nigeria perceive that innovation simplifies their workload, their readiness increases.

Research Method

This study adopted a descriptive survey research design. This design is appropriate because it allowed the researcher to collect data from a sample of librarians to describe their current status, attitudes, and opinions regarding their readiness for innovative services without manipulating any variables. The population for the study consisted of 720 library and information professionals working in academic, public, and special libraries across Nigeria, as found on the social media platform of LRCN. The entire population was included in the study. Accidental sampling technique was used in selecting the 139 respondents based on convenience and time factor. A researcher-made structured questionnaire titled Librarians' Readiness for Innovative Services Questionnaire (LRISQ) was used to collect data for the study. The four-point Likert scale instrument had five clusters matching the five research questions. Google Form was used to collect data from the respondents through social media platforms. Data collected for the study were analysed using descriptive statistics of mean and standard deviation to answer the research questions. The inferential statistics of a t-test was used to test the null hypotheses at a 0.05 level of significance.

Results

Below is the presentation of results as obtained from the analysed data.

Table 1

Level of Digital Literacy Possessed by Librarians in Nigeria

S/N	Item Statement	Mean	Std. Div.	Rank	Decision
1	I can efficiently use AI tools (e.g., ChatGPT, Gemini) for reference services.	3.43	0.6	1st	**HL**
2	I am proficient in managing Institutional Repositories (e.g., D-Space).	2.86	0.85	2nd	**HL**
3	I can troubleshoot basic hardware and software issues independently.	2.71	0.78	4th	**HL**
4	I am skilled in using advanced Boolean operators for database searches.	2.67	0.73	5th	**HL**
5	I can effectively curate digital content for social media library marketing.	2.76	0.77	3rd	**HL**
Mean Summation		**2.88**	**0.74**		**HL**

Std Dev = Standard Deviation, HL = High Level

Librarians demonstrate the highest proficiency in using AI tools like ChatGPT and Gemini for reference services (Mean = 3.43). This is followed by proficiency in managing Institutional Repositories (Mean = 2.86) and curating digital content for social media (Mean = 2.76). The lowest-ranked skill is the use of advanced Boolean operators for database searches (Mean = 2.67). This result implies that there is a high level of digital literacy possessed by librarians for innovative library services in Nigeria.

Table 2

There is no Significant Difference in the Mean Scores of Digital Literacy Possessed by Male and Female Librarians

The independent samples t-test revealed a significant difference between male (M = 3.24, SD = 0.53) and female (M = 2.65, SD = 0.53) librarians, t-test (12.26) = 2.42, p = .032. Male librarians reported significantly higher levels of digital literacy for innovative library services in Nigeria.

Variable	Gender	n	M	SD	T	df	p	Decision
Digital Literacy	Male	65	3.24	0.53	2.42	12.26	.032	**Rejected**
	Female	74	2.65	0.53				

Table 3

Extent Librarians have adjusted their Attitudes toward Innovative Library Services.

S/N	Item Statement	Mean	Std. Dev.	Rank	Decision
1	I am willing to replace traditional filing with fully automated systems.	3.57	0.6	2nd	**VHE**
2	I believe AI and Robotics enhance rather than threaten my job security.	3.62	0.85	1st	**VHE**
3	I actively seek new ways to provide virtual reference services to users.	3.38	0.78	4th	**HE**
4	I find it easy to adapt to frequent updates in library software.	3.33	0.73	5th	**HE**
5	I advocate for the adoption of Makerspaces in my library.	3.48	0.77	3rd	**HE**
	Mean Summation	**3.47**	**0.53**		**HE**

VHE = Very High Extent, HE = High Extent

To a high extent (3.47), librarians have recorded attitude change toward innovative library services. Librarians rated very high extent to the belief that AI and Robotics enhance job security rather than threaten it (3.62), and willingness to replace traditional filing with fully automated systems. (3.57). The lowest, yet high extent rating is the ease of adapting to frequent software updates (Mean = 3.33).

Table 4

There is no Significant Difference in the Attitudes of Male and Female Librarians toward Innovative Library Services

Variable	Gender	n	M	SD	t	df	p	Decision
Attitude	Male	65	3.33	0.32	-0.33	11.53	.749	**Accepted**
	Female	74	3.38	0.30				

Variable	Gender	n	M	SD	t	df	p	Decision
Availability of Infrastructure	Male	65	3.28	0.30	-0.29	14.82	.775	**Accepted**
	Female	74	2.65	0.53				

There was no significant difference in the attitudes of male (M = 3.33, SD = 0.32) and female (M = 3.38, SD = 0.30) librarians toward innovation, t-test (11.53) = -0.33, p = .749.

Table 5

Infrastructures that have Been Made Available for Innovative Library Services

S/N	Item Statement	Mean	Std. Dev	Rank	Decision
1	Reliable, high-speed internet connectivity (Fiber/4G/5G).	2.79	0.63	4th	**VA**
2	Uninterrupted power supply (Inverters, Solar, or National Grid).	3.11	0.83	1st	**VA**
3	Modern hardware (High-spec PCs, Tablets, Self-service kiosks).	2.83	0.79	3rd	**VA**
4	Subscription to global electronic databases (ScienceDirect, JSTOR, etc.).	3.06	0.64	2nd	**VA**
5	RFID (Radio Frequency Identification) systems for book tracking.	2.71	0.61	5th	**VA**
Mean Summation		**2.90**	**0.70**		**VA**

VA = Very Available

The data reflects very high availability infrastructure (2.90), with uninterrupted power supply (3.11), global electronic database subscriptions (3.06), and high-speed internet (2.79) being the very available infrastructures for innovative library services.

Table 6

There is no Significant Difference in the Perception of Available Infrastructure for Innovative Library Services between Male and Female Librarians.

Variable	Gender	n	M	SD	t	df	p	Decision
Engagement of Librarians in Trainings	Male	65	2.86	0.84	1.06	12.51	.307	**Accepted**
	Female	74	2.44	0.87				

Perception of infrastructure availability for innovative services did not differ significantly between males (M = 3.28, SD = 0.30) and females (M = 3.33, SD = 0.37), t-test (14.82) = -0.29, p = .775.

Table 7

Engagement in Training Programs for Innovative Library Services

S/N	Item Statement	Mean	Std. Dev	Rank	Decision
1	Participation in the Nigeria Library Association (NLA) digital workshops.	2.90	0.89	1st	**O**
2	Attendance at TETFUND-sponsored ICT capacity-building programs.	2.19	0.93	5th	**R**
3	Completion of online certification courses (MOOCs like Coursera/edX).	2.52	1.08	4th	**O**
4	On-the-job peer-to-peer mentoring on new library technologies.	2.71	1.01	2nd	**O**
5	Webinar attendance on emerging trends like IoT and Blockchain in LIS.	2.62	0.92	3rd	**O**
Mean Summation		2.58	0.96		**O**

O = Often, R = Rarely

Training engagement of librarians for innovative services is mostly frequent (2.58). Participation in NLA digital workshops is the most frequent activity (Mean = 2.90), while attendance at TETFUND-sponsored ICT programs is rated rarely (Mean = 2.19).

Table 8

There is no Significant Difference in the Level of Engagement in Training Programs for Innovative Library Services between Male and Female Librarians

Engagement in training programs showed no significant difference between males (M = 2.86, SD = 0.84) and females (M = 2.44, SD = 0.87), t-test (12.51) = 1.06, p = .307.

Table 9

Challenges Affecting Librarians' Readiness for Innovative Library Services

S/N	Item Statement	Mean	Std. Dev	Rank	Decision
1	Epileptic Power Supply	3.52	0.75	3rd	**SA**
2	Poor Internet Penetration	3.57	0.6	2nd	**SA**
3	Inadequate Funding for the Procurement of Emerging Technologies	3.67	0.58	1st	**SA**
4	High Cost of Subscriptions to Software and Databases	3.57	0.6	2nd	**SA**
5	ICT Skill Gap in Data Analytics, Coding, Or Managing AI-Driven Systems.	3.38	0.67	4th	**A**
6	Outdated Curricula in Library Schools	3.29	0.72	5th	**A**
7	Resistance to Innovative Change in the Library Environment	2.76	0.7	8th	**A**
8	Lack of Management Support	3.19	0.75	6th	**A**
9	Theft of high-tech hardware	2.86	0.91	7th	**A**
10	Lack of Local Technical Experts for Maintenance	3.19	0.98	6th	**A**
Mean Summation		**3.30**	**0.72**		**A**

SA = Strongly Agree. A = Agree

The most significant barrier to readiness is inadequate funding for emerging technologies (Mean = 3.67). Other critical challenges include poor internet penetration (Mean = 3.57) and epileptic power supply (Mean = 3.52). Resistance to change was rated as the least significant challenge (Mean = 2.76).

Discussion of Findings

The findings provide a nuanced view of librarian readiness, often validating or contrasting with the cited literature in a couple of ways. The results on the level of digital literacy possessed by librarians in Nigeria show a high proficiency in AI tools but lower scores in technical areas like troubleshooting. This aligns with Baro and Ebhomeya (2021), who noted a deficiency in high-level competencies despite having basic skills. It also supports the findings of Anyaoku and Osuigwe (2020), who suggested that readiness is often hampered by a lack of advanced technical competencies.

The overwhelmingly positive attitude that librarians have adjusted their attitudes toward innovative library services confirms Emezie's (2023) finding that librarians have a strong professional willingness to evolve. Interestingly, the very high extent score for AI-enhancing job security suggests a shift away from the technophobia noted by Akidi and Adetomiwa (2023) among certain cohorts.

The result on the infrastructures that have been made available for innovative library services indicates high mean scores for infrastructure availability. The result shows epileptic power and poor internet as the top challenges. This aligns with Ojedokun and Okafor (2021), who described an infrastructural deficit that renders modern software unusable. The high mean on the infrastructures that have been made available for innovative library services reflects a perceived importance or a specific subset of libraries.

The moderate training engagement on librarians' training programs for innovative library services correlates with Nnadozie et al. (2021), who found that workshops are often one-off events rather than continuous tracks. The low TETFUND participation supports the claim that librarians often face a lack of institutional sponsorship.

The identification of inadequate funding as the top challenge affecting librarians' readiness for innovative library services is in perfect agreement with Abba and Saliu (2022), who cited it as the primary visible challenge triggering a domino effect on hardware procurement and staff training.

Implication of the Study

Theoretically, the results of this study refine the application of TAM within the context of developing nations like Nigeria. For example, the high mean score for AI tools compared to the lower score for institutional training suggests that Perceived Ease of Use is being driven by personal exploration rather than formal systems. This aligns with TAM's premise that when a tool is perceived as useful for professional performance, librarians will seek ways to adopt it despite institutional gaps.

Practically, since librarians already view AI and automation as job-enhancing rather than threatening technologies, the library environment in Nigeria is ripe for change to an innovative library. Despite the reported availability of infrastructure, the identification of epileptic power and poor internet as top challenges suggests that existing systems are unreliable. The identification of outdated curricula in library schools as a significant challenge highlights the disconnection between academic training and 21st-century requirements.

This study, therefore, contributes to the field of Library and Information Science (LIS) in two ways. First, it provides current, data-driven insights into the digital literacy levels of Nigerian librarians, moving beyond traditional library services to innovative services for the library. Secondly, it enriches the literature on the Technology Acceptance Model (TAM) by applying it specifically to the Nigerian socio-economic and infrastructural environment.

Conclusion and Recommendations

Although librarians in Nigeria possess a high level of theoretical readiness and a positive professional attitude toward adopting innovative services, they are significantly hindered by systemic and infrastructural barriers. While librarians demonstrate high proficiency in modern tools like AI (e.g., ChatGPT) and managing institutional repositories, they still struggle with advanced technical competencies such as hardware troubleshooting and complex database searching. A significant difference exists in digital literacy levels based on gender, with male librarians reporting higher proficiency than their female counterparts. There is a seismic shift in attitude; librarians no longer view AI and robotics as threats to job security but rather as tools for enhancement. Although there is a reported availability of some infrastructure, its unreliability, specifically epileptic power supply and poor internet bandwidth, remains the twin killers of innovation.

Current training engagement is frequent but lacks the depth of continuous developmental tracks. The readiness for a full digital transition is further stalled by inadequate funding and outdated library school curricula.

Consequently, the following recommendations are made for the improvement of librarians' readiness for innovative library services:

1. Institutions should formalise peer-to-peer mentoring networks. Since some librarians are already proficient in AI tools for reference services, they can serve as internal catalysts for training older cohorts who may experience higher technophobia.
2. Library administrators should move beyond one-off digital workshops and focus on specialised certifications in Institutional Repository (IR) management and Data Analytics.
3. There is an urgent need for well-defined institutional policies regarding digital transformation. This includes creating dedicated budget lines for software subscriptions and hardware maintenance rather than relying on sporadic interventions.
4. Regulatory bodies like the Librarians' Registration Council of Nigeria (LRCN) should lead a curriculum review to integrate emerging technologies like Blockchain, IoT, and AI-driven management into foundational LIS education.
5. Libraries must prioritise green energy solutions (Solar/Inverters) and dedicated high-speed bandwidth over just purchasing hardware. Without stable power, expensive software like Koha or DSpace remains underutilised.

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Beyond School Age: Rethinking the Age Categories in the study of Children's Information Behavior in Library Services

By

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Abstract

Studies on children's information behaviour frequently rely on the broad category of "school age," often grouping learners into wide age ranges that overlook important developmental, cognitive, and contextual differences. This paper argues that such generalisation weakens the explanatory power of research on children's information behaviour, particularly within school library contexts in Nigeria. Nigerian school libraries serve learners across diverse educational stages early childhood, primary, and secondary education each characterised by distinct information needs, seeking patterns, and interactions with library resources and services. Drawing on established information behaviour theories, including Wilson's model of information behaviour, Kuhlthau's Information Search Process (ISP), and Savolainen's Everyday Life Information Seeking (ELIS) framework, the paper contends that age-sensitive analysis provides a more accurate lens for understanding how children engage with information in school libraries. By mapping age-related developmental stages to theoretical constructs, the paper highlights how emotional states, cognitive abilities, social environments, and institutional factors shape children's information practices. This paper concludes by advocating for more nuanced age-based categorisation in school library research and practice in Nigeria, with implications for library policy, user education, resource development, and evidence-based service delivery.

Keywords: Age Categorisation, Children's Information Behaviour, Information Behaviour Theory, Information Literacy, Information Seeking Behaviour, Library Services for Children,

Introduction

School libraries are more than book repositories; they are living learning spaces that shape how children discover, question, and use information. In Nigeria, many school libraries serve pupils from early primary through senior secondary levels, sometimes within the same compound (Osim, 2014; Tukur, Tsafe, & Ibrahim, 2024). Yet, much of the research describing children in these spaces relies on the broad label "school age," (Ibrahim & Anka, 2022; Jenkins, Sykes, & Wills, 2022) a category that unintentionally flattens important differences in how children think, feel, and behave when seeking information. When speaking of children's *information behaviour*, it refers to how they recognise an information need, search for answers, interact with sources, and ultimately use what they find within particular contexts (Wilson, 2020). Treating all school children as one undifferentiated group makes it difficult to fully understand these processes.

Children's information behaviour is closely tied to developmental stages. Cognitive growth, emotional maturity, language skills, peer relationships, and familiarity with formal systems (National Association for the Education of Young Children [NAEYC], n.d) like school libraries all shape how children approach information tasks. In the Nigerian context, these developmental factors intersect with structural realities uneven school library provision, differences in professional librarian support, examination-driven curricula, and socio-economic disparities that influence access to print and digital resources. Together, these conditions create varied and complex information experiences for learners across age groups.

It is therefore limiting to describe a six-year-old pupil in a Nigerian primary school library and a fifteen-year-old secondary school student preparing for external examinations as belonging to the same "school-age" category. Their motivations, search strategies, emotional reactions, and dependence on adults differ considerably. Younger pupils often explore information through storytelling, pictures, guided reading, and structured classroom-library activities. They frequently rely on teachers and librarians to interpret questions and direct them to appropriate materials. In contrast, older students may approach the library with examination-oriented goals, attempt more independent searching, and engage with both print and digital resources, even though they may still struggle with evaluation and synthesis of information. Recognising these distinctions is essential for both theory and practice.

From a theoretical perspective, established models of information behaviour strongly support an age-sensitive approach. For instance, Thomas D. Wilson's model of information behaviour highlights how personal characteristics, social context, and environmental conditions influence how people recognise needs and seek information (Garg, 2016). This is because age directly shapes these personal and contextual factors. For younger children in Nigerian school libraries, limited vocabulary or reading ability can act as barriers, making adult mediation crucial. For adolescents, social expectations, academic pressure, and peer influence may become more significant drivers of information seeking.

Similarly, Carol Kuhlthau's Information Search Process (ISP) model draws attention to the emotional dimension of information seeking uncertainty, confusion, optimism, confidence, and satisfaction (Kuhlthau, 2020). These emotional stages are not experienced uniformly across ages. Younger children may experience high levels of uncertainty and require structured guidance to move forward. Adolescents may project confidence, yet still encounter hidden anxiety when evaluating sources or synthesising information for assignments. Ignoring age differences risk misunderstanding these emotional and cognitive experiences within Nigerian school libraries.

Reijo Savolainen's Everyday Life Information Seeking (ELIS) framework further reinforces the importance of age by emphasising how a person's "way of life" and "mastery of life" shape their information practices (Hertzum & Hyldegård, 2019). For Nigerian school children, age determines daily routines, classroom responsibilities, social roles, and levels of autonomy. Primary school pupils often encounter information in tightly structured, teacher-led environments. Secondary school students, on the other hand, increasingly combine library use with peer discussions, social media exposure, and examination-focused research habits. Their "way of life" change with age and so does their relationship with information.

Viewing age as a central analytical lens is therefore not merely a methodological adjustment; it is a theoretical and practical necessity. Age-sensitive categorisation can help Nigerian school librarians design developmentally appropriate spaces, curate collections that match reading and cognitive levels, structure user education programmes effectively, and provide targeted guidance during the research process. It can also help researchers produce findings that are more precise, contextually grounded, and relevant to policy and practice.

Moving beyond the vague notion of "school age" strengthens the application of information behaviour theories within Nigerian school library research. More importantly, it will enables school libraries to respond meaningfully to the diverse needs of their users by recognising that children are not a single category, but learners at different stages of growth, each navigating information in their own evolving way.

Objectives of the Study

The objectives of this study are to:

1. Demonstrate the relevance of information behaviour theories such as Wilson's model, Kuhlthau's Information Search Process, and Savolainen's ELIS framework in explaining age-related differences in children's information behaviour.
2. Highlight the implications of age-sensitive analysis for school library services, user education, and information literacy development in Nigeria.
3. Provide practical recommendations for Nigerian school librarians on designing age-appropriate library services and programmes.
4.

Literature Review

Wilson's model conceptualizes information behaviour as a holistic system influenced by psychological, environmental, and social factors**,** including activating mechanisms such as stress, motivation, and risk/reward considerations (Wilson, 2022). Recent literature reinforces its relevance in studying children by highlighting that: Information-seeking is shaped by cognitive development and social context, not just chronological age; Children's behaviour varies depending **on** learning environments, family communication, and digital exposure (Zhan & You, 2024).

Furthermore, contemporary analyses of information-seeking research shows a shift toward **cognitive and curiosity-driven perspectives**, aligning with Wilson's emphasis on internal and external drivers of behaviour (Wilson, 2024). In the context of children: Younger children tend to rely on **guided information-seeking** due to limited cognitive and metacognitive skills, while older children demonstrate **greater autonomy and strategic searching,** influenced by prior knowledge and social learning.

In Nigeria context, a recent study in public libraries in Oyo State found that users including children and adolescents engage in **both print and digital information seeking**, with a growing shift toward digital resources among younger users (Olatoye & Ohwofasa, 2025). This suggests that: age differences in behaviour are mediated by **access to ICT and digital literacy**, not just chronological age; and younger users demonstrate **adaptive behaviour** depending on available resources.

Similarly, research on Nigerian university students (representing older adolescents/young adults) shows a strong reliance on **social media, AI tools, and online platforms,** while traditional libraries are perceived as less convenient (Oyighana et al., 2025). These findings align with Wilson's argument that: Information behaviour is shaped by **environmental conditions and perceived utility of sources;** and differences across age groups reflect **changing motivations, technological exposure, and social influences.** Although focused on older cohorts, these studies imply that **children's**

behaviour in school libraries evolves along a continuum, supporting the need to rethink rigid "school-age" classifications.

Wilson's model is therefore particularly useful in explaining **age-related differences as outcomes of interacting variables,** rather than fixed developmental stages. It supports the argument that **"school age" is an oversimplified category**, as children's behaviour is mediated by multiple intervening factors.

Kuhlthau's ISP model on the other hand, emphasizes the **affective, cognitive, and physical stages** of information seeking, including uncertainty, exploration, formulation, and presentation. Although originally developed for students, recent research continues to validate its relevance for children. Studies highlight that **younger children experience higher levels of uncertainty and anxiety** during early search stages due to limited information literacy skills, emotional responses such as **confidence, frustration, and curiosity evolve with age and experience**, influencing search outcomes. Recent work on children's academic engagement shows that learning behaviour involves **interactions between cognition, emotion, and social relationships**, supporting Kuhlthau's multidimensional approach (Elizarov, Czik, & Ziv, 2024).

Furthermore younger learners often remain in the **exploration stage longer**, struggling to formulate search queries; also, adolescents move more efficiently through stages due to **improved critical thinking and digital competence (Haddock, et al, 2022; Kreuder, 2024)**.

Kuhlthau's ISP highlights **cognitive and emotional stages** in information seeking. Nigerian empirical studies indirectly validate this by demonstrating differences in **confidence, skill level, and engagement across educational levels**. For instance, in a study on information searching habits among LIS students in Nigeria, shows that users develop **more structured and strategic search behaviours with increased academic exposure** (Sulaiman et al., 2025). This progression reflects: movement from **uncertainty and exploration to formulation and confidence**, as described in the ISP model; and the role of **experience and instruction** in shaping search efficiency.

In another Nigerian study on students with disabilities, findings indicate that **barriers such as limited access and inadequate support increase frustration and hinder effective information seeking** (Williams-Ilemobola et al., 2022).

This supports Kuhlthau's emphasis on: the **affective dimension** (e.g., anxiety, frustration) in information seeking; the importance of **support systems (e.g., librarians, teachers)** in helping users progress through search stages. For children in school libraries, younger pupils are more likely to experience **uncertainty and dependence on guidance**, also, that older students exhibit **greater confidence and independent navigation,** reflecting progression through ISP stages. Kuhlthau's model is thus relevant for explaining **age-related differences in emotional and cognitive engagement with information**, especially in school library contexts where structured inquiry tasks are common.

Savolainen's **ELIS** which is the next framework to explain age-related difference focus from formal information seeking to **daily life contexts**, emphasizing "way of life" and "mastery of life" as key determinants. Recent studies on children's information behaviour is increasingly shaped by **everyday digital environments**, including social media, peer interaction, and informal learning spaces; and social context such as **family communication patterns and peer influence significantly affects how children seek and use information** (Zhan & You, 2024).

In addition, research on children's selective informing behaviour also demonstrates that **social identity and group membership influence information sharing and seeking**, highlighting the importance of context beyond age (Kim & Arif, 2024). Within ELIS, younger children's information practices are embedded in **family and school routines,** and older children and adolescents develop **independent, lifestyle-oriented information habits,** especially in digital spaces.

Evidence from Nigerian studies shows that information behaviour is increasingly influenced by **digital environments and informal learning spaces,** especially among younger populations (Olatoye & Ohwofasa, 2025), and social and institutional contexts, such as **availability of internet services and library infrastructure**, significantly affect information use (Oyewo & Alayande, 2023).

These findings demonstrate that children's information practices are embedded in **daily routines and socio-cultural environments** and age differences reflect **varying levels of exposure to digital tools, peer influence, and family support systems.** In practical terms younger children rely more on **teachers, parents, and structured school activities**, in addition, older children and adolescents develop **independent, socially influenced information habits**, especially via mobile technologies.

Methodology

This study adopts a content qualitative approach to provide a comprehensive understanding of how age categories influence children's information behaviour in Nigerian school libraries. Qualitative content approach (often called qualitative content analysis) is a research method used to examine and interpret non-numerical data, such as interview transcripts, documents, articles, social media posts, videos, or observations. Instead of counting statistics, the researcher looks for meanings, themes, patterns, and concepts within the content (He – in, C., Lyons, A., Haughton, R., and Majumdar, A., 2023) The design is appropriate because the study seeks to measure patterns of behaviour across age groups.

Discussion

Age Sensitivity and Information Behaviour in Nigerian School Libraries

Research on children's information behaviour increasingly acknowledges that age is not a neutral demographic variable but a critical determinant of how information needs are perceived, articulated, and addressed (Julien, 2020; Large, Beheshti, & Nesset, 2021). In Nigerian school libraries, where learners span wide developmental stages, the tendency to group children under the broad label of "school age" risks masking important behavioural distinctions.

Younger pupils, particularly in lower primary classes, often exhibit exploratory and mediated information behaviour. Their interactions with school library resources are typically guided by teachers and librarians, and their information needs are closely tied to immediate classroom tasks and basic literacy development. Older students, especially at the secondary school level, demonstrate more goal-oriented and independent information seeking, often driven by examination preparation, personal interests, and exposure to digital information environments (Aina & Oduwole, 2020).

Wilson's Model and Age-Related Barriers

Wilson's model of information behaviour emphasises the influence of intervening variables such as psychological, demographic, role-related, and environmental factors on information seeking (Wilson, 2020). Age directly shapes these variables. In Nigerian school libraries, younger children face barriers related to limited vocabulary, low information literacy skills, and dependence on authority figures, while adolescents encounter challenges linked to information overload, evaluation of digital sources, and academic pressure.

Age-sensitive analysis enables librarians and researchers to better identify these barriers and tailor interventions accordingly. Without such differentiation, library services risk being mismatched to users' actual information capacities and needs.

Kuhlthau's ISP and Emotional Dimensions of Age

Kuhlthau's Information Search Process (ISP) highlights the emotional and cognitive experiences associated with different stages of information seeking, including uncertainty, optimism, confusion, and confidence (Kuhlthau, Maniotes, & Caspari, 2020). These experiences are closely tied to developmental stages.

In Nigerian school libraries, younger children often experience heightened uncertainty and anxiety when navigating library spaces or unfamiliar information tasks, requiring reassurance and structured guidance. Older students may display confidence at early stages of searching but struggle with deeper stages such as information evaluation and synthesis. Treating these diverse users as a single age group risks misinterpreting emotional responses and undermining effective library support.

Savolainen's ELIS and the Nigerian Context

Savolainen's Everyday Life Information Seeking (ELIS) framework situates information behaviour within the routines and social realities of everyday life (Savolainen, 2021). For Nigerian school children, age determines daily routines, social expectations, access to technology, and patterns of interaction with school libraries.

Primary school pupils' information behaviour is often embedded within structured school routines, while secondary school students increasingly blend academic information seeking with peer influence and digital media use. Age-sensitive categorisation thus aligns with Savolainen's emphasis on context and lived experience, offering a more nuanced understanding of how school libraries function as everyday information spaces for children.

Conclusion

This paper has argued that moving beyond the vague concept of "school age" is essential for advancing research and practice related to children's information behaviour in Nigerian school libraries. Age-sensitive analysis provides a more accurate theoretical and practical framework for understanding how children engage with information, library resources, and information professionals.

In conclusion, age-sensitive analysis strengthens the explanatory power of information behaviour theories and enhances the relevance of school library services in Nigeria. By abandoning overly broad age classifications, researchers and practitioners can better support children's learning, curiosity, and lifelong information skills within school library environments.

Practical Implications

For **Nigerian school librarians**, the adoption of age-sensitive approaches has several implications:

Age-appropriate service design: Library programmes, reading activities, and information literacy instruction should be tailored to specific age groups rather than delivered uniformly across all learners.

Targeted user education: Younger children require guided exploration and storytelling-based approaches, while older students benefit from training in research skills, critical evaluation, and digital literacy.

Collection development: Library materials should reflect developmental differences, ensuring that resources align with learners' cognitive levels, language abilities, and academic needs.

Policy and planning: School library policies should explicitly recognise age diversity among users, particularly in schools that serve both primary and secondary learners.

Evidence-based practice: Librarians should employ age-sensitive data when evaluating library use and advocating for improved resources and staffing.

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BUILDING LIBRARIANS' CAPACITY FOR GRANT-WINNING RESEARCH: STRATEGIES IN A COMPETITIVE RESEARCH ENVIRONMENT

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ABSTRACT

This study examines strategies for building librarians' capacity for grant-winning research in an increasingly competitive research environment. As academic libraries evolve from traditional support systems into active contributors to research and innovation, librarians are expected to participate in grant acquisition and funded research projects. However, many librarians face challenges such as limited grantsmanship skills, inadequate institutional support, and restricted access to funding opportunities, which hinder their ability to compete effectively. The study adopts a qualitative research design using Key Informant Interviews (KII) to gather in-depth insights from five purposively selected librarians with experience in grant-winning research. Data were analyzed using narrative and thematic approaches to identify recurring patterns related to skills, institutional support, and collaboration. Findings reveal that successful grant acquisition depends on a combination of competencies, including proposal writing, research design, budgeting, and the ability to align research ideas with funding priorities. Institutional support systems such as training, mentorship, and access to research infrastructure were also found to play a critical role in enhancing grant success. Additionally, collaboration and professional networking emerged as key strategies for improving proposal quality and accessing funding opportunities. The study concludes that building librarians' grant-winning capacity requires a holistic approach that integrates skill development, supportive institutional frameworks, and collaborative engagement. It recommends targeted training, strengthened mentorship, and inclusive research policies to enhance librarians' participation in competitive research funding environments.

Keywords: Academic Libraries, Librarians' Capacity Building; Grant-Winning Research, Research Environment, Collaboration and Networking.

INTRODUCTION

A research environment refers to the overall conditions, systems, and context within which research activities are conducted. It encompasses the combination of physical, institutional, intellectual, and social factors that influence how research is planned, executed, supported, and disseminated. In simple terms, it is the ecosystem that either enables or constrains the productivity, quality, and impact of research work. At its core, the research environment includes institutional infrastructure such as laboratories, libraries, digital databases, and information technologies that provide the necessary tools for inquiry. In academic settings, this often involves access to scholarly resources, research funding, and technical support services that facilitate data collection, analysis, and publication. A well-developed research environment ensures that researchers have the materials and facilities needed to carry out rigorous and innovative studies.

In this digital age, research landscape has become competitive, characterized by shrinking funding opportunities, heightened accountability, and a growing emphasis on interdisciplinary and impact-driven research. Within this evolving context, the ability to secure external research funding has emerged as a critical indicator of institutional relevance, innovation, and sustainability. Academic and research libraries, traditionally positioned as support systems for teaching and learning, are now undergoing a significant transformation as they are called upon to contribute more actively to research production and knowledge creation. Consequently, librarians are no longer confined to their conventional roles as information custodians but are expected to function as research collaborators, data managers, and, importantly, grant-winning researchers (Walde, 2021).

Despite these emerging roles, librarians often face significant barriers to effective participation in competitive research funding processes. grant writing often referred to as "grantsmanship" has not been a core component of library and information science education or professional training. As a result, many librarians lack the specialized skills required to conceptualize, develop, and successfully compete for research grants(Robinson, 2016). This skills gap is particularly evident in developing regions, where structural challenges such as limited mentorship, inadequate institutional support, and restricted access to funding information further constrain research productivity and grant success.

The need for targeted capacity building in grant-winning research is therefore critical. Research capacity development encompasses not only technical competencies such as proposal writing and budgeting but also broader capabilities, including research design, collaboration, and strategic alignment with funding priorities. Studies have shown that

structured interventions such as training programs, mentorship initiatives, and institutional support systems can significantly enhance research productivity and grant acquisition outcomes(Hiatt et al., 2022). In low- and middle-income countries, capacity-building efforts have been particularly important in addressing the underrepresentation of researchers in global knowledge production, highlighting the role of training and support in improving research outputs and funding success (Busse et al., 2022).

Within the library sector, capacity building has been linked to improved service delivery, stronger research engagement, and increased contributions to national and global development agendas. For instance, initiatives such as microgrant-supported workshops have demonstrated that librarians can play a pivotal role in advancing research and evidence-based practice when equipped with the necessary skills and resources (Busse et al., 2022). Furthermore, the development of collaborative networks and communities of practice among librarians has been identified as a key strategy for fostering continuous learning, mentorship, and knowledge sharing, all of which are essential for successful grant acquisition (Sahn & Riesen, 2024)

In highly competitive research environments, success in grant acquisition is influenced by both individual competencies and institutional factors. Access to research infrastructure, leadership support, and a culture that prioritizes research excellence are critical enablers of grant success. Libraries that actively invest in building research capacity through training, partnerships, and dedicated research support roles are better positioned to contribute meaningfully to funded research initiatives. Moreover, the integration of librarians into research teams enhances the quality of research outputs by leveraging their expertise in information management, systematic searching, and knowledge organization.

Despite the growing body of literature on research capacity and grant acquisition, there remains a notable gap in studies specifically focused on librarians as grant-winning researchers. According to Robinson (2016) G. De Farber writes 'Grantsmanship is not a knowledge or a skill typically found in libraries or in library science courses. More so, the components of grant knowledge production have been problematised for their role in reproducing the hierarchies of the 'global-north-dominated science and research ecosystem' (Gebremariam, 2022). Much of the existing research concentrates on faculty and academic researchers, with limited attention to the unique challenges and opportunities faced by librarians. This gap underscores the need for further empirical research that examines librarians' competencies, institutional contexts, and collaborative practices in relation to grant success. By exploring the interplay between individual skills, institutional support mechanisms, and collaborative practices, the study aims to identify sustainable approaches for enhancing librarians' success in securing research funding. The focus of this research is ultimately to strengthen librarians' grant-winning capacity and to redefine their professional roles in order to contribute to institutional innovation, improved research outcomes, and the advancement of knowledge economies, particularly in developing contexts.

STATEMENT OF PROBLEM

Despite the expanding role of librarians in research support and knowledge production, their participation in grant-winning research remains significantly limited, particularly in competitive research environments. Many librarians lack essential competencies in grant writing, funding identification, and proposal development, largely due to insufficient training and limited integration of grantsmanship into professional education. Additionally, weak institutional support systems, including inadequate mentorship, poor research culture, and limited access to funding information, further constrain their ability to compete effectively for research grants. This situation has resulted in the underutilization of librarians' expertise in funded research projects and reduced contributions to institutional research output. In a global context where research funding is increasingly tied to innovation and impact, the inability of librarians to secure grants poses a critical challenge. Therefore, there is a need to identify and develop strategic approaches for building librarians' capacity to successfully compete for and secure research funding.

OBJECTIVE OF THE STUDY

The main objective of this study is to examine strategies for building librarians' capacity for grant-winning research in a competitive research environment.

The specific objectives are:

1. To identify the skills required by librarians to get grant in a competitive research environment
2. To Examine the role of institutional support systems, such as training, mentorship, and research policies, in enhancing librarians' grant-winning capacity.
3. To explore the collaborative practices that aid grant wining research in a competitive research environment.

RESEARCH QUESTIONS

1. What skills are required by librarians to secure research grants in a competitive research environment?
2. How do institutional support systems such as training, mentorship, and research policies enhance librarians' capacity to win research grants?
3. What collaborative practices contribute to successful grant-winning research among librarians in a competitive research environment?

THEORETICAL FRAMEWORK

Human Capital Theory

Human Capital Theory (HCT) provides the theoretical foundation for this study on building librarians' capacity for grant-winning research in a competitive research environment. The theory was initially developed by Theodore Schultz (1961) and later expanded by Gary Becker (1964), who argued that investments in education, training, knowledge, skills, and experience enhance individuals' productivity, efficiency, and overall performance. Human Capital Theory views education and professional development as forms of investment that yield returns in the form of improved competence, innovation, and organizational effectiveness (Becker, 1964).

The central assumption of the theory is that individuals become more productive and competitive when they acquire relevant knowledge, skills, and competencies through continuous learning and professional development. Schultz (1961) emphasized that investment in human capabilities is a critical driver of economic and professional growth, while Becker (1964) further demonstrated that specialized training and education significantly improve individual performance and career outcomes.

The theory is particularly relevant to this study because the primary focus is on enhancing librarians' capacity to secure research grants in an increasingly competitive research environment. Capacity building involves equipping librarians with the knowledge and competencies required to participate effectively in grant acquisition processes. Such competencies include grant writing, research design, proposal development, budgeting, project management, funding identification, and strategic alignment of research proposals with funders' priorities. These competencies constitute forms of human capital that can be developed through training, mentorship, workshops, and professional experience.

Human Capital Theory suggests that librarians who receive adequate grantsmanship training and professional development opportunities are more likely to produce high-quality grant proposals and successfully compete for research funding than those who lack such opportunities. The theory also explains the importance of institutional investments in staff development, as organizations that support continuous learning and research capacity building are likely to benefit from increased research productivity and funding success. Consequently, training programmes, mentorship initiatives, and research support mechanisms become strategic investments that enhance librarians' competitiveness and effectiveness in grant acquisition.

In the area of this research, Human Capital Theory provides a useful lens for understanding how investments in librarians' knowledge, skills, and research competencies can improve their grant-winning capabilities. The theory therefore supports the study's emphasis on identifying the skills required for successful grant acquisition, examining the role of institutional support systems, and exploring strategies that can strengthen librarians' participation in competitive research funding opportunities.

LITERATURE REVIEW

Grant writing is an essential skill necessary to secure financial support for community programs and research projects; it is the economic engine for research and services (King et al., 2015) . The growing complexity and competitiveness of the global research landscape have significantly increased the importance of grant acquisition as a core component of academic productivity and institutional sustainability. Within this context, academic libraries are no longer passive support units but are increasingly recognized as active contributors to research and innovation. Librarians, in particular, are assuming expanded roles that include participation in grant-funded projects, research collaboration, and knowledge production. Studies indicate that involvement in grant processes not only enhances librarians' professional relevance but also strengthens institutional research capacity and visibility (Walde, 2021).

A central theme in the literature is the need for specialized skills development among librarians to enable effective participation in grant-winning research. Grant writing, often described as "grantsmanship," is a complex skill requiring competencies in research design, proposal articulation, budgeting, and alignment with funding priorities. However, scholars consistently note that grantsmanship is not traditionally embedded in library and information science education, resulting in a significant skills gap among librarians (Robinson, 2016). This gap limits their ability to conceptualize competitive proposals despite their strong background in information organization and research support. Furthermore, grant writing is widely regarded as both technical and strategic, requiring not only writing ability but also an understanding of funders' expectations and evaluation criteria.

In response to this skills deficit, literature have highlighted the importance of capacity-building initiatives aimed at improving librarians' research competencies. Structured training programs, workshops, and continuous professional development initiatives have been identified as effective strategies for enhancing grant-writing skills and research confidence. For example, capacity-building interventions such as grant-writing workshops and research training programs have been shown to improve participants' knowledge, self-efficacy, and success rates in securing funding (King et al., 2015). Similarly, initiatives in low- and middle-income countries demonstrate that targeted training for librarians and researchers can significantly enhance local research output and the ability to attract funding (Saric et al., 2022). These findings underscore the importance of sustained and context-specific training programs in bridging the competency gap.

Another critical dimension explored in the literature is the role of institutional support systems in enhancing librarians' grant-winning capacity. Institutional factors such as leadership support, research policies, funding infrastructure, and

access to mentorship play a crucial role in shaping research outcomes. Research suggests that institutions with strong grantsmanship support systems including administrative assistance, proposal development units, and research incentives are more likely to succeed in securing competitive funding (Gant, Velez & Torres, 2024; Roelofs, 2025). Conversely, weak institutional frameworks can hinder librarians' ability to engage in research activities, even when individual motivation and skills are present. This work also emphasizes the importance of fostering a research culture within libraries, where grant writing is recognized, supported, and integrated into professional responsibilities. Walde (2021) examined the relationship between academic libraries and research grants and found that libraries that invested in research support services, staff development, and grant administration structures recorded higher levels of participation in funded research projects. The study highlighted training opportunities, mentorship programmes, and leadership support as major factors influencing grant success. Similarly, Shaffer, Pearce, and Martin (2017) investigated strategies for creating a grant-writing culture in a multi-campus academic environment. Their findings revealed that institutions with formal mentorship programmes, grant support offices, and collaborative planning mechanisms experienced increased grant applications and higher success rates. The authors concluded that institutional commitment to research development significantly influences grant acquisition performance.

Closely related to institutional support is the significance of collaboration and networking in grant-winning research. Collaborative grant-seeking is widely recognized as a best practice, particularly in academic environments where interdisciplinary approaches are increasingly valued. Studies show that collaborations both within institutions and with external partners enhances the quality and competitiveness of grant proposals by bringing together diverse expertise and perspectives (Robinson, 2016). Additionally, partnerships between libraries, academic departments, and external organizations have been shown to produce innovative and impactful research projects. Collaboration also facilitates knowledge sharing, mentorship, and access to broader funding opportunities, all of which are critical for success in competitive research environments.

Developing a culture of grant writing within academic libraries involves integrating grant-seeking into organizational priorities, encouraging staff participation, and building relationships with key stakeholder. Lucchi (2025) further explored grant-writing collaborations in academic librarianship and observed that interdisciplinary partnerships contributed to innovative and impactful research proposals. The study emphasized that collaboration not only improves proposal competitiveness but also increases institutional visibility and strengthens professional networks. Likewise, Walde (2021) found that librarians embedded within research teams were more likely to participate in funded projects and develop stronger grant-writing competencies through practical exposure.

Moreover, access to research infrastructure and global networks is identified as a key determinant of grant success. In many developing regions, limited access to digital resources, research tools, and international collaborations constrains librarians' ability to compete effectively for funding. However, initiatives that provide access to global research resources and training have demonstrated significant improvements in research capacity and funding outcomes (Walde, 2021). These findings highlight the importance of addressing structural inequalities in the research environment to ensure equitable participation in global research funding opportunities.

Grant writing has become increasingly critical in a period where academic librarians are under pressure to demonstrate their relevance and impact. For younger and smaller libraries, especially those seeking to offer innovative and distinctive programmes, securing grants is often indispensable due to the lack of sufficient internal funding for such initiatives. As librarians strive to prioritize grant acquisition within their institutions, it is essential for them to cultivate strong relationships with key stakeholders, including university administrators, academic departments, faculty members, staff, students, organisations and the wider community (Shaffer et al., 2017).

In the aspect of declining student enrollment, budget reductions, and growing demands for accountability, grant writing also serves as a valuable tool for marketing and institutional visibility. Funding obtained through grants can support programmes that attract both the university community and the broader public, thereby enhancing the institution's profile. Such initiatives can contribute to student recruitment and retention by fostering engagement and demonstrating institutional value. Additionally, grant-funded projects create opportunities for collaboration with local businesses and community partners, further strengthening the library's role as a hub for innovation and community engagement. Key strategies include enhancing grantsmanship skills through targeted training, strengthening institutional research frameworks, fostering collaborative networks, and promoting a culture of research within libraries. Addressing these factors is essential for positioning librarians as competitive participants in the research funding landscape and for maximizing their contributions to knowledge production and institutional development.

METHODOLOGY

The study is descriptive in nature and adopts the qualitative approach. Descriptive study is largely interested in describing a phenomenon while qualitative approach subscribes to collecting and analyzing non-numerical data by focusing on qualitative aspects of data rather than its frequency (Barbie, 2010; Neuman, 2007). The study adopts Key Informant Interview (KII) as a method.

Key Informant Interview is a qualitative method of data collection where participants are selected based on their possession of specialized knowledge, personal skills, and position within the field of study and can provide more information and a deeper insight on the study. In this case, five informants were selected purposefully based on their

expertise in research and understanding in grantsmanship. The KII method enables the researcher to gather insightful data in a relatively short time.
The population of this study are Librarians in academic institutions. The study focuses on a subset of this population, specifically selecting five individuals with expertise and experience in grantsmanship. This study uses a purposive sampling technique to select five award winning researchers that have received grant and understand the capacity and strategies for grant-winning research. The study selects 2 females and 3 males. The interview was conducted via WhatsApp calls. The researchers called them before the time of the interview to seek their consent and thereafter, consent was granted and interview was scheduled. The interview lasted for a period of one week to gather quality answers from the participants.
A semi-structured questionnaire was designed to explore the informants' knowledge, experiences, and opinions related to the objectives of the study. The guide consists of open-ended questions to encourage detailed responses. The questionnaire was validated by two experience professionals; one from measurement and evaluation field and the other from a LIS profession.
The primary source of data is the Key Informant Interviews conducted with the selected individuals while, secondary data was from existing literature, cultural records, and relevant documents were used to support and enrich the findings. The data collected from the KII will be analyzed using a narrative and thematic approach. The narratives will help to contextualize the information provided by the informants, while thematic analysis will identify recurring patterns, themes, and connections related to the strategies for building librarians' capacity for grant-winning research in a competitive research environment.

RESULTS AND ANALYSIS

The findings of this study reveal that building librarians' capacity for grant-winning research in a competitive research environment is influenced by a combination of skills acquisition, institutional support, and collaborative engagement. The responses from the key informants demonstrate that these factors are interconnected and collectively determine librarians' success in securing research funding. The analysis is presented based on the major themes derived from the research questions.

SECTION A

Demographic analysis

The study's demographic characteristics of respondents identified that the entire sample of 5 respondents falls within the age range of 30-60 years. The gender distribution among the respondents demonstrates an equal representation, with two (3) respondents identifying as male and two (2) as female.
Regarding educational qualifications, a substantial majority of the respondents, precisely three (3) individuals, hold a master's degree as their highest level of education while two (2) respondent hold PhD degrees education. This distribution highlights a prevalence of Masters degree in Library and Information Science.
In terms of Institution, the respondents are affiliated to Federal Universities in Nigeria.

SECTION B

Skills Required for Grant-Winning Research

Respondent one (1) stated that effective grant writing is fundamentally dependent on a combination of technical and strategic skills. According to the respondent, librarians must possess strong competencies in proposal writing, research design, and budgeting in order to compete successfully for grants. The respondent further emphasized that the ability to align research ideas with funders' priorities is critical, as many proposals fail due to poor articulation of relevance and impact. He also noted that experience and continuous practice significantly improve success rates in grant applications. Grant writing is widely recognized as a specialized skill that requires both analytical and communication abilities. It involves clearly defining research problems, presenting feasible methodologies, and demonstrating the potential impact of the proposed study. As noted by Robinson (2016), grantsmanship goes beyond writing skills to include strategic thinking and an understanding of funding agencies' expectations. The findings suggest that without these competencies, librarians may struggle to develop competitive proposals despite their expertise in information management.
Respondent three (3) added that digital literacy and information retrieval skills are also essential in identifying funding opportunities. The respondent highlighted that many librarians are unaware of available grants due to limited exposure to funding databases and research networks. This indicates that beyond writing skills, the ability to search for and access relevant funding information is a critical component of grant success.

Role of Institutional Support Systems

Respondent two (2) emphasized that institutional support plays a decisive role in enhancing librarians' capacity for grant-winning research. The respondent noted that access to training programmes, mentorship, and administrative support significantly improves librarians' confidence and competence in grant writing. He further explained that institutions that prioritize research development by organizing workshops and providing funding information create a more enabling environment for grant success.

Institutional frameworks are essential in shaping research productivity and participation. As Walde (2021) observed, libraries that invest in research capacity building and provide structured support systems are more likely to succeed in competitive funding environments. The absence of such support systems, as identified in this study, limits librarians' ability to engage effectively in grant activities.

Respondent five (5) highlighted the lack of mentorship as a major barrier. According to the respondent, early-career librarians often struggle with grant applications due to insufficient guidance from experienced researchers. This finding underscores the importance of mentorship in transferring knowledge and building confidence among librarians, particularly in developing research environments.

Collaborative Practices in Grant-Winning Research

Respondent four (4) laid emphasis on the importance of collaboration in securing research grants. The respondent explained that working with faculty members, interdisciplinary teams, and external organizations enhances the quality of research proposals. Collaboration allows librarians to contribute their expertise in information management while benefiting from the subject knowledge of other researchers.

Collaboration is a key factor in successful grant acquisition, as it brings together diverse skills and perspectives. Robinson (2016) noted that collaborative grant-seeking improves proposal quality and increases funding success rates. The findings of this study support this view, as respondents consistently identified teamwork and networking as critical strategies.

Furthermore, collaboration fosters knowledge sharing and provides access to broader funding opportunities. Respondent four (4) also pointed out that partnerships with external organizations and communities can strengthen proposals by demonstrating real-world impact and relevance. This aligns with the growing emphasis on interdisciplinary and impact-driven research in competitive funding environments.

Inconclusion, the findings indicate that librarians' success in grant-winning research is not determined by a single factor but by the interaction of skills, institutional support, and collaboration. While individual competencies such as grant writing and research design are essential, they must be supported by enabling institutional structures and strong professional networks. Without these combined efforts, librarians may continue to face challenges in competing effectively for research funding in a highly competitive research environment.

FINDINGS AND DISCUSSION

The findings of this study reveal that librarians' capacity to secure research grants in a competitive research environment is shaped by a complex interplay of individual competencies, institutional structures, and collaborative practices. Critically, the study establishes that while librarians possess foundational research support skills, there is a significant gap in advanced grantsmanship competencies, which limits their participation in grant-winning research. This reinforces the argument by Robinson (2016) that grant writing is not merely a technical skill but a strategic competence that requires intentional development. The responses suggest that librarians' strengths in information organization and retrieval are not automatically transferable to proposal development, thereby necessitating targeted training in proposal writing, budgeting, and aligning research with funding priorities.

Another key finding is the central role of institutional support systems in determining grant success. The study highlights that even when librarians possess the required skills, weak institutional frameworks such as lack of mentorship, inadequate training opportunities, and limited access to funding information can significantly hinder their effectiveness. This aligns with Walde's (2021) assertion that research productivity is strongly influenced by institutional culture and support mechanisms. However, a critical observation from this study is that many institutions in developing contexts do not systematically integrate librarians into research structures, thereby reinforcing their marginalization in grant-related activities. This suggests that capacity building should not be limited to individual skill acquisition but must also involve institutional reforms that create enabling environments for research engagement.

Furthermore, the findings underscore the importance of collaboration as a strategic tool for enhancing grant competitiveness. The emphasis on interdisciplinary partnerships and networking reflects broader trends in the global research ecosystem, where collaborative projects are more likely to attract funding due to their diverse expertise and broader impact. While this supports existing literature (Robinson, 2016), the study adds a critical dimension by showing that librarians often rely on collaboration not only for intellectual contribution but also as a means of overcoming skill and institutional deficiencies. In this sense, collaboration becomes both a strength and a compensatory mechanism.

Importantly, the study reveals a structural imbalance between expectations and preparedness. Librarians are increasingly expected to contribute to research and secure funding, yet the systems required to support these expectations remain underdeveloped. This disconnect raises questions about the sustainability of current demands placed on librarians and highlights the need for policy-level interventions. Additionally, the reliance on informal learning and self-development, as implied in the findings, points to a lack of formalized professional pathways for grantsmanship within the library profession.

In conclusion, the study demonstrates that enhancing librarians' grant-winning capacity requires a holistic approach that integrates skill development, institutional support, and collaborative engagement. Without addressing these

interconnected factors, efforts to improve grant acquisition among librarians may yield limited results. The findings therefore contribute to the discourse on research capacity development by emphasizing the need for systemic, rather than fragmented, strategies in competitive research environments.

LIMITATION OF THE STUDY

This study is subject to certain limitations that should be considered when interpreting its findings. First, the study adopted a qualitative approach and relied on Key Informant Interviews (KII) involving only five purposively selected librarians with experience in grant-winning research. While the selected participants provided rich and in-depth insights, the small sample size limits the generalizability of the findings to the wider population of librarians in Nigeria and beyond.

Another limitation relates to the use of self-reported data obtained through interviews. The responses were based on the participants' personal experiences, perceptions, and recollections, which may be influenced by individual bias or selective memory. Additionally, the interviews were conducted through WhatsApp calls, which may have limited the observation of non-verbal cues that could have enriched data interpretation.

Despite these limitations, the study provides valuable insights into the skills, institutional support systems, and collaborative practices required for building librarians' capacity for grant-winning research in a competitive research environment. The findings therefore serve as a useful foundation for future studies involving larger populations and diverse library settings.

CONCLUSION

This study set out to examine how librarians can build the capacity needed to succeed in grant-winning research within an increasingly competitive research environment. The findings make it clear that this is not simply a matter of individual effort, but rather a combination of skills, support systems, and meaningful collaboration. Librarians today are no longer just custodians of information; they are gradually becoming active contributors to research and innovation. However, the transition into this expanded role has not been fully supported, leaving many librarians underprepared for the demands of competitive grant acquisition. A key insight from the study is that while librarians possess strong foundational skills in information management, many lack the specialized competencies required for successful grant writing. Skills such as proposal development, budgeting, and aligning research ideas with funding priorities are still developing within the profession. At the same time, institutional factors such as limited mentorship, inadequate training opportunities, and weak research support structures further complicate their ability to compete effectively. Another important takeaway is the role of collaboration. Librarians who engage in partnerships with faculty, researchers, and external organizations are better positioned to access funding opportunities and produce stronger proposals. These relationships not only enhance the quality of research but also provide a support system that compensates for existing gaps in skills and experience. More so, the study highlights a clear mismatch between expectations and preparedness. Librarians are increasingly expected to contribute to research and secure funding, yet the structures needed to support them are still evolving. Addressing this gap requires a more intentional and coordinated approach. Strengthening librarians' capacity for grant-winning research is not just beneficial for the profession; it is essential for advancing institutional research goals and contributing to broader knowledge development, particularly in developing contexts.

RECOMMENDATIONS

The researchers recommended that;

1. To improve librarians' capacity for grant-winning research, a more structured and supportive approach is needed. First, academic institutions should invest in regular training programmes focused on grant writing, research design, and funding strategies. These should not be one-off workshops but continuous learning opportunities that allow librarians to build confidence over time.

2. mentorship should be strengthened by pairing less experienced librarians with seasoned researchers who can guide them through the grant application process. Learning from real experiences can make a significant difference.

3. Institutions also need to create a more supportive research culture by providing access to funding databases, research tools, and administrative support. Librarians should be actively included in research teams and encouraged to collaborate across disciplines.

4. Finally, professional bodies and policymakers should recognize the evolving role of librarians and develop policies that support their research involvement. When librarians are properly equipped and supported, they can contribute meaningfully to research, innovation, and institutional growth.

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Capacity-Building of Librarians in the Use of Electronic Research Tools and Quality of Library Service Delivery in Academic Libraries in Rivers State

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Abstract

This study examined capacity building of librarians in the use of electronic research tools and the quality of library service delivery in academic libraries in Rivers State. A descriptive survey research design was adopted. The study population comprised 33 professional librarians drawn from selected academic libraries in Rivers State, out of which 24 responded, giving a response rate of 72.7%. A structured questionnaire based on a four-point Likert scale was used for data collection. Findings revealed that respondents agreed across all four research questions that academic libraries in Rivers State organise capacity building programmes for librarians, that librarians possess some level of competence in the use of electronic research tools, that the use of these tools has contributed positively to the quality of library service delivery, and that several challenges continue to hinder effective capacity building. The study concludes that capacity building remains an important factor in improving the quality of library services and recommends increased institutional support, sustained training, and improved ICT infrastructure in academic libraries in Rivers State.
Keywords: *Capacity Building, Electronic Research Tools, Library Service Delivery, Academic Libraries, Rivers State.*

Introduction

Capacity building refers to the process of developing and strengthening the skills, abilities, and knowledge of individuals and institutions so that they can perform their functions more effectively. In the context of librarianship, capacity building involves equipping librarians with the skills and knowledge needed to use modern library tools, especially electronic research tools, in ways that improve how services are delivered to users (Makhafola *et al*., 2025). Electronic research tools include online databases, digital repositories, electronic journals, and reference management software, all of which have become central to academic library practice globally and are increasingly expected to be available in Nigerian university libraries.

Studies have shown that when librarians are well-trained in the use of electronic research tools, they are better able to respond to user needs accurately and within a shorter time, which in turn improves user satisfaction and the overall quality of service delivery (Sadiku *et al*., 2021). However, several challenges continue to make it difficult for many academic libraries in Nigeria to sustain meaningful capacity-building programmes. These challenges include inadequate funding, poor infrastructure, insufficient institutional support, and the rapidly changing nature of the tools (Olutoki *et al*.,2025)

As these libraries continue to expand digitally, the question of whether their librarians are adequately equipped to use electronic research tools effectively has become an important one. This study, therefore, set out to investigate the capacity-building programmes available to librarians in academic libraries in Rivers State, the level of competence of these librarians in using electronic research tools, how their use of such tools affects the quality of library service delivery, and the challenges that stand in the way of effective capacity building.

Objectives of the Study

The main aim of this study is to examine the capacity building of librarians in the use of electronic research tools and the quality of library service delivery in academic libraries in Rivers State, with the following specific objectives:

1. To examine the capacity-building programmes available to librarians on the use of electronic research tools in academic libraries in Rivers State.
2. To assess the level of competence of librarians in the use of electronic research tools in academic libraries in Rivers State.
3. To determine the extent to which librarians' use of electronic research tools influences the quality of library service delivery in academic libraries in Rivers State.
4. To identify the challenges affecting the capacity building of librarians in the use of electronic research tools in academic libraries in Rivers State.
5.

Literature Review

Capacity building in the library profession has been identified as a very important factor in ensuring that librarians are able to respond adequately to the growing demands of information services in the digital age. According to Makhafola *et al.* (2025), academic libraries need to invest in digital literacy, digital competence, and digital fluency as part of a comprehensive framework for developing library professionals in the twenty-first century. Their scoping review showed

that these three dimensions of digital capacity are closely related but distinct, and that all three are necessary for librarians to function effectively in a modern academic environment.

The importance of professional development for librarians has also been highlighted in several studies. Gamache *et al.* (2025) described how an academic library in Canada organised a structured writing support programme to help librarians build their research and publishing capacity. While that study focused on writing rather than technology, it highlighted a broader lesson: capacity building works best when structured and consistent. This lesson applies equally to the development of electronic research tool skills among librarians in Nigerian academic libraries.

Okeji *et al*. (2020) noted that professional development training for academic librarians in Nigeria tends to be irregular and contingent on external funding rather than driven by an institutional plan. This creates gaps in the skills of librarians and makes it difficult to ensure that all staff have the same level of skill with digital tools. These gaps become particularly visible when users seek help with online databases or electronic journals, and the librarian is unable to provide adequate assistance.

Electronic research tools cover a wide range of digital resources and systems that librarians and researchers use to find, access, organise, and manage scholarly information. These tools include online bibliographic databases such as JSTOR, Web of Science, Scopus, and EBSCOhost, as well as digital repositories, electronic journal platforms, and reference management software like Mendeley, Zotero, and EndNote. Bentil (2025) noted that the management of electronic resources in academic libraries involves a complex set of attitudes, skills, and institutional processes, and that librarians who have received adequate training in these tools are more confident and more effective in their work.

The use of online databases and electronic journals has transformed how researchers access academic information. In academic libraries in developing countries, however, access to these tools is often limited by poor internet connectivity, subscription costs, and the absence of institutional licensing agreements. Sadiku *et al*. (2021) found that many Nigerian university libraries rely on open access resources because of cost, and that librarians in these libraries are often more familiar with open access platforms than with the subscribed databases their counterparts in other institutions use regularly.

Reference management software is another important category of electronic research tools that has gained attention in academic library literature. Researchers and postgraduate students use these tools to manage their citations and bibliographies, and librarians are expected to be able to guide them in this regard. However, studies have shown that awareness and use of reference management software among librarians and researchers remains limited, suggesting that training in this area deserves more attention in capacity-building programmes (Olutoki *et al*.,2025).

The quality of service delivery in academic libraries is usually assessed through various views, such as the accuracy of information provided, the speed of response to patrons' requests, user satisfaction, and the overall effectiveness of the services offered. Ngo *et al*. (2025) found that the quality of university services, including library services, has a direct and significant influence on student satisfaction, academic performance, and loyalty to the institution. This finding reinforces the importance of investing in service quality improvement in academic libraries, which in turn depends heavily on the skills and competence of library staff.

Ferrer (2024) showed that there is a relationship between the level of information literacy offered by libraries and the academic success of students. When librarians are skilled in the use of electronic research tools, they are better placed to support information literacy instruction, guide patrons in using databases, and help researchers find the materials they need efficiently. This has a direct positive effect on the quality of service that users receive. Kennedy *et al*. (2025) also pointed out that informal feedback mechanisms within academic libraries play an important role in identifying service gaps and enabling improvements.

Several studies have pointed to the challenge of delivering quality services in the face of inadequate infrastructure and underfunding. Ebiwolate (2025) noted that many academic libraries in Nigeria continue to provide services using systems and equipment that are either outdated or poorly maintained, which limits what librarians are able to offer, regardless of their training. Addressing the quality of service delivery in such libraries, therefore, requires a careful approach.

The challenges to effective capacity building in academic libraries in Nigeria are well-documented. Inadequate funding is mostly identified as one of the biggest obstacles, as training programmes require financial support for registration, travel, study materials, and access to training platforms (Makhafola et al., 2025). When funding is not available, training opportunities are missed or limited to a small number of staff, creating inequalities in competence within the same library.

Poor ICT infrastructure is another major challenge. Even when librarians attend training programmes and acquire new skills in electronic research tools, the absence of functional computers, reliable internet access, and properly licensed software in their libraries makes it very difficult to put those skills to practical use (Sadiku *et al*., 2021). This creates a frustrating situation where trained librarians cannot apply what they have learned, leading to skill erosion over time.

Insufficient support from university management has also been identified as a barrier to capacity building. When university administrators do not prioritise the professional development of library staff, libraries are often left to source their own training opportunities, which tends to be ad hoc and unsustained. Bangani and Dube (2023) showed that even where libraries have included capacity building goals in their strategic plans, the absence of formal institutional backing tends to limit the actual impact of those plans.

Methodology

This study adopted a descriptive survey research design, which was considered appropriate for describing the opinions and perceptions of academic librarians on the subject under investigation. It sought to describe the current state of capacity building and with library service delivery in Rivers State academic libraries. The population of the study comprised 33 professional librarians working at Donald Ekong Library, Rivers State University Library and Dame Patience Goodluck Jonathan Automated Library. These libraries were purposively selected, and the librarians were chosen because they are directly involved in library services and the use of electronic research tools. Out of the 33 librarians, 24 returned their questionnaires, giving a response rate of 72.7%, which was considered adequate. The instrument for data collection was a structured questionnaire divided into five sections, with items based on the four research questions. It used a four-point Likert scale. The questionnaire was face-validated by two experts in library and information science before administration. Data were analysed using descriptive statistics such as frequency, percentage, mean, and standard deviation, with a criterion mean of 2.50 as the decision point.

Data Analysis and Discussion of Findings

This section presents the results of the study in line with each of the four research questions, followed by a discussion of the implications of the findings.

Research Question One: What capacity-building programmes are available to librarians on the use of electronic research tools in academic libraries in Rivers State?

Table 1: Presents the responses of librarians on the availability of capacity-building programmes designed to enhance their knowledge and skills in the use of electronic researchtools in academic libraries in Rivers State **(N = 24)**

S/N	Statements	Mean	Std. Dev.	Remark
1	Academic libraries in Rivers State organise regular training programmes to build librarians' skills in using electronic research tools.	2.92	0.881	Agreed
2	Librarians in these academic libraries are encouraged to attend external workshops and seminars on electronic research tools.	3.00	0.834	Agreed
3	The libraries provide opportunities for librarians to undergo professional certification programmes related to digital and electronic tools.	2.71	0.955	Agreed
4	University management actively supports capacity building efforts for librarians through funding and institutional policies.	2.54	0.977	Agreed
5	There is a structured and consistent professional development plan for librarians to improve their use of electronic research tools.	2.58	0.929	Agreed
	Weighted Mean	**2.75**		**Agreed**

Table 1 presents data on the availability of capacity-building programmes for librarians in academic libraries in Rivers State. The findings show that respondents agreed that academic libraries organise regular training programmes for librarians on the use of electronic research tools (Mean = 2.92, SD = 0.881). Respondents also agreed that librarians are encouraged to attend external workshops and seminars related to electronic research tools (Mean = 3.00, SD = 0.834). The provision of opportunities for professional certification programmes was also agreed upon by respondents (Mean = 2.71, SD = 0.955). Furthermore, respondents agreed that university management supports capacity-building efforts through funding and institutional policies (Mean = 2.54, SD = 0.977). They also agreed that there is a structured and consistent professional development plan for librarians to improve their use of electronic research tools (Mean = 2.58, SD = 0.929). The weighted mean of 2.75 indicates overall agreement that capacity-building programmes are available to librarians in academic libraries in Rivers State.

Research Question Two: What is the level of competence of librarians in the use of electronic research tools in academic libraries in Rivers State?

Table 2: Table 2 shows the responses of librarians on their level of competence in the use of electronic research tools in academic libraries in Rivers State. The table focuses on librarians' abilities to search online databases, use electronic journals and digital repositories, apply reference management software, and support library users in navigating electronic research tools. **(N = 24)**

S/N	Statements	Mean	Std. Dev.	Remark
6	Librarians in these academic libraries are able to effectively search and retrieve information from online databases.	3.00	0.780	Agreed
7	Librarians demonstrate adequate skill in using electronic journals and digital repositories to support user needs.	2.92	0.881	Agreed
8	Librarians are proficient in the use of reference management software.	2.50	0.978	Agreed
9	Librarians can assist library users in navigating and using electronic research tools independently.	3.04	0.751	Agreed
10	The level of digital competence among librarians in these libraries meets the current demands of library users.	2.71	0.859	Agreed
	Weighted Mean	**2.83**		**Agreed**

Table 2 presents findings on the level of competence of librarians in the use of electronic research tools in academic libraries in Rivers State. The findings reveal that respondents agreed that librarians are able to effectively search and retrieve information from online databases (Mean = 3.00, SD = 0.780). Respondents also agreed that librarians demonstrate adequate skill in the use of electronic journals and digital repositories to support user needs (Mean = 2.92, SD = 0.881). The findings further show agreement that librarians are proficient in the use of reference management software (Mean = 2.50, SD = 0.978). Respondents equally agreed that librarians can assist users in navigating and using electronic research tools independently (Mean = 3.04, SD = 0.751). In addition, respondents agreed that the level of digital competence among librarians meets the current demands of library users (Mean = 2.71, SD = 0.859). The weighted mean of 2.83 indicates overall agreement on librarians' competence in the use of electronic research tools.

Research Question Three: To what extent does librarians' use of electronic research tools influence the quality of library service delivery in academic libraries in Rivers State?

Table 3: Table 3 presents the responses of librarians on the extent to which the use of electronic research tools influences the quality of library service delivery in academic libraries in Rivers State. The table examines issues relating to service accuracy, response time to user queries, user satisfaction, overall service effectiveness, and the contribution of capacity building to improved service delivery.**(N = 24)**

S/N	Statements	Mean	Std. Dev.	Remark
11	The availability and use of electronic research tools has improved the accuracy of information services provided to library users.	3.08	0.776	Agreed
12	Response time to user queries has improved as a result of librarians' use of electronic research tools.	2.92	0.881	Agreed
13	Library users in these academic libraries express satisfaction with the services provided through electronic research tools.	2.92	0.776	Agreed
14	The use of electronic research tools has enhanced the overall effectiveness of library services in these academic libraries.	3.08	0.654	Agreed
15	Capacity building in electronic research tools has directly contributed to an improvement in the quality of library services.	3.04	0.806	Agreed
	Weighted Mean	**3.01**		**Agreed**

Table 3 presents findings on the extent to which the use of electronic research tools influences the quality of library service delivery in academic libraries in Rivers State. The findings show that respondents agreed that the availability and use of electronic research tools has improved the accuracy of information services provided to users (Mean = 3.08, SD = 0.776). Respondents also agreed that response time to user queries has improved through the use of electronic research tools (Mean = 2.92, SD = 0.881). The findings further reveal agreement that library users express satisfaction with services provided through electronic research tools (Mean = 2.92, SD = 0.776). Respondents equally agreed that the use of electronic research tools has enhanced the overall effectiveness of library services (Mean = 3.08, SD = 0.654). In addition, respondents agreed that capacity building in electronic research tools has directly contributed to improved quality of library services (Mean = 3.04, SD = 0.806). The weighted mean of 3.01 indicates overall agreement that electronic research tools positively influence library service delivery.

Research Question Four: What are the challenges affecting the capacity building of librarians in the use of electronic research tools in academic libraries in Rivers State?

Table 4: Table 4 presents the responses of librarians on the challenges affecting capacity building in the use of electronic research tools in academic libraries in Rivers State. The table highlights issues such as inadequate funding, poor ICT infrastructure, insufficient institutional support, rapid technological changes, and low motivation among librarians. **(N = 24)**

S/N	Statements	Mean	Std. Dev.	Remark
16	Limited funding for training programmes is a major challenge to capacity building of librarians in these academic libraries.	3.38	0.647	Agreed
17	Inadequate ICT infrastructure in the libraries makes it difficult for librarians to apply skills acquired during training.	3.29	0.806	Agreed
18	Insufficient institutional support from university management affects librarians' ability to build capacity in electronic research tools.	3.25	0.676	Agreed
19	The rapid changes in electronic research tools make it difficult for librarians to keep their skills updated.	3.29	0.624	Agreed
20	Low motivation and lack of incentives reduce the commitment of librarians to engage in capacity building activities.	3.08	0.830	Agreed
	Weighted Mean	**3.26**		**Agreed**

Table 4 presents findings on the challenges affecting the capacity building of librarians in the use of electronic research tools in academic libraries in Rivers State. The findings indicate that respondents agreed that limited funding for training programmes is a major challenge to librarians' capacity building (Mean = 3.38, SD = 0.647). Respondents also agreed that inadequate ICT infrastructure makes it difficult for librarians to apply acquired skills effectively (Mean = 3.29, SD = 0.806). The findings further reveal agreement that insufficient institutional support from university management affects librarians' ability to build capacity in electronic research tools (Mean = 3.25, SD = 0.676). Respondents equally agreed that the rapid changes in electronic research tools make it difficult for librarians to keep their skills updated (Mean = 3.29, SD = 0.624). In addition, respondents agreed that low motivation and lack of incentives reduce librarians' commitment to capacity-building activities (Mean = 3.08, SD = 0.830). The weighted mean of 3.26 indicates strong overall agreement that these challenges significantly affect librarians' capacity building.

Discussion of Findings

This finding is consistent with what Okeji *et al*. (2020) identified in their study on professional development in Nigerian academic libraries, where they found that training tends to be irregular and dependent on external rather than internal funding. The finding also aligns with Bangani and Dube (2023), who showed that even in cases where libraries have articulated capacity-building goals, the gap between policy commitment and actual institutional support remains a persistent challenge. The implication of this finding for academic libraries in Rivers State is that while some progress has been made, there is a clear need for more deliberate and consistent institutional investment in training programmes for librarians.

This finding is consistent with what (Olutoki *et al*., 2025) found regarding the limited awareness and use of reference management software among librarians in Nigerian universities. Reference management software is increasingly important for supporting postgraduate researchers and academic staff, and the fact that librarians in Rivers State are less confident in this area than in other electronic tools points to a specific training gap that needs to be addressed. The finding that respondents agreed that digital competence levels meet current user demands also reflects a degree of professional self-awareness that should not be ignored.

These findings are consistent with what Ferrer (2024) established in the broader literature, that the quality of information services provided by libraries has a direct connection to how well students and researchers are served. Ngo *et al*. (2025) also showed that the quality of library services is one of the strongest predictors of student satisfaction in higher education, and the findings of this study support that argument in the specific context of Rivers State. The fact that capacity building was directly linked to service quality improvement is particularly significant because it confirms the central argument of this study: that investing in the training of librarians in electronic research tools produces measurable and positive outcomes for service delivery.

This finding is not surprising given the broader pattern of underfunding that characterises many Nigerian university libraries, but the strength of the agreement here is a clear signal that this issue needs urgent attention from university administrators and government agencies responsible for higher education. The finding on inadequate ICT infrastructure is equally important because it highlights the gap that exists between training and practice: librarians who are trained in electronic research tools cannot apply those skills effectively if the tools are not available or functional in their libraries. This aligns with the findings of Sadiku *et al*. (2021), who identified poor infrastructure as one of the most significant barriers to digital library development in Nigerian universities. The pace of change in electronic research tools was also identified as a major challenge, pointing to the need for training programmes that are not only well funded but also current and regularly updated.

Conclusion

This study examined the capacity building of librarians in the use of electronic research tools and the quality of library service delivery in academic libraries in Rivers State. A key observation that runs through the findings of this study is

the contrast between what respondents recognise as important for library development and what institutions are actually providing. Librarians acknowledge that training in electronic research tools is necessary, that it improves service quality, and that it benefits library users directly. Yet the challenges identified show that the conditions needed to support effective capacity building are not yet fully in place. This is not simply a professional concern; it has direct consequences for the quality of research support and information services available to students and academic staff in Rivers State universities.

The study affirms that improving the quality of academic library services in Rivers State cannot happen without deliberate and sustained investment in the professional development of librarians. The views of librarians are consistent and clear. University administrators, government bodies, and library associations would do well to invest in capacity-building activities of the librarians as a basis for concrete action on human capacity development within academic libraries in Rivers State.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. University governing councils and management in Rivers State should incorporate capacity-building programmes for librarians into their annual institutional plans.
2. Academic libraries' management in Rivers State should develop and implement continuous professional development plans that cover all professional librarians.
3. University management should prioritise the improvement of ICT infrastructure in academic libraries.
4. Library associations should collaborate with academic institutions to organise affordable and accessible capacity-building workshops and certification programmes.

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CAREER PROGRESSION AND PROFESSIONAL RECOGNITION AS MOTIVATIONAL TOOLS FOR SERVICE DELIVERY IN PUBLIC UNIVERSITY LIBRARIES IN NORTH-CENTRAL NIGERIA

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ABSTRACT

This study examined career progression and professional recognition as motivational tools for enhancing service delivery in public university libraries in North-Central Nigeria. Public university libraries play a critical role in supporting teaching, learning, and research by providing timely and relevant information services; however, service delivery in many institutions remains inadequate. The study was guided by the need to determine how motivational factors such as career progression and professional recognition influence librarians' performance in service delivery. A survey research design was adopted, with data collected from 185 academic librarians across selected public universities in North-Central Nigeria using a structured questionnaire. Descriptive and inferential statistics were used for data analysis. Findings revealed that librarians demonstrated strong performance in providing accreditation support, and information resource acquisition, but showed weaker involvement in emerging roles such as grant writing and securing patent. Career progression practices were found to be largely influenced by obtaining additional qualifications, research publications and teaching information literacy, while digital library initiatives were largely undervalued. In terms of professional recognition, librarians were mainly acknowledged for their research output and teaching roles, but experienced limited inclusion in university committees and weak public recognition. Regression analysis showed that both career progression and professional recognition significantly influence service delivery, jointly explaining 66% of its variation, with career progression having the stronger effect. The study concludes that while librarians are effective in core service delivery, their performance in emerging academic roles is constrained by limited career advancement opportunities and inadequate recognition systems. It recommends the strengthening of career progression frameworks, expansion of recognition mechanisms, and greater inclusion of librarians in institutional governance and digital initiative

Keywords: Career progression, Professional recognition, motivation, service delivery and libraries

INTRODUCTION

Public university libraries are essential in supporting teaching, learning, and research by delivering timely, relevant, and high-quality information services to diverse user groups. In Nigeria, especially in the North-central region, these libraries must address the growing information needs of an expanding academic community while adapting to rapid technological advancements. Despite these expectations, service delivery in many public university libraries in North-central Nigeria remains inadequate (Seidu, 2024). This situation requires librarians to continually enhance their competencies to maintain effective service delivery. The capacity of librarians to pursue ongoing improvement is significantly shaped by motivating factors, including opportunities for career progression and professional recognition. Career progression is defined as the structured advancement of employees through ranks, responsibilities, and professional development opportunities within an organization. Within university libraries, this includes promotions, access to training, opportunities for further education, and participation in research and scholarly activities (Faulkner, 2025). When librarians perceive transparent and equitable pathways for advancement, they are more likely to demonstrate

commitment, enhance their competencies, and provide efficient services. In contrast, limited career growth can result in frustration, decreased productivity, and reduced quality of service delivery. Previous studies indicate that career progression practices have a significant positive impact on service delivery (Omotunde and Adedayo, 2024).Professional recognition is another factor that can enhance service delivery in public university libraries. This involves acknowledging and rewarding librarians' contributions through both formal and informal mechanisms, including awards, commendations, authorship opportunities, conference participation, and professional affiliations. Recognition enhances individual morale and fosters a culture of excellence and accountability within the library system. De Silva (2023) emphasized that recognition significantly influences job satisfaction and performance among librarians in academic institutions. Thus, professional recognition serves as a powerful tool for promoting effective library services.

Despite the acknowledged importance of motivation in organizational performance, there is a paucity of empirical studies focusing specifically on career progression and professional recognition as motivational tools for improving service delivery in public university libraries in North-central Nigeria.

It is against this backdrop that this study seeks to examine career progression and professional recognition as motivational tools for enhancing service delivery in public university libraries in North-central Nigeria. The study aims to fill existing gaps in the literature by providing empirical evidence on how these factors influence librarians' performance and by offering recommendations for policy and practice to improve motivation and service delivery in the region.

Objectives of the Study

This study aims to examine the roles of career progression and professional recognition as motivational tools for enhancing service delivery in public university libraries in North-Central Nigeria. The specific objectives are as follows:

1. Determine the level of service delivery in public university libraries in North-Central Nigeria.
2. Identify the career progression practices implemented in public university libraries in North-Central Nigeria.
3. Examine the forms of professional recognition provided to librarians in public university libraries in North-Central Nigeria.
4. Assess the influence of career progression and professional recognition on service delivery in public university libraries in North-Central Nigeria.

Literature Review

Level of Service Delivery

Tukur et al. (2025) assessed librarians' use of Library 3.0 technologies for information service delivery in public university libraries in Kaduna State. They found that core library services, such as reference services and information literacy programmes, were actively provided. This study is relevant to the current research because it focuses on service delivery in academic libraries and identifies the extent to which librarians provide core library services. However, it differs from the current study because the geographical scope was limited to public university libraries in Kaduna State, whereas the present study covers public university libraries across North-Central Nigeria.

Career Progression Practices

Busayo and Olajide examined career progression among academic librarians in Nigerian universities, focusing on the perceptions of practicing librarians and library officers in Ekiti State. Their results indicate that most respondents agreed that career progression enhances librarians' professional standing in relation to service delivery and helps mitigate career stagnation. This study is relevant to the present research because it recognises that opportunities for advancement can positively influence employees' professional commitment. However, it differs from the present study in that, while the Ekiti study established that career progression is valued by librarians, it did not empirically assess how career progression practices translate into improved library services.

Onifade and Okoro investigated career progression among librarians in Nigeria and Ghana and reported the existence of continuing education policies that support career advancement in both countries. This study is relevant to the present study because it examines issues relating to career progression within the library profession and provides a comparative perspective on librarians' career development experiences in two African countries. However, it differs from the present study because it adopts a broader geographical scope by covering librarians in Nigeria and Ghana, whereas the present study focuses specifically on career progression practices among academic librarians in universities in North-Central Nigeria.

Michalak and Ellixson (2025) examined factors influencing career advancement and found that professional development, unionization, and mentorship partially influenced career progression in academic librarianship. The study is relevant to the present research because it identifies important factors that contribute to librarians' career advancement. However, it differs from the current study because it focuses on factors influencing career progression in academic librarianship, whereas the present study specifically examines the career progression practices available to librarians in universities in North-Central Nigeria.

Donkor and Asimoh (2024) carried out a study on the status and career progression of librarians working in university libraries in Ghana. The findings revealed that their career progression pathways are categorized into three areas: research support, teaching, and managerial/administrative roles. Due to these multiple roles, librarians face challenges in meeting promotion criteria, especially in conducting research, which in turn affects service delivery. The study is relevant to the present research because it highlights the relationship between career progression and librarians' ability to effectively perform their professional duties. However, it leaves a gap regarding the assessment of career progression practices within Nigerian universities.

Forms of Professional Recognition

Wiser (2024) examined inequality regimes in librarian faculty status using a comparative case study. The study revealed that most librarians feel equally undervalued by disciplinary faculty regardless of their status. This study is closely related to the present study as both focus on the issue of recognition of librarians within academic institutions. However, while the previous study examined perceptions of value and status among librarians, the present study examines the specific forms through which professional recognition is accorded to librarians.

Raszewski and Goben (2026) carried out a study to determine whether librarians were acknowledged for their contributions to systematic review work in promotion or tenure processes. The study found that their contributions were not recognized. The findings are closely related to the present study as both focus on the issue of professional recognition of librarians. However, while this study concentrated on recognition within the context of systematic review work and career advancement, the present study adopts a broader perspective by examining professional recognition in general across public universities in North-Central Nigeria.

Kazim et al. (2025) examined how employee recognition and engagement serve as performance indicators among academic staff of federal universities in North-Central Nigeria. The study revealed that employee recognition improves service delivery and job satisfaction. These findings are relevant to the present study because both emphasize the importance of recognition in enhancing workplace outcomes. While this study examined professional recognition as a performance indicator among academic staff in federal universities in North-Central Nigeria, the present study specifically investigates how professional recognition affects the quality of service delivery provided by librarians in public university libraries in North-Central Nigeria.

Research Methodology

This study employed a survey research design to examine career progression and professional recognition as tools for enhancing service delivery in public university libraries in North-Central Nigeria. The population of the study consisted of 277 academic librarians in 21 public university libraries in North-Central Nigeria. The public university libraries are shown in Table 1.

Table 1: Population of the Study

S/NO	Public University Library	Total Number of Academic Librarians
1	Fr. Moses Orshio Adasu University Library, Makurdi	26
2	Joseph Sarwuan Tarka University, Benue State	10
3	Federal University of Health Sciences Otukpo	8
4	Plateau State University	7
5	University of Jos	32
6	Kwara State University	7
7	University of Ilorin	31
8	Nassarawa State University	15
9	Federal University Lafia	13
10	Federal University of Technology, Minna	25
11	Ibrahim Badamasi University Lapai	8
12	Abdulkadir Kure University. Minna	2
13	University of Abuja	28
14	National Open University Abuja	16
15	Kogi State University	5
16	Confluence University of Science Technology	7
17	Federal University Lokoja	12
18	African Aviation and Aerospace University	3
19	National University of Science and Technology Abuja	2
20	Federal University of Education, Pankshin	12
21	Federal University of Education, Kontagora	8
	Total	**277**

A simple random sampling technique was used to select 13 public university libraries from the 21 public university libraries in the region. The selected universities had a total population of 201 librarians, who constituted the study population.

Data were collected using a closed-ended questionnaire developed by the researchers based on the study objectives and an extensive review of relevant literature. The questionnaire consisted of three sections covering the level of service delivery, career progression practices, and forms of professional recognition.

Copies of the questionnaire were administered directly to librarians in the selected public university libraries in North-Central Nigeria with the assistance of seven research assistants. Follow-up visits and reminders were made to ensure a high response rate.

Of the 201 questionnaires distributed, 185 were correctly completed and returned and were therefore included in the analysis. Data analysis was conducted using both descriptive and inferential statistical methods.

Data Analysis and Discussion

Table 2: Level of Service Delivery in Public University Libraries in North-central Nigeria

S/N	Services Delivered	Very High	High	Low	Very Low	Mean
1	Teaching research skills to users	65(35.1%)	10(5.4%)	96(51.8%)	14(7.6%)	2.68
2	Collaborate with faculty to design curriculum	9(4.8%)	13(7.0%)	160(86.4%)	3(1.6%)	2.15
3	Acquire information resources that meet the information needs of users	123(66.4%)	60(32.4%)	2(1.0%)	-	3.65
4	Guide users through complex searches, using citation management tools and subject specific databases	10154.5%)	80(43.2%)	4(2.1%)	-	3.52
5	Offer information retrieval assistance through collaborative platforms. (social media, zoom)	51(27.5%)	34(18.3%)	61(32.9%)	39(21.0%)	2.52
6	Using resource description and access machine readable catalogues to effectively organize information	151(81.6%)	30(16.2%)	4(2.1%)	-	3.80
7	Manage metadata through institutional repositories	11(5.9%)	77(41.6%)	90(41.6%)	7(3.7%)	2.50
8	Provision of liaison services to department and faculties through subject librarians	51(27.5%)	66(35.6%)	60(32%)	8(4.3%)	2.86
9	Collaborate with faculties to prepare for National University commission and professional bodies resource verification and accreditation exercise.	153(82.7%)	30(16.2%)	2(1.0%)	-	3.81
10	Engaging in grant writing and securing patent	10(5.4%)	46(24.8%)	100(54.0%)	29(15.6%)	2.20
11	Teaching information search skills to users	111(60.0%)	70(37.8%)	4(2.1%)	-	3.58
12	Conducting research	124(67.0%)	60(32.4%)	1(0.5%)	-	3.66
	Grand Total Mean =3.08					

The data on the level of service delivery in public university libraries in North-Central Nigeria revealed that librarians had a high level of service delivery in collaborating with faculty to prepare for National Universities Commission and professional bodies' resource verification and accreditation exercises (mean = 3.81), as well as in acquiring information resources that meet users' information needs (mean = 3.65). However, their level of service delivery was low in grant writing and securing patents (mean = 2.20). Overall, the level of service delivery among librarians in public university libraries is high (mean = 3.08)

.The findings on the level of service delivery in public university libraries in North-Central, Nigeria suggest that librarians' high level of service delivery in accreditation support and information resource acquisition is largely due to these activities being traditional, routine, and central to their established roles in academic libraries. They are well trained and regularly involved in these functions, which makes their performance in these areas strong. These findings are in agreement with the findings of. Tukur et *al*. (2025) who observed that core library services were provided in public university libraries in Kaduna State. In contrast, their low involvement in grant writing and patent acquisition is likely due to limited training, lack of inclusion in research teams, insufficient institutional support, and the perception of librarianship as mainly service-oriented rather than research-driven. These activities require advanced research and innovation skills that librarians may not have fully developed or been exposed to.

Table 3: Career Progression Practices in Public University libraries in North-Central Nigeria

S/N	Career Progression Practices	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean
1	Research publications	155(83.7%)	30(16.4%)	-	-	3.84
2	Teaching information literacy or related courses	131(70.8%)	54 (29.1%)	-	-	3.71
3	Research or project grants enhance my career progression	138(74.5%)	40(21.6%)	7(3.7%)	-	3.71
4	Excellence in core library services(cataloguing, reference, collection development	44(23.7%)	40(21.6%)	91(49.1%)	10(5.4%)	2.64
5	Contribution to digital library initiatives	21(11.3%)	35(18.9%)	91(50.0%)	38(20.5%)	2.21
6	Obtaining additional qualification	161(87.0%)	24(12.9%)	-	-	3.87
7	Attendance of conferences, workshop and seminars	91(49.1%)	22(11.8%)	70(37.8%)	2(1.0%)	3.09
8	Mentorship	11(5.9%)	55(29.7%)	101(54.5%)	18(9.7%)	2.32
9	Involving in various voluntary	107(57.8%)	71(38.3%)	4(2.1%)	3(1.6%)	3.52
10	Attracting grants and patent	128(61.1%)	50(27.0%)	3(1.6%)	4(2.1%)	3.63
	Grand Mean=.3.25					

On career progression practices in public university libraries in North-Central Nigeria, the majority of respondents strongly agreed that obtaining additional qualification (mean=3.87), conducting research (mean = 3.84) and teaching information literacy courses (mean = 3.71) are key career progression practices. However, they disagreed that contribution to digital library initiatives (mean = 2.21) is among the career progression practices.

The results on career progression practices may be explained by the traditional structure and promotion criteria in Nigerian public university libraries, where career progression is largely tied to academic and scholarly activities such as obtaining additional qualifications, research output and teaching responsibilities .Obtaining additional qualifications may contribute to the development of a more skilled and adaptable workforce capable of responding to emerging trends in information management and digital librarianship. Furthermore, conducting research is strongly emphasized because it directly influences promotion, professional recognition, and academic status within the university system. Similarly, teaching information literacy courses is widely recognized as a core professional responsibility of academic librarians, as it aligns with their instructional role in supporting students' academic success and research skills development. These factors likely account for the high level of agreement on these two practices. These findings are in agreement with the findings of Donkor, and Asimoh (2024) who found out that career progression of librarians working in university libraries in Ghana were categorized into research support, and teaching.

In contrast, the low rating for contribution to digital library initiatives suggests that such activities are not yet fully institutionalized as formal criteria for career advancement. This may be due to limited recognition of digital librarianship in promotion guidelines, inadequate technical skills among some librarians, insufficient infrastructure, or lack of institutional emphasis on digital transformation roles. In some cases, librarians may also perceive digital initiatives as administrative or supportive tasks rather than professional achievements that contribute to promotion. The findings imply that career progression in public university libraries remains largely anchored on traditional academic outputs such as research and teaching, while emerging roles related to digital librarianship are not yet fully integrated into promotion frameworks. This may discourage librarians from actively engaging in digital innovation activities, thereby slowing down the digital transformation of library services.

Table 4: Forms of Professional Recognition Provided to Librarians in Public University Libraries in North-central Nigeria

S/N	Forms of Professional Recognition	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean
1	My contributions to library services are formally acknowledged by the university	86(46.4%)	74(40.0%)	20(10.8%)	5(2.7%)	3.30
2	Librarians are publicly recognized in institutional reports newsletters or ceremonies	45(24.3%)	33(17.8%)	10154.5%)	6(3.2%)	2.63

3	Recognition of librarians is commensurate to that of faculty members in other departments	22(11.8%)	60(32.4%)	102(55.1%)	1(0.5%)	2.56
4	Librarians research publications are recognized as valuable contributions	121(65.4%)	60(32.4%)	4(2.1%)	-	3.63
5	Librarians are recognized as educators by faculty members and students	33(17.8%)	51(27.5%)	98(52.9%)	3(1.6%)	3.62
6	Librarians who secure grants and patents receive institutional recognition	64(34.5%)	85(45.9%)	29(15.6%)	7(3.7%)	3.11
7	Excellence in core library services is recognized	10(5.4%)	56(30.2%)	112(60.5%)	7(3.7%)	2.37
8	Librarians are invited to attend school board and other management meetings	36(19.4%)	49(26.4%)	88(47.5%)	12(6.4%)	2.59
9	Inclusion of librarians in university committees	13(7.0%	46(24.8%	99(53.5%)	27(14.5%)	2.24
	Total Mean= 2.78					

Data on forms of recognition revealed that librarians strongly agreed that their research publications (mean = 3.63) and their role as educators (mean = 3.62) were recognized. However, they disagreed that inclusion in university committees (mean = 2.24) served as a form of recognition.

The findings regarding forms of recognition for librarians in public university libraries suggest a mixed and generally uneven recognition system. The findings indicate that librarians receive stronger recognition for research publications and teaching roles, which align with traditional academic performance indicators. However, their exclusion from university committees suggests limited involvement in institutional governance. This disparity may be due to the dominance of publication-based evaluation systems and persistent perceptions of librarians as support staff rather than full academic partners. Consequently, while librarians are acknowledged for scholarly contributions, their reduced participation in decision-making structures may limit their professional visibility, influence, and job satisfaction. . These findings are in disagreement with the findings of Raszewski and Goben (2026), who found that librarians' contributions to scholarly communication, such as systematic reviews, in United States academic libraries are not recognized.

Table 5: Influence of Career Progression and Recognition on Service Delivery in Public University Libraries in North-central Nigeria

Variable	B (Coefficient)	Std. Error	t-value	Sig. (p-value)	Decision
Constant	0.842	0.312	2.70	0.008	—
Career Progression (X_1)	0.61	0.09	6.78	0.000	Significant
Professional Recognition (X_2)	0.38	0.08	4.75	0.001	Significant

Table 4.1: Model Summary

Statistic	Value
R	0.81
R^2	0.66
Adjusted R^2	0.64
F-statistic	52.4
Sig.	0.000

The R^2 value (0.66) indicates that 66% of the variation in service delivery is explained jointly by career progression and professional recognition. The F-test ($p = 0.000$) shows the model is statistically significant overall. Both predictors are significant ($p < 0.05$): Career progression has the strongest influence ($\beta = 0.61$). Professional recognition also has a significant positive effect ($\beta = 0.38$). The analysis reveals that both career progression practices and professional recognition significantly influence service delivery among librarians. However, career progression contributes more strongly, indicating that when librarians perceive better advancement opportunities, service delivery improves more substantially than recognition alone.

The regression results indicate a strong and meaningful relationship between career progression, recognition, and service delivery among librarians. The results show that career progression and professional recognition jointly influence service delivery, suggesting that these factors are major determinants of librarians' effectiveness. While both factors are important, career progression emerges as the more critical driver of improved service delivery. Although, the researcher found limited empirical studies that specifically examined the combined influence of career progression and professional recognition on librarians' service delivery. The finding is consistent with the findings of Donkor, and Asimoh (2024) carried out a study on status and career progression of librarians working in university libraries in Ghana and the findings revealed that career progression effect their service delivery. Furthermore, these findings are in agreement with the findings of Kazim *et al.* (2025) that employees' recognition improve service delivery and job satisfaction among academic staff in North-Central, Nigeria

Conclusion

This study examined career progression and professional recognition as motivational tools for enhancing service delivery in public university libraries in North-Central Nigeria. This study concludes that career progression and professional recognition are critical motivational factors that significantly influence service delivery in public university libraries in North-Central Nigeria. Librarians demonstrate high proficiency in traditional library functions such as accreditation support and acquisition of information resources However, their engagement in emerging academic and digital responsibilities, including research-related activities, such as grant writing and patent acquisition remains limited. The findings further reveal that career progression in the study area is predominantly driven by obtaining additional qualifications, research productivity, s, and teaching responsibilities, while core library services and digital innovations are not adequately recognized as criteria for advancement. Similarly, professional recognition is uneven, with stronger acknowledgment given to research and teaching roles, while participation in university committees and public recognition remain limited.

The regression results confirm that both career progression and professional recognition significantly enhance service delivery, with career progression emerging as the stronger predictor. This indicates that opportunities for advancement play a more decisive role in improving librarians' performance than recognition alone.

Overall, the study concludes that although public university librarians contribute effectively to core library operations, their full potential is not fully realized due to limited structured career advancement pathways, inadequate recognition systems, and insufficient integration into broader academic and institutional functions. Strengthening these areas is essential for improving service delivery and aligning library services with contemporary academic demands

Recommendations

Based on the study's findings, the following recommendations are proposed:

1. .There is a need for targeted capacity development and institutional support to enhance librarians' competencies in grant writing and patent acquisition, while sustaining their strong performance in accreditation support and resource acquisition.
2. Public university libraries in North-Central Nigeria should strengthen and formalize career progression policies to fully integrate digital library initiatives as a key criterion for promotion and professional advancement.
3. University management should include librarians in key university committees, boards, and strategic planning activities to enhance their visibility and enable more meaningful contributions to institutional development.

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Challenges Affecting public Libraries and Public Service Librarians in Niger State, Nigeria

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Abstract
This study examined the challenges facing public libraries and public service librarians in Niger State, Nigeria, and identified strategies to improve service delivery and professional effectiveness. A quantitative descriptive survey design was used, covering all 51 professional and paraprofessional staff of the Niger State Library Board through total enumeration. Data were collected using a structured questionnaire and analyzed with descriptive statistics. Findings showed that public libraries face major challenges such as inadequate funding, poor infrastructure, lack of ICT facilities, shortage of qualified staff, and limited access to current information resources. Librarians also experience poor working conditions, limited training opportunities, inadequate ICT skills, heavy workloads, and weak institutional support, all of which affect service delivery. The study identified key solutions, including increased funding, improved staff welfare, better ICT infrastructure, regular training, effective policy implementation, and greater public awareness. The study concludes that improving public libraries in Niger State requires a coordinated approach that addresses both institutional deficiencies and human capacity gaps. It recommends sustained government support, professional development initiatives, and policy reforms to improve the relevance and efficiency of public library services in the state.
Keywords: Public Libraries; Librarians; Professional Challenges; ICT Infrastructure; Niger State.

1.1 Introduction

Public libraries are vital social institutions established to provide free and equitable access to information, support lifelong learning, promote literacy, and enhance community development, particularly in developing countries where access to paid information resources is limited. Around the world, they serve as accessible spaces where people of all ages and backgrounds can seek information, build literacy skills, access technology, and participate in cultural activities. In Nigeria, public libraries hold similar promise. They support education, literacy, civic engagement, and digital inclusion by providing free access to print and electronic information resources for all category of users (Okafor, 2020). They also serve as instruments for national development by fostering informed citizenry and supporting formal and informal education (Salman *et al.,* 2017). Despite their importance, the effectiveness of public libraries in Nigeria has been significantly undermined by a range of structural, operational, and professional challenges.

Scholarly literature shows that public libraries in Nigeria have struggled with persistent issues such as inadequate funding, poor infrastructure, shortage of qualified personnel, weak ICT integration, and limited government support (Chinedu & Egolum, 2025; Okafor, 2020). These constraints have significantly reduced their ability to deliver modern library services and meet the growing information needs of users in an increasingly digital society. For instance, inadequate funding has been repeatedly identified as a major barrier that affects recruitment of professional staff, acquisition of current information resources, maintenance of facilities, and provision of modern services (Okojie & Okiy, 2020). Similarly, studies have shown that many public libraries lack sufficient ICT facilities and trained personnel capable of supporting digital information services, which are now central to contemporary librarianship (Ogbonna, 2022). Furthermore, studies have shown that weak governance structures, outdated policies, and inadequate professional staffing have contributed to inefficiencies in public library administration and service delivery (Abubakar, 2017).

In addition to institutional constraints, public service librarians in Nigeria, who are at the forefront of user engagement and information dissemination, face professional challenges such as poor conditions of service, limited opportunities for professional development, and low motivation which negatively impact their performance and the quality of services delivered to users (Okafor, 2020; Onwubiko, 2021). These challenges collectively result in poor service delivery, low user satisfaction, and declining patronage of public libraries across Nigeria. If not adequately addressed, the relevance of public libraries and the effectiveness of public service librarians in Nigeria may continue to diminish, thereby undermining their role in promoting literacy, education, and national development. Therefore, this study seeks to examine the challenges affecting public libraries and public service librarians in Niger State, with a view to identifying sustainable solutions for improving library services and enhancing the performance of librarians in the state.

1.2 Statement of the Problem

Despite the critical role of public libraries in supporting education, literacy, and community development, public library systems in Nigeria continue to face numerous challenges that hinder their effective operation and service delivery. These challenges include inadequate funding, outdated collections, poor infrastructure, insufficient ICT facilities, a shortage of professionally trained librarians, poor governance and outdated library policies (Chinedu & Egolum, 2025; Okafor, 2020; Okojie & Okiy, 2020). These challenges have persisted for decades, suggesting that existing interventions have not adequately addressed the underlying structural problems. Furthermore, public service librarians, who are central to the delivery of library services, operate under difficult working conditions characterized by low remuneration, limited professional development opportunities, and lack of motivation, which adversely affects their productivity and commitment (Salman, 2018; Okafor, 2020; Onwubiko, 2021). These challenges collectively result in poor service delivery, low user satisfaction, and declining patronage of public libraries across Nigeria.

Despite these well-documented issues, there is a lack of comprehensive research that holistically examines both institutional challenges and the professional experiences of public service librarians within the Nigerian context, especially Niger State. This gap in knowledge makes it difficult to formulate evidence-based strategies that can strengthen public libraries and enhance the professional capacity of librarians. Therefore, this study seeks to examine the challenges affecting public libraries and public service librarians in Niger State, Nigeria, with a view to identifying sustainable solutions for improving library service delivery and enhancing the performance of librarians in the country.

1.3 Research Objectives:

1. To identify the key challenges faced by public libraries in Niger State.
2. To examine the professional challenges experienced by public service librarians in Niger State.
3. To suggest strategies for addressing the challenges faced by public libraries and enhancing the professional development of librarians in Niger State.
4.

1.4 Research Questions:

1. What are the key challenges affecting the functioning of public library in Niger state?
2. What are the professional challenges faced by public service librarians in Niger State?
3. What strategies can be implemented to address the challenges faced by public libraries and enhance the professional development of librarians in Niger State?

2.0 Literature Review

2.1 Challenges Facing Public Libraries in Nigeria

Public libraries in Nigeria face multiple interconnected challenges that limit their ability to effectively serve local communities. The most prominent issues are inadequate funding, poor infrastructure, and lack of modern technology, which affect their ability to provide quality services, maintain facilities, and meet users' digital needs. Numerous studies revealed that public libraries in Nigeria lack resources to acquire new materials, upgrade technology, and maintain existing resources (Okafor, 2020; Salman *et al.*, 2018; Garba *et al.,* 2019). Similar studies revealed poor infrastructure such as dilapidated buildings, insufficient reading areas, inadequate lighting, and a lack of essential amenities, all of which make the libraries less appealing (Okafor, 2020; Momodu, 2013). Other studies revealed lack of modern digital tools such as computers and internet connectivity (Okafor, 2020; Okunoye, 2022).

In addition, there is a shortage of qualified staff, particularly those with digital skills, and limited access to up-to-date educational materials. These issues affect service delivery and the ability to meet users' needs (Baada *et al.,* 2020; Onunka *et al.,* 2023). Low public awareness and weak collaboration with educational institutions further contribute to low patronage and limit libraries' role in education and community development (Akor *et al.*, 2021; Isewele-Ishola, 2024). Other challenges include bureaucratic delays, policy gaps, and cultural and socio-economic factors (Salman *et al.*, 2018; Asif & Yang, 2021; Wheeler, 2021). Delays in funding, poor management frameworks, low reading culture, and issues like poverty and low education levels reduce library usage. Addressing these problems requires stronger government support, better policies, community outreach, improved infrastructure, and staff development.

2.2 Professional Challenges Experienced by Public Service Librarians in Nigeria

Public service librarians in Nigeria face numerous professional challenges that limit effective service delivery. These challenges include inadequate access to continuous training, poor conditions of service such as low salaries or limited promotion, heavy workloads due to understaffing, and insufficient ICT skills, which hinder their ability to adapt to modern library practices (Okonkwo *et al.*, 2025; Osiesi *et al.,* 2022; Afolabi & Olubunmi, 2022; Umeji & Anaehobi, 2022). Additionally, limited decision-making power, weak professional recognition, and difficulty keeping pace with technological advancements reduce librarians' effectiveness and morale (Rajendran & Ladan, 2020; Okafor, 2020). The absence of clear policies and strong institutional governance further restricts their capacity to plan, innovate, and advocate for improved services (Salman *et al.,* 2018). Lack of updated library policies and weak institutional governance exacerbates these professional constraints (Salman *et al.,* 2018). These challenges constrain librarians' roles as information providers and educators, highlighting the need for improved funding, training, infrastructure, and policy support.

2.3. Strategies to Improve Public Library Functioning and Librarian Development

Researchers propose several strategies to improve public library performance and librarian development in Nigeria. Key recommendations include increased and sustainable funding for infrastructure, collections, ICT, and staff training, supported by alternative sources like grants and donor agencies (Aboh, 2024; Okafor, 2020). Upgrading library facilities (such as modern library, reading spaces, and basic amenities) and strengthening ICT infrastructure (such as computers, reliable internet connectivity, electricity supply, and digital collections) are also essential for improving user experience and access to information (Lawan *et al.,* 2025; Bello & Adepegba, 2023). On the professional development front, continuous professional development through training, workshops, and updated academic curricula is emphasized to equip librarians with modern skills, particularly in digital services (Adamu *et al.,* 2021). Improved conditions of service, including better salaries and career opportunities, are also necessary to boost motivation (Posigha & Seimode, 2015). Furthermore, policy reform and stronger governance structures are needed to enhance accountability and service delivery (Abdullahi, 2015). Promoting community awareness and partnerships can also increase library relevance and usage (Amanze-Unagha & Unagha, 2023).

3.0 Methodology

The study adopted a quantitative approach using a descriptive survey design to address the research objectives. This allowed respondents to freely express their views through the questionnaire. The population comprised all 51 professional and paraprofessional staff of the Niger State Library Board, drawn from five branches (Agaie, Bida, Kontagora, Rijau, and Suleja) and the headquarters in Minna. Population data were obtained from internal records of the library board. Total enumeration (census sampling) was used since the population was small and manageable, allowing data collection from all members for comprehensive and accurate results (Okuonghae & Ogiamien, 2016). Thus, the entire population of 51 staff formed the sample. Data were collected using a structured paper-based questionnaire, chosen for its cost-effectiveness and time efficiency. The instrument was adapted from previous studies, validated by experts, and approved by the library board. A total of 48 questionnaires were distributed and returned, yielding a 94.11% response rate. Data were analyzed using SPSS version 23, with descriptive statistics such as frequency and percentage used for interpretation.

4.0 Results and Discussion of Findings

4.1. Respondents Demographic Information

Table 1: Respondent Demographic Information

Variables	Categories	Frequency	Percentage
Gender	Male	33	68.75%
	Female	15	31.25%
Age	Below 30	16	33.33%
	Above 30	32	66.67%
Professional Status	Professional	15	31.25%
	Non-Professional	33	68.75%
Working Experience	Below 10	19	39.59%
	Above 10	29	60.41%

Table 1 shows that most respondents were male (68.75%), while females made up 31.25%, indicating a gender imbalance in the public library workforce in Niger State. In terms of age, the majority were above 30 years (66.67%), suggesting a mature workforce, and many had over 10 years of experience (60.41%), reflecting input from experienced staff. However, most respondents were non-professionals (68.75%), with only 31.25% being professionally trained librarians, highlighting a gap in formal expertise. This aligns with studies showing that public libraries in developing regions often depend on non-professional staff due to limited funding and recruitment challenges (Estrullo-Suaga *et al.,* 2023).

4.2. Challenges Faced by Public Libraries in Niger State

Table 2: Challenges Faced by Public Libraries in Niger State

S/N	Items Statements	SA	A	D	SD	Mean
1	Inadequate funding for acquiring new materials and maintaining facilities	28 (58.33)	18 (37.5%)	2 (4.17%)	0 (0.0%)	4.50
2	Lack of modern technological tools like computers and internet access	26 (54.17)	19 (39.58)	3 (6.25%)	0 (0.0%)	4.42
53	Poor infrastructure (outdated buildings and inadequate reading chairs or tables)	22 (45.83%)	24 (50.0%)	2 (4.17%)	0 (0.0%)	4.38
4	Shortage of trained and qualified librarians and staff members	24 (50.0%)	20 (41.67)	4 (8.33%)	0 (0.0%)	4.33

5	Poor reading habits and preference for entertainment over education	19 (39.58)	22 (45.83%)	7 (14.58)	0 (0.0%)	4.10
6	Low public awareness and patronage of public library services	19 (39.58%)	21 (43.75%)	6 (12.5%)	0 (0.0%)	3.98
7	Limited collaboration with educational institutions	18 (37.5%)	23 (47.92%)	5 (10.42)	3 (6.25)	4.06
8	Limited access to updated learning materials like books and journals	20 (41.67%)	22 (45.83%)	4 (8.33%)	2 (4.17)	4.13
9	Poverty and low educational attainment within communities	16 (33.33%)	22 (45.83%)	5 (10.42)	5 (10.4)	3.81
10	Lack of clear policies for the development of public libraries	17 (35.42%)	23 (47.92%)	5 (10.42%)	3 (6.2%)	3.96

Key: Strongly Agree = (SA), Agree = (A), Disagree = (D), Strongly Disagree = (SD)

Table 2 shows that public libraries in Niger State face major structural and operational challenges, with strong agreement from respondents. Inadequate funding (Mean = 4.50) was the most critical issue, followed by lack of modern technology such as computers and internet (Mean = 4.42), and poor infrastructure (Mean = 4.38). Shortage of qualified staff (Mean = 4.33) and limited access to updated materials (Mean = 4.13) also ranked high, indicating that the challenges are largely due to financial, infrastructural, and human resource constraints. This aligns with earlier studies highlighting underfunding, poor facilities, and inadequate staffing as key barriers (Okafor, 2020).

Other issues such as poor reading habits (Mean = 4.10), weak collaboration with educational institutions (Mean = 4.06), low public awareness and patronage (Mean = 3.98), and lack of clear policies (Mean = 3.96) were also noted. Socio-economic factors like poverty and low education levels (Mean = 3.81) further affect library use. These results align with earlier findings that emphasize the role of community factors, policy gaps, and weak institutional linkages in limiting the relevance and utilization of public libraries (Okafor, 2020; Okojie & Okiy, 2020). Therefore, improving library services in Niger State requires a comprehensive approach that includes better funding, infrastructure, staffing, policy development, and community engagement.

4.3. Professional Challenges Faced by Public Service Librarians in Niger State

Table 3: The Professional Challenges Faced by Public Service Librarians in Niger State

S/N	Items Statements	SA	A	D	SD	Mean
1	Insufficient professional development opportunities for librarians	27 56.25%	21 43.75%	0 0.0%	0 0.0%	**3.56**
2	Poor working condition of services such as low salaries and lack of motivation	30 62.5%	18 37.5%	0 0.0%	0 0.0%	**3.62**
3	Limited authority in making decisions about the library's budget and collection	19 39.58%	20 41.7%	5 52.08	4 8.33%	**3.12**
4	Resistance to adopting new technologies in the library	29 60.42	17 35.42	2 4.17%	0 0.0%	**3.56**
5	Inadequate ICT skills among librarians	28 58.33%	17 35.42%	3 6.25%	0 0.0%	**3.52**
6	Heavy workloads due to inadequate trained staff	17 35.42%	23 47.92%	6 12.5%	2 4.17%	**3.15**
7	Lack of government support for librarians' professional development and welfare	15 31.25%	29 60.42%	4 8.33%	0 0.0%	**3.23**
8	Issues of intellectual freedom like censorship or community pressures	24 50.0%	19 39.58%	5 10.42%	0 0.0%	**3.40**

Key: Strongly Agree = (SA), Agree = (A), Disagree = (D), Strongly Disagree = (SD)

Table 3 shows that public service librarians in Niger State face several professional challenges, with strong agreement on most items. Poor working conditions, including low salaries and lack of motivation (Mean = 3.62), was the most significant issue. This was followed by limited professional development opportunities (Mean = 3.56) and resistance to new technologies (Mean = 3.56). Inadequate ICT skills (Mean = 3.52) and concerns about intellectual freedom (Mean = 3.40) were also notable, showing that both skill gaps and work environment issues affect performance. These findings align with studies linking poor pay, limited training, and weak ICT competence to low librarian effectiveness (Yaya & Kikelomo, 2015). Other issues such as lack of government support (Mean = 3.23), heavy workload from staff shortages (Mean = 3.15), and limited decision-making power (Mean = 3.12) also recorded moderate agreement, reflecting broader institutional constraints. Although less severe, they still impact service delivery. This is consistent with earlier research

showing that weak institutional support and staffing shortages limit innovation and efficiency in public libraries (Salman, 2017). Therefore, improving librarians' performance requires addressing both structural and capacity-related challenges.

4.4. Strategies to Address Challenges and Enhance Librarian Development in Niger State

Table 4: Strategies to Address Challenges Facing Public Libraries and Enhance the Professional Development of Librarians in Niger State

S/N	Item Statements	SA	A	D	SD	Mean
1	Providing adequate and sustainable funding for acquiring new library materials and maintaining existing resources	37 (77.08%)	11 (22.92%)	0 (0.00%)	0 (0.00%)	3.77
2	Improving library infrastructure, including buildings, seating, and lighting facilities	30 (62.50%)	15 (31.25%)	3 (6.25%)	0 (0.00%)	3.56
3	Enhancing digital infrastructure, such as reliable internet access and stable electricity supply	32 (66.67%)	14 (29.17%)	2 (4.17%)	0 (0.00%)	3.63
4	Organizing regular professional training programs to update librarians' skills and knowledge	34 (70.83%)	11 (22.92%)	2 (4.17%)	1 (2.08%)	3.63
5	Updating library school curricula to reflect current professional trends and technological advancements	20 (41.67%)	25 (52.08%)	0 (0.00%)	3 (6.25%)	3.29
6	Improving librarians' conditions of service like clear career progression, competitive salaries, and incentives	35 (72.92%)	13 (27.08%)	0 (0.00%)	0 (0.00%)	3.73
7	Promoting collaboration between libraries, schools, NGOs, and government agencies to expand service reach	19 (39.58%)	23 (47.92%)	5 (10.42%)	1 (2.08%)	3.25
8	Increasing public awareness of available library resources and services	24 (50.00%)	19 (39.58%)	5 (10.42%)	0 (0.00%)	3.40
9	Developing, implementing, and enforcing effective library policies and legislation	27 (56.25%)	17 (35.42%)	4 (8.33%)	0 (0.00%)	3.48
10	Organizing outreach programs, reading campaigns, digital literacy training, and other community-based library services	22 (45.83%)	20 (41.67%)	4 (8.33%)	2 (4.17%)	3.29

Key: Strongly Agree = (SA), Agree = (A), Disagree = (D), Strongly Disagree = (SD)

Table 4 shows strong agreement on key strategies to improve public libraries and librarian development in Niger State. adequate funding (Mean = 3.77) and better conditions of service (Mean = 3.73) were the most critical, with no disagreement. Enhancing digital infrastructure and providing regular training (Mean = 3.63 each) were also highly rated, highlighting the need to strengthen both technology and staff capacity. Improving library facilities (Mean = 3.56) and developing effective policies (Mean = 3.48) were similarly supported. These findings align with studies emphasizing funding, staff welfare, and continuous training as essential for effective service delivery (Okafor, 2020). Other strategies such as increasing public awareness (Mean = 3.40), updating library curricula and outreach programs (Mean = 3.29), and promoting collaboration (Mean = 3.25) also received support, though slightly lower. This suggests they complement core needs like funding and infrastructure. Overall, the results highlight the need for a comprehensive approach involving funding, capacity building, policy support, and stakeholder collaboration (Okojie & Okiy, 2020).

Conclusion

The study examined the challenges facing public libraries and the professional development of librarians in Niger State. The findings showed that public libraries in Niger State are confronted with serious structural and operational challenges. Inadequate funding, poor infrastructure, lack of modern technological tools, and shortage of qualified personnel emerged as the most critical issues. These challenges are compounded by broader socio-economic factors such as low reading culture, poverty, and limited public awareness of library services. At the professional level, librarians face poor working conditions, limited opportunities for training, inadequate ICT skills, and weak institutional support, all of which hinder their efficiency and motivation. Despite these challenges, the study identified practical and widely supported strategies for improvement. Key among these is increased funding, improved welfare for librarians, investment in digital and physical infrastructure, and regular professional training. Therefore, the findings concluded that strengthening public libraries in Niger State requires a comprehensive approach that addresses funding, human capacity, infrastructure, policy, and community engagement simultaneously.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. The Niger State Government and other relevant stakeholders should provide adequate and sustainable funding for public libraries to facilitate the acquisition of current information resources, improvement of ICT infrastructure, renovation and maintenance of physical facilities, and expansion of library services.
2. The Niger State Library Board should strengthen human resource capacity through the recruitment of professionally qualified librarians and the provision of regular capacity-building programs, including workshops, seminars, and ICT training, to address staff shortages, reduce workload, and enhance the competencies of library personnel.
3. Efforts should be made to improve the welfare and working conditions of librarians through better remuneration, incentives, clear career progression opportunities, and increased institutional support in order to enhance motivation, job satisfaction, and professional effectiveness.
4. The Niger State Library Board should develop, implement, and enforce clear policies and strategic frameworks for the effective management and sustainable development of public libraries, while fostering stronger collaboration with educational institutions, community organizations, and relevant government agencies to improve service delivery and resource sharing.
5. Public libraries in Niger State should intensify community outreach, public awareness campaigns, and reading promotion initiatives to increase patronage, encourage positive reading habits, and enhance the visibility and relevance of library services within their communities.

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Contributions of School Librarians and Library Services to Students' Academic Achievements in Primary and Secondary Schools in Kano State, Nigeria

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ABSTRACT

This study investigated the contributions of school librarians to students' academic achievements in secondary schools in Kano State, Nigeria. The study sought to examine librarians' contributions to academic achievement, assess the influence of library resources and services on students' academic performance, evaluate librarians' support for students' learning skills (reading, research, and information literacy), and identify challenges affecting librarians' effectiveness. A descriptive survey research design was adopted. The population comprised librarians, teachers, and students in secondary schools with functional libraries in the metropolitan Local Government Areas (LGAs) of Kano State, totaling 35,915. Using Krejcie and Morgan's table, a sample of 210 respondents (35 librarians, 70 teachers, and 105 students) was selected from 15 purposively chosen schools. Data were collected using a validated structured questionnaire with a reliability coefficient of 0.82. Descriptive statistics (mean, frequency, and percentage) and chi-square were used for data analysis and hypothesis testing. Findings revealed that school librarians make significant contributions to students' academic performance, with all mean scores above 3.00. Key contributions included maintaining a conducive reading environment and guiding students in locating information. Library resources and services showed a strong positive influence on academic achievement, particularly reading spaces and access to past examination questions. Major challenges identified were inadequate library funding, shortage of professional librarians, and poor reading culture among students. The study concludes that strengthening school library services will enhance students' academic achievements in Kano State.

Keywords: School librarians, academic achievement, library services, Kano State, Nigeria

Introduction

Secondary education in Nigeria constitutes the foundation of the nation's educational system and is critical for the intellectual, social, and moral development of children. The aim of secondary education is to prepare students for higher education, vocational training, and productive participation in the society. The effectiveness of secondary education in Nigeria has been a subject of considerable research, particularly regarding the quality of teaching, learning resources, and school infrastructure (Okebukola, 2012). Despite government efforts to expand access to schooling, many Nigerian schools face challenges such as inadequate facilities, limited learning materials, under-resourced libraries, shortage of qualified teachers and support staff, including librarians. These constraints are more evident in some states, including Kano State, where increasing student enrolment places additional pressure on already limited educational resources. These have been linked to suboptimal academic performance among students, especially in rural and under-resourced schools (Ogunyemi & Olaleye, 2019).

School libraries have been identified as a critical resource for enhancing the quality of secondary education in Nigeria. Functional libraries, when managed by trained librarians, provide students with access to books, periodicals, and digital resources that supplement classroom instruction and promote self-directed learning. Study by Ogunbekun et al. (2023) indicates that well-managed school libraries improve literacy skills, research abilities, and overall academic performance of students at secondary level.

The role of librarians in secondary schools in Nigeria is particularly important due to the emphasis on reading culture, information literacy, and examination readiness. Aina (2014) observed that librarians facilitate curriculum implementation by guiding students in locating and using appropriate resources, conducting user education programs, and promoting reading habits. Similarly, Lawal-Solarin (2012) noted that students' utilization of library services, particularly when supervised by professional librarians, positively correlates with their academic outcomes in secondary schools. However, in many schools, particularly within Kano State, there is a noticeable shortage of qualified librarians, with some school libraries either minimally staffed or managed by non-professionals. This staffing gap significantly limits the effective use of available library resources and services.

Students' academic achievement is widely recognized as a measure of educational effectiveness, reflecting mastery of knowledge, skills, and competencies within the school curriculum (York, Gibson, & Rankin, 2015). While many factors influence academic success, the role of school libraries and professional librarians has emerged as a significant

contributor to students' learning outcomes. Research has shown that well equipped and professionally managed school libraries positively impact student achievement by providing access to relevant learning resources and fostering an environment conducive to independent and collaborative learning. Lance, Rodney, and Hamilton-Pennell (2000) observed that schools with certified librarians and adequately stocked libraries recorded higher student performance on standardized tests compared to schools without professional library services. Their study emphasized that librarians are not merely custodians of books, but active participants in promoting literacy, guiding research, and integrating library resources into classroom instruction.

Despite these recognized benefits, school libraries in Kano State remain poorly staffed and underutilized, raising serious concerns about their actual contribution to students' academic achievement. Given this background, there is a need for a systematic investigation into contributions of librarians and school libraries to students' academic achievements, particularly within the Kano State context. Such an inquiry will help to identify existing gaps in library services, staffing, and utilization, while also providing evidence-based insights for policymakers, school administrators, and education stakeholders.

Statement of the Problem

Despite the recognized importance of school libraries for enhancing students' learning, literacy, and academic success, many primary and secondary schools in Nigeria lack functional libraries or have libraries that are grossly under-resourced. Studies reveal that in numerous schools, libraries exist only "in name", their facilities are inadequate or dilapidated, books and materials are obsolete or insufficient, and library spaces often do not meet basic standards for accommodation, furniture, or layout (Adewusi, 2013). Even when libraries exist, they are frequently understaffed or managed by non-professional personnel. Many school libraries are run by untrained staff or full-time teachers lacking formal library training with no qualified librarians to oversee the collection, organize resources, or guide students in effective use. Furthermore, the resources available in many school libraries are inadequate, outdated, or irrelevant. Research shows that students often find few relevant, up-to-date books, reference materials, or ICT-based resources in their school libraries, limiting opportunities for independent study, research, and information literacy development.
Lawson (2022) stated that many students and teachers underutilize available library resources and that in some cases, they lack awareness or orientation on how to use library resources; while to others, the libraries' poor state or uninviting environment discourages use, which undermines the potential of libraries to support academic learning. As a direct consequence of these deficiencies lack of funding, poor infrastructure, lack of trained staff, insufficient and outdated resources, and under-utilization many students may be deprived of essential support for learning beyond classroom instruction. This situation likely contributes to poor academic performance, low literacy development, weak reading culture, and limited research skills among students in primary and secondary schools across Nigeria.

Despite these evident problems and the theoretical importance of libraries to education, there remains a lack of comprehensive, context-specific empirical studies that examine how the presence (or absence) of properly managed libraries with qualified librarians and adequate resources influences academic outcomes among Nigerian school students in Kano State. This gap undermines efforts to advocate for library investment and educational policy reforms. Therefore, this study seeks to investigate the extent to which functional school libraries adequately staffed, resourced, and utilized contributes to academic achievement in primary and secondary schools in Kano State. By doing so, it aims to provide evidence-based insight into whether and how librarians and school libraries can help improve educational quality, literacy, and learning outcomes in Nigeria.

Research Objectives

The main objective of this study is to investigate the contributions of librarians to students' academic achievement in Primary and Secondary Schools in Kano State, Nigeria. While the specific objectives are as follows:

1. To examine the contributions of librarians to students' academic achievements in primary and secondary schools in Kano State.
2. To assess how library resources and services provided by librarians influence students' academic performance in primary and secondary schools in Kano State.
3. To evaluate the ways librarians support students' learning skills in Kano State.
4. To identify the challenges that affect librarians' ability to enhance students' academic achievements in Nigerian primary and secondary schools in Kano State.

Research Hypotheses

To achieve the stated objectives, the following hypotheses were developed.

H_{01}: Librarians' contributions have no significant effect on students' academic achievements in primary and secondary schools in Kano State.

H_{02}: Library resources and services provided by librarians do not significantly influence students' academic performance in primary and secondary schools in Kano Sate.

Literature Review

School libraries have evolved beyond mere collections of books to become dynamic learning resource centres that support teaching and learning. Rather than being limited to physical materials, modern school libraries encompass print and non-print resources, including digital and audiovisual materials that facilitate access to information and knowledge. As noted by Jamadar (2022), libraries serve as organized systems of information resources designed to support education and recreation. In the school context, they function as essential platforms for fostering independent learning, intellectual development, and academic engagement. The UNESCO School Library Manifesto emphasizes that school libraries provide information and ideas fundamental to functioning effectively in a knowledge-based society. This underscores their relevance not just as storage spaces for books, but as active contributors to literacy development and lifelong learning.

Librarians are central to the effectiveness of school libraries, as their professional expertise determines how well resources are organized, accessed, and utilized. According to IFLA (2015), school librarians ensure that library collections are relevant, current, and aligned with curricular needs, thereby enhancing students' access to quality information. Beyond resource management, librarians actively contribute to teaching and learning processes. Loertscher and Koechlin (2014) emphasized that librarians collaborate with teachers to integrate library resources into classroom instruction, promoting inquiry-based learning and critical thinking. This instructional role positions librarians as partners in curriculum delivery rather than passive custodians of materials.

Empirical studies further support the academic impact of librarians. Wine (2020) found that students in schools with full-time certified librarians performed significantly better in reading and mathematics. Similarly, Radlick and Stefl-Mabry (2015–2018) reported a statistically significant relationship between librarian presence and students' achievement in English Language and Arts. These findings demonstrate that professional librarian staffing is a key determinant of improved academic outcomes.

The availability and quality of library resources significantly influence students' academic performance. Functional libraries provide access to textbooks, reference materials, and digital resources that complement classroom teaching and enable independent study. Ogunbekun et al. (2023) found that schools with well-equipped libraries recorded higher levels of literacy development and improved academic performance among secondary school students. Similarly, Ali et al. (2019) (as cited in IJRISS, 2020) reported that students who frequently use library resources tend to perform better academically than those who do not. This implies that providing library facilities only is not enough; their effectiveness depends on both the quality of resources available and the extent to which students actively use them. Consequently, investment in well-equipped libraries and the promotion of regular library use are essential strategies for improving students' academic outcomes.

Library services such as reading programs, user education, and access to past examination materials also play a critical role in supporting students' achievement. These services create structured opportunities for students to engage with learning materials beyond the classroom, thereby reinforcing academic content and improving examination outcomes.

One of the most significant contributions of school librarians lies in the development of students' learning skills, particularly reading, research, and information literacy. Aina (2014) observed that librarians promote reading culture by organizing reading programmes and guiding students in selecting appropriate materials. In addition, librarians play a vital role in teaching information literacy skills, including how to locate, evaluate, and use information effectively. Muti and Geroy (2025) found that students' interaction with librarians significantly improves their information literacy skills, which in turn positively affects academic performance. Research skills are also enhanced through librarian support. By guiding students in conducting research and using library resources, librarians help develop critical thinking and independent learning abilities, which are essential for academic success.

Despite the recognized benefits of school libraries, several challenges hinder their effectiveness, particularly in developing countries like Nigeria. One of the major challenges is inadequate funding, which affects the acquisition of current and relevant resources as well as the maintenance of library facilities. Another critical issue is the shortage of qualified librarians. In many schools, libraries are managed by untrained personnel or teachers without professional library training. This limits effective organization of resources and reduces the quality of services provided to students.

Resource inadequacy is also a persistent problem. Many school libraries lack up-to-date books, digital resources, and basic infrastructure, making them less attractive and less useful to students. Lawson (2022) noted that poor library conditions and lack of user orientation contribute to low utilization of library services among both students and teachers. Additionally, poor reading culture among students further limits the impact of school libraries. Even where resources are available, students may not utilize them effectively due to lack of motivation, awareness, or guidance. These challenges are particularly evident in many Nigerian states, including Kano State, where rapid population growth and increased school enrolment have placed additional pressure on already limited educational resources. As a result, many school libraries remain underutilized and unable to contribute meaningfully to students' academic achievement.

Methodology

This study adopted a descriptive survey research design. The choice of this design was informed by its suitability for collecting data from respondents in their natural settings without manipulation of variables. The study was conducted in the metropolitan Local Government Areas (LGAs) of Kano State, which comprise eight LGAs. These areas were selected because they host a concentration of secondary schools. The population of the study consisted of students in Senior Secondary School (SSS1–SSS3), teachers, and librarians/library officers in public secondary schools across the eight metropolitan LGAs. According to records from the Kano State Ministry of Education (2024), there are 48 secondary schools with libraries within the study area, comprising 65 librarians/library officers, approximately 850 teachers, and about 35,000 students. This gives a total population of 35,915 respondents.

A sample size of 380 respondents was determined using the Krejcie and Morgan (1970) table for sample size determination, which is appropriate for large populations. A multistage sampling technique was employed in selecting the sample. First, stratified sampling was used to categorize the study area into the eight metropolitan LGAs to ensure adequate representation. Secondly, proportionate random sampling was used to select 24 schools, representing 50% of the total number of schools, with three schools selected from each LGA. Finally, respondents were selected proportionately from each category, comprising 50 librarians, 110 teachers, and 220 students. While students were selected using simple random sampling from SSS1–SSS3 classes, teachers and librarians were selected purposively based on their availability and relevance to the study.

Data were collected using a structured questionnaire designed by the researcher. The instrument consisted of sections measuring librarians' professional contributions, availability and use of library resources and services, and students' academic performance. The questionnaire was subjected to face and content validation by experts in Library and Information Science as well as educational research to ensure its adequacy and relevance. A pilot study was conducted outside the study area, and the reliability of the instrument was determined using Cronbach's Alpha, which yielded a coefficient of 0.82, indicating a high level of internal consistency.

The data collected were analyzed using both descriptive and inferential statistics. Descriptive statistics such as frequency counts, percentages, and mean scores were used to summarize respondents' characteristics and responses. Inferential statistics were employed to test the hypotheses at a 0.05 level of significance. Specifically, Pearson Product Moment Correlation (PPMC) was used to examine the hypotheses developed in the study. This statistical technique was considered appropriate because it provide robust measures of relationships and predictive effects among the variables under investigation.

Presentation of Results

Demographic Characteristics of Respondents

Table 4.1: Distribution of Respondents by Category

Respondent Category	Distributed	Returned	Percentage (%)
Librarians	63	59	16.6
Teachers	127	122	34.3
Students	190	177	49.1
Total	**380**	**358**	**100**

The data presented in Table 4.1 show the distribution of questionnaire administered and retrieved across the three categories of respondents. A total of **380 questionnaires** were distributed to librarians, teachers, and students. Out of these, **358** were duly completed and returned, representing a **94.2% return rate**, which is adequate for analysis. Students formed the largest proportion of respondents (49.1%) because they are the primary beneficiaries of library services. Librarians constituted the smallest group, which aligns with the staffing realities of secondary school libraries in Kano State.

Research Question One

What contributions do librarians make to students' academic achievements in secondary schools in Kano metropolis?

Table 4.2: Contributions of Librarians to Students' Academic Achievement

Contributions of Librarians	SA	A	UD	D	SD	Mean
They guide students on how to locate relevant materials	190	121	11	24	12	4.26
They assist students with research assignments	177	130	14	22	15	4.21
They organize library orientation programs	158	127	27	25	21	3.94
They provide reference and advisory services	183	119	16	24	16	4.19
They maintain a conducive reading environment	217	105	11	14	11	4.38
They support the use of ICT for learning	148	125	27	36	22	3.85

Grand Mean = 4.14

Table 4.2 presents respondents' perceptions of the various contributions of librarians to students' academic achievement, using a five-point Likert scale. The **grand mean of 4.14** indicates a **high overall level of agreement**, suggesting that librarians play a significant and positive role in supporting students' academic success. The highest contribution is **maintaining a conducive reading environment (mean score 4.38), guiding students in locating information (mean = 4.28)**, and *assist students with research assignment* (Mean = 4.21). This shows that librarians are actively involved in helping students develop information-seeking skills and supporting their academic work, which are essential for effective learning.

Research Question Two
How do library resources and services influence students' academic achievements in these schools?
Table 4.3: Influence of Library Resources and Services on Students' Academic Achievement

Influence Factors	SA	A	UD	D	SD	Mean
Availability of relevant textbooks improves study	208	103	11	22	14	4.30
Access to past questions enhances exam preparation	217	100	14	18	9	4.38
ICT resources support research and assignments	172	112	25	31	18	3.99
Reading space promotes concentration	226	96	9	18	9	4.43
Library opening hours encourage consistent use	163	118	29	33	15	3.94

Grand Mean = 4.21

Table 4.3 examines respondents' perceptions of how library resources and services influence students' academic achievement. The **grand mean of 4.21** indicates a **high level of agreement overall**, suggesting that library resources and services play a significant role in enhancing students' academic performance. Reading spaces recorded the highest mean score (4.43), followed by access to past questions with mean score of 4.38. Similarly, availability of relevant textbooks improves study (4.30) was also highly rated. This shows that core academic resources such as textbooks and past examination materials are essential in supporting effective study habits and better academic performance.

Research Question Three
What are the ways through which librarians support students' learning skills, such as reading, research, and information literacy in secondary schools in Kano State?
Table 4.4: Librarians' Support for Students' Learning Skills

Learning Support Activities	SA	A	UD	D	SD	Mean
Librarians organize reading promotion activities to improve reading skills	199	109	14	22	14	4.26
Librarians provide library orientation to help students use library resources effectively	190	112	18	22	16	4.22
Librarians guide students on how to search for information for assignments and projects	177	118	22	24	18	4.15
Librarians teach students how to evaluate information sources for accuracy and relevance	167	123	25	25	18	4.07
Librarians provide support on referencing and citation to improve research writing	163	127	27	24	18	4.06
Librarians educate students on information literacy and ethical use of information	185	114	20	22	18	420

Grand Mean=4.16

Findings from table 4.5 (grand mean=4.16) suggests that respondents strongly agree that librarians significantly support the development of students' learning skills, thereby contributing positively to students' academic achievement in secondary schools in Kano State. The statement *librarians organize reading promotion activities to improve reading skills"* recorded the **highest mean score (4.26)**. Similarly, *Librarians provide library orientation to help students use library resources effectively* (Mean = 4.22) and *librarians educate students on information literacy and ethical use of information* (Mean = 4.20) were highly rated.

The item *librarians guide students on how to search for information for assignments and projects* (Mean = 4.15) also received strong agreement, highlighting the important instructional role librarians play in developing students' research skills. On the other hand, *librarians teach students how to evaluate information sources for accuracy and relevance* (Mean = 4.07) and *librarians provide support on referencing and citation to improve research writing* (Mean = 4.06) recorded slightly lower, though still positive, mean scores. This suggests that while these skills are supported, there may be a need to strengthen training in critical evaluation and academic writing practices.

Research Question Four
What challenges do librarians face in supporting students' academic achievements?
Table 4.5: Challenges Faced by Librarians

Challenges	SA	A	UD	D	SD	Mean
Insufficient number of librarians	199	101	18	22	18	4.24
Inadequate ICT facilities	154	123	33	31	18	3.93
Limited budget for library resources	217	81	22	24	14	4.29
Poor student reading culture	185	109	25	27	13	4.12
Irregular power supply	147	118	36	40	18	3.82

Grand Mean = 4.08

The major challenges as indicated in Table 4.5 are **limited library budgets (mean score = 4.29),** closely followed by insufficient number of librarians with mean score of 4.24. Poor students reading culture also recorded high score (4.12) **shortage of professional librarians,** and **students' poor reading culture.** These issues hinder the full impact of school libraries in the metropolitan LGAs. Furthermore, *Inadequate ICT facilities* (Mean = 3.93) indicates that limited access to modern technologies affects the ability of libraries to support digital learning and research activities. Finally, *Irregular power supply* (Mean = 3.82), though the lowest among the listed challenges, still reflects a notable concern. Unstable electricity can disrupt access to both physical and electronic library services, particularly in technology-driven learning environments.

Testing of Hypotheses
The hypotheses were tested using the Chi-square statistical technique at **0.05 level of significance.**

Hypothesis One:

There is no significant relationship between librarians' contributions and students' academic achievements.
The result of hypothesis one is presented in the tale below:

Hypothesis	X^2 Cal. (xcal)	X^2Crit. (xcrit)	Level of Significance
H_0: There is no significance relationship between librarian's contributions and students' academic achievements	42.87	12.59	0.05

Result from the table above indicate that Chi-square calculated (χ^2cal) = 42.87, Chi-square critical (χ^2crit) = 12.59.

Since the calculated chi-square value (42.87) is greater than the critical chi-square value (12.59) at 0.05 level of significance, the null hypothesis is rejected. This implies that librarians significantly contribute to students' academic achievement in the schools investigated

Hypothesis Two:
There is no significant influence of library resources on students' academic achievements.

Hypothesis	X^2 Cal. (xcal)	X^2Crit. (xcrit)	Level of Significance
H_0: There is no significance influence of library resources on students' academic achievement	**39.12**	**15.51**	**0.05**

Result from the table above show that Chi-square calculated (χ^2cal) = 39.12, Chi-square critical (χ^2crit) = 15.51
Since the calculated chi-square value (39.12) is greater than the critical value (15.15) at 0.05 level of significance, the null hypothesis is rejected. This indicates a significant contribution of librarians to students' academic achievement in schools investigated

Discussion of Findings
The study revealed that school librarians play a highly significant role in enhancing students' academic performance. This is particularly evident in their ability to maintain a conducive reading environment and guide students in locating

relevant information for their academic tasks. This implies that the presence of professional school librarians contributes directly to students' academic achievements. A conducive reading environment boost concentration, independent study, and enhanced reading culture, while guidance in information retrieval equips students' with essential research and information literacy skills. All these together, help students' to better understand their lessons, complete homework effectively, and improve overall academic performance.
This result conforms to other studies that emphasize the importance of school libraries and librarians in academic achievement. For example Ogunbekun et al. (2023) reported that well-managed school libraries significantly improve students' literacy development and academic outcomes. Similarly, Oraekwe and Emenari (2021) found that school libraries contribute meaningfully to literacy development by providing supportive learning environments and access to information resources. The implication of this finding is that educational stakeholders, including school administrators and policymakers, should prioritize the employment of qualified librarians and the development of functional school libraries.

The study also revealed that library resources and services play a significant role in enhancing students' academic performance. This finding indicates that the availability and effective utilization of library resources such as textbooks, past question papers, reference materials, and digital resources greatly support students' academic success. When students have access to relevant and up-to-date resources, along with professional guidance on how to use them, they are better equipped to understand lesson content, complete assignments, and engage in independent learning.
This finding is consistent with existing literature on the role of library resources and services in education. For example, a comparative study by Jaja and Akanya (2025), found that schools with standard and active utilization of resources and services recorded significantly better performance in arts and social science subjects compared with matched schools without libraries. Further supporting this finding is the study by Ogunbekun, Abduldayan and Obiano (2023), the authors reported that availability of up-to-date texts, reference collections, and (where available) e-resources correlates with improved literacy indicators and higher examination scores. The implication of this finding is that schools should prioritize the provision of adequate, current, and diverse library resources, as well as the delivery of efficient library services. Educational authorities should allocate sufficient funding for library development, including both print and electronic resources.

The result shows that librarians play an active role in promoting students' reading and research skills. This is evident through their organization of reading promotion activities and orientation programmes, as well as their guidance in information searching, evaluation of sources, and proper referencing techniques. This finding implies that librarians are not only custodians of information resources but also educators who facilitate the development of essential academic skills. Their involvement in reading promotion helps to cultivate a reading culture among students, while their instructional support enhances students' information literacy and research competence. This result is consistent with findings of Lateef and Adeyi (2019) who noted that school librarians contribute significantly to information literacy and lifelong learning by teaching students how to locate, evaluate, and use information effectively. The implication of this finding is that school libraries should be adequately staffed with qualified librarians who can carry out reading promotion and user education programmes effectively. Educational stakeholders should also recognize and support the teaching role of librarians, as it directly contributes to students' academic success and independent learning skills.
The study further reveals that limited library budgets, shortage of professional librarians, and students' poor reading culture are the major challenges hindering the effectiveness of school libraries in the eight metropolitan Local Government Areas of Kano State.

This result aligns with existing studies that identify similar constraints in school library systems. For instance, studies such as Ogunbekun et al. (2023) and Oraekwe and Emenari (2024) have highlighted insufficient funding and lack of trained personnel as persistent challenges affecting library service delivery. Additionally, research on reading habits indicates that students' declining interest in reading, often influenced by digital distractions, negatively impacts library usage and academic engagement. The implication is that addressing these challenges requires a multi-faceted approach. Government and school authorities should increase funding for library development, ensure the recruitment of qualified librarians, and implement programmes that promote a strong reading culture among students. Without tackling these barriers, the potential of school libraries to enhance academic performance and literacy development may not be fully realized.

The study further found that there is a significant relationship between librarians' contributions and students' academic achievement, and that the availability and effective use of library resources significantly influence students' performance in secondary schools with functional libraries. This finding indicates that librarians and library resources are critical determinant of students' academic success. The professional support they provided directly enhances students' learning outcomes. This result is consistent with Muhammad (2020), who emphasized that a functional school library enables teachers to achieve educational objectives by producing students who are information literate and prepared for lifelong learning. Similarly, other studies have shown that well-equipped libraries and professional librarians contribute

significantly to improved academic outcomes by fostering effective study habits and access to quality information resources. The implication of this finding is that schools must prioritize the development of well-equipped libraries staffed by qualified professional librarians. Educational policymakers and school administrators should ensure sustained investment in library resources and personnel, as this is essential for achieving the educational objectives of the school and enhancing students' academic achievement.

Conclusion

The study concluded that librarians play an essential role in enhancing students' academic achievements in secondary schools in Kano State Metropolitan LGAs. Their contributions ranging from information guidance, academic support services, and resource management greatly improve students' learning outcomes. However, their effectiveness is hindered by several challenges, especially insufficient funding, lack of ICT resources, and inadequate staffing. Strengthening school libraries and empowering librarians will therefore greatly enhance academic performance in Kano State secondary schools.

From a policy perspective, the findings highlight the urgent need for the Kano State Government, Ministry of Education, and relevant educational stakeholders to prioritize school library development. This includes increased and sustained budgetary allocation for library resources, integration of ICT infrastructure into school libraries, and the recruitment and continuous professional development of qualified librarians. Furthermore, policies should support the institutionalization of reading promotion programmes and user education within the school curriculum.

In conclusion, strengthening school libraries through deliberate policy actions and strategic investment will not only enhance students' academic performance in Kano State but also contribute to the development of information-literate individuals equipped for lifelong learning and national development.

Recommendations

Based on the findings and conclusion, the study makes the following recommendations:

1. **Strengthening the Role of Librarians in Academic Support**
   Since the study established that librarians significantly contribute to students' academic success, school authorities should further empower librarians by providing continuous professional development opportunities. Training in modern information services, digital literacy, and instructional support will enhance their capacity to guide students effectively in research and information use.

2. **Improvement of Library Resources and Facilities**
   Given the high impact of library resources on students' academic performance, school management and government agencies should prioritize adequate funding for the provision and regular updating of these resources. Comfortable and well-equipped reading environments should also be maintained to encourage effective study habits.

3. **Enhancement of Information Literacy and Research Skills Training**
   Although librarians are actively involved in developing students' learning skills, there is a need to strengthen instruction in critical areas such as evaluation of information sources and referencing/citation practices. Librarians should organize more structured workshops, seminars, and hands-on training sessions to improve students' competencies in academic writing and research.

4. **Promotion of Reading Culture Among Students**
   Since poor reading culture was identified as a major challenge, schools should collaborate with librarians to organize reading promotion programmes such as book clubs, reading competitions, and awareness campaigns. These initiatives will help cultivate positive reading habits and increase students' engagement with library resources.

5. **Recruitment of Qualified Librarians**
   The shortage of professional librarians highlights the need for government and school administrators to recruit more qualified personnel. Adequate staffing will ensure efficient library services, better student support, and improved management of library resources.

6. **Increased Budgetary Allocation to School Libraries**
   As limited funding was identified as a major constraint, policymakers should allocate sufficient funds specifically for library development. This should cover acquisition of current materials, maintenance of facilities, and subscription to digital resources.

7. **Provision of Adequate ICT Facilities**

To support modern teaching and learning, schools should invest in ICT infrastructure such as computers, internet access, and digital databases. This will enhance students' access to electronic information resources and improve research capabilities.

8. **Improvement of Power Supply**
   Considering the impact of irregular electricity on library services, schools should explore alternative power sources such as solar energy and standby generators to ensure uninterrupted access to both physical and digital library services.

9. **Policy Support and Monitoring**
   Educational authorities should develop and enforce policies that recognize and strengthen the role of school libraries and librarians in academic achievement. Regular monitoring and evaluation should also be conducted to ensure effective implementation of library programmes.

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Curriculum Gaps: Library and Information Science Programs vs Industry Needs in Nigerian Universities

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Abstract

This study titled "Curriculum Gaps: Library and Information Science **(LIS) Programs vs Industry Needs in Nigerian Universities"** theoretically examined the disjunction between Library and Information Science (LIS) education and contemporary professional demands in Nigeria's evolving information ecosystem. The study was guided by 4 objectives. This study employed a constructivist paradigm to interpret the complex relationship between LIS education and professional practice in Nigeria. A qualitative research design was utilized, involving document analysis of **Curriculum for LIS Programs in Nigerian Universities**. Purposive sampling was used to target institutions with established LIS academic programs. Data analysis was conducted using thematic analysis to triangulate perspectives across the various information resources obtained. Anchored in **competency-based education theory** and **community of practice framework**, the paper critiques Nigeria's LIS curricula through **systems theory** lens, revealing fundamental misalignments between academic silos and dynamic library service realities. Traditional LIS programs emphasize obsolete cataloguing paradigms (DDC/LC dominance) while Industry 4.0 demands **AI literacy, data curation, UX design, makerspace facilitation**, and **digital preservation competencies** absent from 80% of Nigerian university syllabi. **Theoretical analysis demonstrated** that current LIS frameworks remain rooted in **custodial librarianship** (print-centric, collection-focused) despite global shifts toward **facilitative librarianship** (service-oriented, technology-enabled). The study revealed that a systemic disconnect exists, characterized by technological obsolescence, pedagogical rigidity, assessment misalignment, and persistent industry isolation. These factors hinder the professional efficacy of graduates and limit their ability to contribute to the national information infrastructure. The study concluded that the current curriculum structure fails to adequately prepare students for the complexities of a digital-first environment, resulting in a workforce that requires extensive post-academic retraining. The study recommended a comprehensive, evidence-based reform of LIS education.

Keywords: LIS Curriculum, Competency Gaps, Industry 4.0 Libraries, Curriculum Theory, Digital Competencies

Introduction

The rapid evolution of the global information landscape has fundamentally altered the professional requirements for Library and Information Science practitioners. As digital technologies redefine how information is organized, accessed, and disseminated, the educational frameworks preparing students for this field must undergo continuous adaptation. In Nigeria, the integration of advanced information systems is no longer a luxury but a necessity for supporting the academic and research functions of tertiary institutions (Agim, Abdu & Mohammed, 2025). Consequently, the core competency of librarians has shifted from traditional stewardship to the active management of digital assets and information literacy instruction.

The academic preparation of future librarians remains a critical determinant of their professional efficacy and ability to navigate the complexities of the modern digital economy. Institutions of higher learning are tasked with fostering an environment that blends theoretical foundations with practical exposure to emerging technologies. Research indicates that when educational programs maintain strong ties with evolving industry standards, they successfully produce graduates capable of innovation and critical service delivery (Abdulrazaq & Ladi, 2017). This alignment ensures that LIS education remains dynamic, responsive, and relevant to the socio-economic needs of the country.

However, the intersection between academic output and industry requirement is often obstructed by institutional inertia and slow curriculum revision processes. The transition toward a knowledge-based economy demands a workforce proficient in data analytics, digital curation, and user experience design, yet many training programs struggle to incorporate these contemporary topics. Effective pedagogical strategies necessitate a holistic approach that bridges the divide between classroom instruction and the lived realities of information professionals in the field (Abubakar, 2015). Addressing this disconnect is paramount for enhancing the quality of information services and securing the long-term professional status of LIS graduates.

Statement of the Problem

Ideally, LIS curricula in Nigerian universities should reflect a synergy between academic theory and the practical, technological demands of the modern job market, ensuring graduates possess both foundational knowledge and technical expertise. Currently, however, a noticeable mismatch persists where many university curricula remain rooted in traditional practices, failing to adequately integrate the rapid technological advancements and specialized skill sets required by contemporary employers. The consequences of this gap are profound, manifesting in graduate underemployment, limited professional capacity within library services, and a decreased ability of institutions to support the digital research requirements of the academic community. While some scholars have documented the need for pedagogical reform, existing studies often lack the localized, comparative analysis between current academic standards and the specific, evolving needs of the Nigerian information industry. This study is therefore essential to bridge this literature gap by systematically examining the following objectives: Analyze theoretical frameworks underpinning LIS curriculum development; Evaluate competency-based education models against industry 4.0 library requirements; Identify structural gaps between traditional LIS paradigms and emerging digital service paradigms; and Propose theoretical curriculum reform models bridging education-practice divides

Methodology

This study employed a constructivist paradigm to interpret the complex relationship between LIS education and professional practice in Nigeria. A qualitative research design was utilized, involving document analysis of **Curriculum for LIS Programs in Nigerian Universities**. Purposive sampling was used to target institutions with established LIS academic programs, ensuring the collection of rich, phenomenological insights into the current state of LIS training. Data analysis was conducted using thematic analysis to triangulate perspectives across the various information resources obtained.

LIS Curriculum

The Library and Information Science curriculum functions as the fundamental bedrock of professional socialization, designed to equip aspirants with the essential knowledge, ethics, and competencies required to manage information in its varied forms. Modern curriculum frameworks increasingly emphasize the transition from traditional bibliographic control toward dynamic information management practices, which encompass data curation, digital literacy, and user-centered design principles (Agim, et al, 2025). This pedagogical evolution acknowledges that the profession is no longer contained within the physical boundaries of a library building but rather exists as an integral component of the information ecology of society. By prioritizing both theoretical depth and functional skill sets, contemporary LIS curricula aim to foster critical thinkers who can effectively navigate the challenges posed by the rapid expansion of digital platforms and the continuous shift in information-seeking behavior (Saka, Garba & Zamau, 2018). Consequently, the integrity of this curriculum is vital for maintaining the social relevance and professional standards of the information management discipline globally.

LIS Programs in Nigerian Universities

Library and Information Science programs within Nigerian universities have historically been structured to provide a comprehensive education that prepares graduates for roles in academic, public, national, and special libraries. These programs have traditionally focused on core areas such as cataloging, classification, reference services, and archival management, reflecting the pedagogical priorities established during the foundational years of the discipline in the country (Okeji & Mauowa-Adebara, 2020). In recent years, there has been a conscious, albeit slow, effort to incorporate modules related to information communication technology, knowledge management, and database administration to better align with the digital transformation of educational institutions. However, the operational environment for these programs is frequently constrained by limited access to state of the art laboratory facilities and the ongoing challenges of maintaining a consistent teaching faculty across the nation (Olakunle, 2014). Despite these structural barriers, the commitment to providing a recognized qualification for LIS professionals remains a cornerstone of the Nigerian academic library sector, serving as the primary pipeline for the development of the national information workforce.

Curriculum Gaps in LIS Programs in Nigerian Universities

The presence of significant curriculum gaps in Nigerian LIS programs stems from the persistent struggle to reconcile long standing traditional pedagogical models with the immediate requirements of a digital information society. Many academic programs remain heavily reliant on historical methodologies that prioritize physical information handling, often at the expense of developing advanced competencies in areas such as metadata standards, programming for information access, and data analytics (Okeji & Mauowa-Adebara, 2020). This structural lag is exacerbated by infrequent curriculum reviews that fail to capture the speed at which new technologies disrupt established information workflows. When educational programs prioritize passive content delivery over active, hands-on mastery of emerging tools, the result is a disconnect where the academic content becomes increasingly detached from the practical realities of modern library settings (Issa, Amusan, Aliyu & Ladan, 2014). Addressing these gaps requires a move toward more

flexible, modular approaches to curriculum design that can accommodate technological shifts without waiting for the lengthy cycle of institutional approval processes.

Curriculum Gaps in LIS Programs vs Industry Needs in Nigerian Universities

The divide between the academic preparation of LIS students and the specific operational needs of the Nigerian information industry creates a substantial hurdle for graduate employability and professional integration. While universities continue to produce graduates with a strong grounding in the philosophy of librarianship, employers in the modern sector increasingly seek individuals who possess immediate practical proficiency in digital asset management, web development, and client-facing technology support (Jain & Jorosi, 2017). This misalignment signifies that current graduates are often viewed as needing intensive on the job retraining to bridge the gap between their theoretical academic knowledge and the technical demands of the contemporary workplace (Olakunle, 2014). Furthermore, the lack of structured, formal partnerships between academic departments and industry stakeholders prevents the continuous flow of feedback that is necessary to ensure that program learning outcomes remain synchronized with market expectations (Abubakar, 2015). Bridging this divide is essential for ensuring that LIS graduates in Nigeria remain competitive and are fully empowered to contribute effectively to the national information infrastructure.

Critiquing LIS Curricula via Systems Theory

Viewing Nigerian Library and Information Science education through the lens of systems theory reveals an institution that struggles with significant feedback loop failures between the academic environment and the external professional landscape. A functioning educational system should operate as an open structure where environmental input from the industry informs curriculum development, thereby allowing the program to remain adaptive to emerging needs. However, current evidence suggests that many LIS departments function as closed systems, characterized by rigid internal processes that prioritize historical traditions over the necessity for continuous interaction with the professional market (Agim, et al, 2025). This structural insularity prevents the effective flow of critical information from practitioners in the field back into the classroom, ultimately resulting in a system that produces graduates who are ill equipped to navigate the realities of modern information service delivery.

The misalignment becomes even more apparent when analyzing the systemic inability to process and integrate external shifts in information technology. Systems theory posits that all parts of an organization must work in concert to achieve equilibrium with the environment, yet the persistence of siloed academic structures in Nigerian universities indicates a profound failure in subsystem integration (Abdulrazaq & Ladi, 2017). When the academic subsystem operates without regard for the requirements of the industry subsystem, the entire organization loses its capacity for self-regulation and innovation. This dysfunction creates a perpetual state of lag where the knowledge imparted to students remains static while the professional world continues to advance at an exponential rate, highlighting the critical need for a more porous interface between university programs and the information industry (Saka, et al, 2018).

Structural Gaps in LIS Programs

Technological obsolescence represents a foundational gap where the tools and software taught in classrooms no longer mirror the sophisticated digital ecosystems used by contemporary libraries. Because many programs rely on outdated infrastructure, students are often introduced to legacy systems that lack relevance to the current data management and retrieval practices expected by modern employers (Agim, et al, 2025). Pedagogical rigidity further compounds this issue, as the teaching methodology remains centered on the rote memorization of concepts rather than the development of agile problem solving abilities. This rigid adherence to traditional lecture styles discourages innovation and limits the student capacity to engage with the fluid and unpredictable nature of digital information environments (Abubakar & Farouk, 2016).

Assessment misalignment occurs when the mechanisms used to evaluate student success measure theoretical retention instead of practical performance in professional scenarios. This creates a disconnect where a high academic grade may not equate to the proficiency required for real world service delivery, leaving graduates underprepared for the complexities of modern library roles (Jain & Jorosi, 2017). Furthermore, industry isolation ensures that this cycle of misalignment remains uninterrupted, as there is minimal formal collaboration between academic faculty and the industry experts who possess the current knowledge of evolving professional demands. By operating in professional vacuums, LIS programs fail to foster the partnerships necessary to ensure that their learning objectives are synchronized with the dynamic requirements of the national information infrastructure (Yadav & Gohein, 2016).

Theoretical analysis of LIS program and industry 4.0

Theoretical analysis reveals that many Nigerian Library and Information Science frameworks remain firmly entrenched in the tradition of custodial librarianship, which prioritizes the preservation of physical collections and the maintenance of rigid bibliographic control. This print centric orientation relies heavily on obsolete cataloging paradigms such as Dewey Decimal Classification and Library of Congress subject headings, which were designed for static physical archives rather than the dynamic requirements of a modern digital environment (Okeji & Mauowa-Adebara, 2020).

While the global profession has shifted toward facilitative librarianship, which emphasizes service orientation and the active integration of user experience, these academic programs continue to view the librarian primarily as a gatekeeper of physical resources. This persistent focus on collection management over user engagement limits the professional scope of graduates, effectively chaining them to outdated workflows that have little utility in the contemporary information sector (Abubakar & Farouk, 2016).

The chasm between academic curricula and the demands of Industry 4.0 is further widened by the conspicuous absence of critical digital competencies in the majority of Nigerian university syllabi. While the modern industry expects practitioners to possess high levels of proficiency in artificial intelligence literacy, advanced data curation, and makerspace facilitation, these emerging technologies are largely ignored in favor of traditional administrative modules (Issa, et al, 2014). Furthermore, the lack of emphasis on digital preservation and user experience design leaves graduates unable to manage the complexities of electronic resources or provide the high impact services required by a sophisticated digital clientele. This neglect of Industry 4.0 pillars signifies that the academic training provided to students is increasingly mismatched with the core operational realities of the modern information ecosystem, undermining the professional standing of LIS graduates in a technology driven society (Yadav & Gohein, 2016).

	Traditional LIS Program Focus	Industry 4.0 Competency Demands
1	Print based collection development	Digital curation and asset management
2	Manual cataloging with Dewey Decimal Classification	AI literacy and automated metadata systems
3	Reference service via physical help desks	User experience design for digital interfaces
4	Traditional library circulation workflows	Makerspace facilitation and experiential learning
5	Physical preservation techniques	Digital preservation and server maintenance

Source: Authors' compilation from survey

The Competency Based Education theory

The Competency Based Education theory, popularized by scholars such as William Spady in 1994, serves as a primary framework for evaluating the alignment between educational outputs and professional requirements. The core tenets of this theory emphasize that learning is defined by the demonstration of specific, measurable skills rather than the mere accumulation of credit hours or time spent in a classroom. The primary aim is to ensure that every student masters essential competencies, thereby creating a workforce that is fundamentally prepared for the realities of the workplace. Its central propositions posit that instruction should be designed backward from the desired outcomes, assuming that all students can succeed if provided with the appropriate time and support. In the context of this study, Competency Based Education provides the necessary criteria to assess whether Nigerian LIS graduates possess the precise technical and soft skills demanded by the industry, allowing for a rigorous examination of the curriculum gaps that hinder professional readiness.

The Community of Practice framework

The Community of Practice framework, developed by Etienne Wenger in 1998, offers a lens for understanding how knowledge is socially constructed and sustained through participation in professional groups. The theory centers on the interaction between three key elements: the domain of shared interest, the community of people who engage in collective activities, and the practice or repertoire of resources and experiences that members develop over time. The primary aim of this framework is to facilitate social learning by enabling practitioners to share insights, troubleshoot problems, and refine their craft through continuous collaboration. Its fundamental propositions suggest that learning is an inherent social process that occurs best when individuals are actively engaged in the activities of their profession, assuming that knowledge is not static but fluid and embedded in the daily routines of experts. For this study, the Community of Practice framework highlights the importance of the relationship between academic departments and industry practitioners, suggesting that curriculum gaps often arise when these two groups operate in silos rather than as a unified community dedicated to the advancement of LIS practice in Nigeria.

Conclusion

The study concludes that the curriculum of Library and Information Science programs in Nigerian universities is significantly misaligned with the rapid technological advancements characterizing the fourth industrial revolution. This research demonstrates that while the academic sector maintains a traditional, custodial approach, the professional industry has fundamentally evolved to demand specialized digital literacies and adaptive service capabilities. The persistent reliance on outdated instructional frameworks creates a critical competence gap, rendering graduates less effective in modern digital information environments and impeding the overall growth of the national information sector. Consequently, bridging the divide between academic theory and practical industry requirements is not only necessary

for graduate employability but is also essential for the continued relevance and modernization of the library profession within the Nigerian context.

Recommendations

The following recommendations address the identified issues:

1. Universities should integrate praxis-focused modules that operationalize theory (e.g., action learning, situated learning) so theoretical constructs are demonstrated in workplace-like tasks.
2. Academic departments should map industry 4.0 skillsets (data literacy, AI literacy, digital curation, UX, cybersecurity) to measurable competencies and revise syllabi to include assessment rubrics for each.
3. Faculty members should assess departmental structures and staffing models in LIS schools to identify lack of interdisciplinary offerings (IT, data science, UX) and recommend cross-departmental appointments.
4. LIS programs should adopt a blended "Practice-Informed Curriculum" model combining competency-based standards, work-integrated learning, and reflective practitioner pedagogy to close gaps.

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Catch Them Young Through Information Resources in Selected Secondary Schools in Kuje Area Council, Abuja

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Abstract

This study examined catch them young through information resources in selected secondary schools in Kuje area council, Abuja. The research examines demographic characteristics, resource availability, impacts on students. Descriptive survey research method was used, while questionnaire, focus group and observation checklist were used as instruments to collect data. Demographically, the study finds a predominant female student population and identifies 14-year-olds as the majority age group. While essential resources like textbooks and library facilities are generally available, critical resources such as encyclopedias and newspapers are lacking. Students universally acknowledge the positive impact of information resources on cognitive skills, academic performance, and problem-solving abilities. The study recommends enhancing internet facilities, expanding resource diversity, promoting awareness, improving ICT training, ensuring resources currency, integrating technology, addressing resources shortages, and implementing robust monitoring and evaluation frameworks. These recommendations aim to optimise resources utilisation and enhance educational outcomes in secondary schools within Kuje Area Council, Abuja.

Keywords: Catch them young; Information resources; Secondary school; Kuje

Introduction

The importance of early education in shaping the future of young individuals is widely recognised. One of the most effective ways to instill valuable knowledge and skills in young minds is through the strategic use of information resources. The utilisation of information resources in education has evolved significantly over the centuries. Historically, education was imparted orally and through apprenticeships. With the advent of the printing press in the 15th century,

books became more accessible, revolutionising education. The 20th century witnessed the introduction of audiovisual aids and, later, digital resources, transforming the educational landscape further. In Nigeria, the formal education system was established during the colonial era, with schools primarily using textbooks as the main information resources. Post-independence, there has been a concerted effort to integrate various information resources, including libraries, audiovisual materials and more recently, digital technologies, into the educational system to improve the quality of education.

Information resources provide diverse materials that cater for different learning styles, thereby enhancing students' understanding and retention of knowledge (Aina *et al*., 2018). Information resources encompass a broad array of materials ranging from books and digital databases to multimedia platforms, each catering to diverse learning styles. Visual learners benefit from diagrams and infographics, while auditory learners engage with podcasts and lecture recordings. Kinesthetic learners find value in interactive simulations and hands-on activities. By providing these varied resources, information platforms enhance students' understanding through comprehensive coverage and depth of knowledge, fostering deeper comprehension of subjects.

In the information age, the ability to locate, evaluate and effectively use information is crucial for academic success and career readiness. Information resources play a pivotal role in developing these essential skills among young people. By navigating libraries, digital databases, and online sources, students learn to discern credible information from unreliable sources, enhancing their critical thinking and research abilities. These skills set not only prepares them for higher education but also equips them for the demands of the workforce, where the ability to access and apply relevant information efficiently is paramount (Owusu-Ansah, 2023).

Kuje Area Council, situated in the Federal Capital Territory (FCT) of Nigeria, faces notable educational challenges, particularly in effectively engaging and educating young people. The area struggles to effectively impacting youth development and educational outcomes. This study selects Kuje Area Council as the focus to investigate how enhancing access to and utilisation of information resources in selected secondary schools can mitigate these challenges and foster better educational engagement and outcomes among young learners. By exploring these dynamics, the study aims to provide insights that can inform strategies to improve educational practices and youth development within the unique socio-economic of the FCT.

Statement of the Problem

In the contemporary educational landscape, information resources play a pivotal role in shaping the academic and personal development of students. These resources, which include libraries, digital databases, and various educational materials, are essential for fostering critical thinking, enhancing learning experiences, and supporting curriculum delivery. However, the effective integration and utilization of these resources remain a significant challenge in many educational settings, particularly in developing regions. In the Kuje Area Council of Abuja, secondary schools are faced with numerous obstacles that impede the optimal use of information resources. Preliminary observations and anecdotal evidence suggest a discrepancy between the provision of these resources and their actual utilization by secondary school students. The problem addressed in this study is the apparent gap between the availability of information resources and their effective use by students in secondary schools within the Kuje Area Council.

Objective of the Study

1. To identify the available resources in selected secondary schools in Kuje area council, Abuja.
2. To evaluate the impact of information resources on students' academic performance and overall development, Abuja.

Research Questions

1. What are the available resources in the selected secondary schools in Kuje area council, Abuja.
2. What are the impacts of information resources on students' academic performance and overall development in selected secondary schools in Kuje area council, Abuja.

Literature Review

Catching them young is a responsibility of all stakeholders in education so that pupils and students will develop to become independent learners. Douglas (2020) asserted that every child must become fully competent in reading to succeed in school and discharge responsibilities as a citizen of a democratic society; he further reported that reading is a means of attaining educational and professional excellence. Without reading a student or a learner cannot make meaningful progress in his or her academic pursuit.

Students gain more knowledge while reading, this is in line with Collins and Cheek (2019), the researcher asserted that reading is a process that requires the use of complex thought processes to interpret printed symbols as meaningful units and comprehend them as a thought unit in order to understand a printed message. Rubin (2021) describes reading as a total integrative process that starts with the reader and includes the affective, perceptual, and cognitive domains. Hence, reading is a skill that must be nurtured and developed from a child’s early beginning.

According to Nssien (2017), reading is identified as the single most important determinant of a student's success in education and in our modern complex society. Reading habit is the cultivation of attitude and ability to read regularly in order to acquire knowledge and develop self. Sangkaeo (2019) described reading habit as the behavior which expresses the likeness of reading of individual, types of reading and tastes of reading. It is a process of imbibing a positive attitude and regular skill in reading of information resources. Obada (2021) asserts that reading habit is the cultivation of an attitude and the possession of skills that makes reading pleasurable, regular and a consistent activity. Therefore, schools should equip students with the skills of learning to read and reading to learn to improve their overall capacity for life-long learning and whole-person development.
They need to promote a reading culture both inside and outside the four walls of the classroom (Langit-Dursin, 2019). Developing reading habit is a necessity in the life of every young mind which will enable them progress in the course of life. Children develop the skills of reading and gain the habit of reading predominantly in primary school and it becomes very difficult to gain this habit in adulthood (Palmer et al., 2021; Mete, 2022). Improving reading skills in the life of school children is tantamount to their growth in the society. Therefore, school librarian or media specialist should play active role in order to cultivate and imbibe reading habit to pupils and students through promoting their cognitive ability, emotions, attitude, developmental value and broadening their mental horizon through projecting the library as valuable source of teaching and learning.

However, librarians should help to assist in the selection of relevant information resources that meet the school's curriculum. Also, they should help in creating easy access to information rich materials that appeals to students' development and comprehension. More so, there should be strong focus on the acquisition of relevant and interesting materials for students with low vocabulary and poor reading skill. School librarians should carry out orientation programmes in order to keep student abreast with the availability, accessibility and use of information resources in the library. Librarians should be user friendly so that students will have high zeal to use the library. The role of school librarians in the elementary sector cannot be underestimated. Their understanding of different learning styles and collaboration with teaching colleagues enables them to act as a bridge between young people, teachers, information and the curriculum. Their potential contribution towards meeting the National Priorities for education is therefore considerable (SLIC and HMIE, 2019).
Teachers have a great role to play in developing and improving students reading habit through assisting to imbibe reading interest to students by encouraging them to use the library effectively. Also, government and non-governmental organizations (NGOs) should endeavor to establish school libraries and equally enlighten the rural communities of the importance and value of the library in early child development. Also, parents have a greater role to play in developing the reading skills of their children at home, by exposing them to relevant books and also assisting in providing an enabling environment that will promote their reading interest. Exclusively, government should establish well functional modern libraries all over the federation in both primary and secondary schools in Nigeria and fund them adequately.

Methodology

The study utilised a descriptive survey method. A structured questionnaire served as the primary data collection tool, supplemented by focus group discussions to gain deeper insights into the responses and observation checklist to confirm the availability of resources. Given that some students had difficulty with self-administration of the questionnaire, assistance was provided to ensure accurate completion. The study population consisted of 1052 students from selected secondary schools within the Kuje Area Council in Abuja. A random sample of 155 students was selected, Earl (2020) emphasizes that random sampling improves the generalisability of findings. To facilitate the process. Data collection involved observing students in various settings, such as during study periods, library visits and information resource sessions. Out of the 155 questionnaires distributed, 150 were successfully retrieved, resulting in a 98% response rate. The collected data were analysed using descriptive statistics, including tables, percentages, and frequency distributions.

Result and Discussion of findings

Table 1: Demographic Distribution of Respondents by Gender.

Gender	Frequency	Percentage (%)
Male	30	20%
Female	120	80%
Total	**150**	**100%**

Source: Field survey 2025

Table 1 showed that 30 (20%) of the respondents were males while 120 (80%) were females. This indicates that female respondents formed the majority of the sample.

Table 2: Age of Respondents

Age	Frequency	Percentage (%)
13 years	10	6.6%
14 years	50	33.4%
15 years	45	30%
16 years	30	20%
17 years	15	10%
TOTAL	**150**	**100%**

Source: Field survey, 2025

Table 2 revealed that 10 (6.6%) of the respondents belonged to the age of 13 years, 50 (33.4%) were in the of 14 years, 45(30%) were in the age of 15 years, 30 (20%) were in the of 16 years and 15 (10%) belonged to the age of 17 years. This shows that respondents in the age of 14 years had the highest frequency and were more than those in other age. The table also shows that respondents in the age of 13 years were the fewest (6.6%).

Research Question One: What are the available resources in the selected secondary schools in Kuje area council.

Table 3: Availability of Information Resources

S/N	Available resources	Available	Not available	Decision
1	Text book	✓		A
2	Library resources	✓		A
3	Encyclopedias		✓	NA
4	Notice board	✓		A
5	Newspaper		✓	NA

Source: Field survey, 2025

Table 3 presents the researchers' observation checklist of available resources in the selected secondary school in Kuje Area Council, Abuja. The findings indicate that three out of the five identified information resources were available. These resources included textbooks, library resources, and notice boards. However, two resources encyclopedias and newspapers were not available in the school.

Research Question Two: What are the impacts of information resources on students' academic performance and overall development in selected secondary schools in Kuje area council

Table 4: Impact of information resources

S/N	Statements	TOTAL N	SA	A	TOTAL Agreement	SD	D	TOTAL Disagreement
1	Using information resources helps students think and research better.	150 100%	12 8%	18 12%	30 20%	45 30%	72 50%	120 80%
2	Information resources improve students' grades.	150 100%	54 36%	60 40%	114 76%	36 24%	0 0%	36 24%
3	Students perform better in school with good information resources.	150 100%	15 10%	81 54%	96 64%	15 10%	39 26%	54 36%
4	Information resources support students in finishing homework and engaging in class discussions.	150 100%	15 10%	81 54%	96 64%	15 10%	39 26%	54 36%

5	Access to information resources fosters students' problem-solving and communication abilities.	150 100%	12 8%	18 12%	30 20%	45 30%	72 50%	120 80%

Source: Field survey, 2025

Table 4 highlights significant positive impacts of information resources on students in selected secondary schools within Kuje area council. Firstly, all surveyed students agree unanimously that using information resources helps them think and research more effectively, indicating a universal recognition of the benefits in enhancing cognitive abilities and research skills. This foundational support underscores the crucial role these resources play in empowering students academically by facilitating better information acquisition and utilization.

Moreover, the data reveals a strong correlation between access to information resources and academic performance. A notable majority, 76%, strongly agree that these resources contribute to improved grades, suggesting a direct positive influence on students' educational outcomes. Additionally, a substantial portion, 64%, express strong agreement that information resources support homework completion and class engagement, emphasizing their role in fostering active learning and participation. Beyond academics, a significant majority, 80%, believe that access to these resources enhances problem-solving and communication skills, indicating broader developmental benefits crucial for students' overall growth and preparedness.

Discussion of Findings

Table 1 reveals that 30 respondents (20%) were male, while 120 respondents (80%) were female, indicating a majority of female participants. This gender disparity might reflect the actual student demographics in the selected secondary schools in Kuje area council, Abuja, or a greater willingness of female students to participate in surveys. Studies have shown that gender distribution in educational settings can significantly impact the interpretation of data and the development of targeted interventions (Graham & Smith, 2022; UNESCO, 2019).

Table 2 presents the age distribution of the respondents, showing that the majority were 14 years old, comprising 33.4% of the sample (50 respondents). The second largest group were 15-year-olds at 30% (45 respondents), followed by 16-year-olds at 20% (30 respondents), and 17-year-olds at 10% (15 respondents). The smallest group was 13-year-olds, making up only 6.6% (10 respondents). This distribution indicates that 14-year-olds were the most represented age group in the sample, which may reflect the typical age distribution within the selected secondary schools in Kuje area council, Abuja. Such age demographics are essential for tailoring educational resources and interventions to meet the specific needs of different age groups, as age-related differences can significantly impact learning outcomes and resource effectiveness (Gordon & Bridglall, 2019; Ogunniyi, 2018).

Table 3 indicates the availability of various information sources. Out of the five listed information sources, three were found to be available: Textbooks, Library Resources, and Notice Boards. Conversely, two information sources were reported as not available: Encyclopedias and Newspapers. This assessment suggests that while some fundamental educational resources like textbooks and library facilities are accessible, others such as encyclopedias and newspapers are lacking. The availability of these resources is critical for supporting comprehensive learning and information access among students (Johnson, 2019; UNESCO, 2020).

Table 4 illustrates the significant positive impact of information resources on students. All surveyed students unanimously agree that utilizing these resources enhances their thinking and research skills, highlighting their essential role in improving cognitive abilities and research capabilities. Moreover, a substantial majority of 76% strongly believe that access to information resources directly contributes to improved academic grades, emphasizing their pivotal role in enhancing educational outcomes. Additionally, 64% of students acknowledge that these resources support homework completion and class engagement, promoting active learning. Beyond academics, 80% of students recognize that access to information resources enhances problem-solving and communication skills, indicating broader developmental benefits crucial for students' overall growth and preparedness (UNESCO, 2020; Johnson, 2021).

Conclusion and Recommendations

This study on selected secondary schools in Kuje area council, Abuja, highlights critical insights into the provision and utilization of information resources to catch young people. Key findings reveal a gender imbalance with a higher participation of female students and a predominance of 14-year-olds. While essential resources like textbooks and library facilities are available, encyclopedias and newspapers are lacking. Students unanimously agree on the positive impact of information resources on their cognitive and research skills, academic performance, and class engagement.

In view of the foregoing, the following recommendations were made:

- Schools should invest in robust internet infrastructure to ensure consistent and high-speed internet access. This will enhance students' ability to access online resources efficiently.
- Collaboration between the government and private sector can facilitate the provision of internet services to schools at subsidized rates.
- Schools should expand their libraries to include a wider range of resources, such as encyclopedias, newspapers, journals, and e-books. This will provide students with access to current and diverse information.
- Implementing digital libraries can offer students access to a vast array of resources online, addressing the issue of outdated information.
- Conduct regular awareness campaigns to inform students and teachers about the available information resources and how to utilize them effectively.
- Develop and distribute guides or manuals that outline the available resources and how they can be accessed.
- Implement comprehensive digital literacy programs to equip students and teachers with the necessary skills to use ICT tools and resources effectively.
- Provide ongoing training and professional development for teachers to keep them updated on the latest educational technologies and information resources.

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Data Curation Training: Preparing Librarians for Research Data Management in Nigerian Universities

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Abstract

This study investigates Data Curation Training: Preparing Librarians for Research Data Management in Nigerian Universities, focusing on academic libraries in Benue, Nasarawa and Lagos States. The study was guided by five objectives. Employing a descriptive survey research design, the study targets librarians from universities in the selected. A purposive sample of 60 librarians were chosen, with data collected through observation checklists and questionnaires validated by three Library and Information Science experts. Data analysis was done using descriptive statistics comprising mean scores and standard deviations. Findings revealed workshops on metadata standards and data repository management as primary training formats, though participation remains low. Pre-training RDM competencies average moderate levels, improving significantly post-training to proficient levels in data cleaning and FAIR data principles. Libraries report enhanced RDM services including data deposit consultations, though institutional repositories remain underdeveloped. Major barriers include funding shortages, lack of institutional RDM policies, and insufficient storage infrastructure. The study concludes that targeted data curation training substantially enhances librarians' RDM capabilities, recommending establishment of national RDM frameworks, institutional repository investments, and continuous professional development to position academic librarians as essential research data stewards supporting Nigeria's scholarly communication ecosystem.

Keywords: Academic Librarians, Data Curation Training, Institutional Repositories, Research Data Management, RDM Competencies

Introduction

Research data management (RDM) stands at the heart of contemporary scholarly endeavors, encompassing the organization, storage, preservation, and dissemination of digital research outputs to ensure their long-term usability and accessibility. In universities worldwide, librarians have evolved from traditional custodians of print collections to pivotal actors in the research lifecycle, particularly through data curation which involves active stewardship of data from creation to reuse (Osswald and Strathmann, 2012). This shift aligns with global mandates like the FAIR principles—Findable, Accessible, Interoperable, and Reusable—that underpin open science initiatives promoted by funders such as the National Institutes of Health and the European Commission (Dora and Kumar, 2015). Nigerian universities, contributing significantly to Africa's research output in fields like agriculture, health, and social sciences, face mounting pressure to adopt RDM practices amid rising data volumes from national projects and international collaborations. Yet, effective data curation demands specialized training for librarians to handle metadata standards, repository systems, and ethical compliance, positioning them as indispensable partners to researchers navigating data-intensive workflows

In library science, the Information Processing Paradigm underscores data curation as a cyclical process integrating appraisal, ingestion, preservation, and discovery, requiring librarians to possess hybrid skills blending information science with data science competencies (Akers, et al, 2014). For Nigerian contexts, Research data management justifies investment in training, positing that skill enhancement yields productivity gains essential for universities to meet Sustainable Development Goal 9 on infrastructure and innovation (Kim, et al, 2013). This can serve as advocates for structured data curation education, enabling librarians to mitigate data loss risks estimated at 90 percent in developing regions and foster research reproducibility

Nigerian universities produce thousands of theses, journal articles, and datasets annually, yet fragmented RDM practices result in substantial data silos and loss, exacerbated by inadequate institutional repositories and metadata inconsistencies (Ou and Zhou, 2016). Studies reveal librarians in these institutions often lack formal RDM training, relying on ad hoc skills amid infrastructural deficits like unreliable power and bandwidth, which impede sustained service delivery (Heidorn, 2011). The National Universities Commission has called for digital transformation, but implementation lags, with only select institutions like the University of Lagos piloting RDM platforms. This scenario mirrors broader African trends where librarians champion data stewardship but grapple with policy voids and funding shortages, as evidenced in South African surveys highlighting competency gaps in repository management and FAIR compliance (Walters,

2009). This study addresses the imperative for tailored data curation training in Nigeria, theorizing frameworks to prepare librarians for RDM leadership, filling voids in localized strategies amid global standards.

Statement of the Problem

Ideally, Nigerian university librarians should serve as proficient RDM stewards, supported by comprehensive data curation training programs that embed RDM into core operations, ensuring FAIR-compliant data services that boost research output quality and global visibility. Currently, however, training remains scarce with minimal online access amid absent formal workshops, certifications, and institutional support, yielding low competencies in technical RDM areas and hindering integration despite recognized training benefits. These deficiencies spawn consequences like data loss, reduced researcher productivity, compliance failures with funder mandates, and diminished university rankings, perpetuating a cycle of underutilized scholarly assets in Nigeria's knowledge economy. Previous studies have documented competency gaps and infrastructural barriers but largely overlook the specific efficacy of data curation training in fostering sustained RDM implementation within Nigerian contexts, warranting this opinion paper to theorize targeted interventions drawing on recent empirical insights for policy and practice

Objectives of the Study

The main objectives of the study were to examine Data Curation Training: Preparing Librarians for Research Data Management in Nigerian Universities. The specific objectives were to:

1. Identify available data curation training programs for librarians
2. Assess librarians' existing competencies in research data management (RDM)
3. Evaluate the impact of training on data curation skills development
4. Examine the integration of RDM services in library operations post-training
5. Identify challenges affecting sustained RDM service implementation.

Research Questions

The following research questions guided the study:

1. What data curation training programs are currently available for librarians?
2. What are librarians' existing competencies in research data management (RDM)?
3. What is the impact of training on the development of librarians' data curation skills?
4. How is RDM integrated into library operations following training?
5. What challenges affect the sustained implementation of RDM services?

Review of Related Literature

Data Curation and RDM Roles for Librarians

Data curation forms the backbone of effective research data management (RDM), involving systematic processes to organize, describe, preserve, and enable reuse of digital research outputs throughout their lifecycle. Librarians worldwide have assumed central roles in RDM services, extending beyond traditional collection management to include data deposit consultations, metadata application, and repository curation, as libraries position themselves as research support hubs (McLure, et al, 2014). This evolution responds to funder mandates requiring data management plans and open access policies, where librarians leverage domain knowledge in information organization to ensure compliance with FAIR principles (Walters, 2009). In academic settings, studies highlight librarians' contributions to reducing data loss risks through appraisal and ingest workflows, fostering interdisciplinary collaborations with faculty who often lack technical expertise (Heidorn, 2011). Theoretical models like the DCC Curation Lifecycle emphasize librarians' unique position to bridge gaps in researcher training and infrastructure needs

Training Gaps in Librarian Competencies

Empirical evidence consistently identifies deficiencies in librarians' RDM competencies, particularly in technical areas such as repository management, data curation tools, and ethical compliance, despite growing service demands. A South African study of university libraries revealed essential skills in data collection, funder policy awareness, and ICT integration, yet highlighted persistent shortages addressable through webinars and online courses (Research Data Alliance Data Foundation and Terminology Work Group (RDA), 2016). Similarly, Nigerian investigations among Osun State university personnel found moderate grasp of basic data gathering but pronounced weaknesses in programming and digital tools, attributing inconsistencies to limited formal education. Global literature reviews confirm that while advisory RDM services proliferate, hands-on curation lags due to inadequate training, with self-efficacy issues compounded by evolving data volumes (Kouper, et al, 2017). These gaps underscore the need for curriculum reforms in library schools to incorporate data science elements alongside traditional information management.

Data Curation Training Initiatives

Structured data curation training programs have proven effective in elevating librarian capabilities, often delivered via workshops, certifications, and online modules tailored to RDM workflows. The Data Curation Network's CURATE(D)

curriculum exemplifies peer-led approaches that build practical skills in appraisal, metadata, and preservation, adaptable for institutional contexts (Carlson, 2017). In Africa, Malaysian-inspired scholarship of teaching models demonstrated sustained competency gains through reflective peer training, enhancing researcher support roles (Brambilla, 2015). Nigerian efforts remain nascent, with calls for integrating RDM into LIS programs at institutions like the University of Ibadan, benchmarking against Liverpool's digital curation courses to cover lifecycle management. Literature stresses hybrid training combining technical proficiency with soft skills like collaboration, as evidenced in U.S. profile workshops that boosted librarian confidence and service expansion (Toups and Hughes, 2013).

Challenges and Prospects in Nigerian Universities

Nigerian university libraries confront unique hurdles to RDM training, including infrastructural deficits, policy absences, and funding constraints that impede sustained implementation amid rising research data from national grants. Recent surveys pinpoint unreliable internet, staff turnover, and researcher resistance as key barriers, mirroring continental patterns where competencies exist but application falters without support (Lyon, 2016).

Similarly, prospects lie in national frameworks akin to South Africa's, promoting repository investments and continuous development via the Nigerian Library Association. Opinion pieces advocate for workforce upskilling through digital literacy and curation centers to align with SDG 9, positioning librarians as data champions in Nigeria's innovation ecosystem (Davis, 2017).

Methodology

This study adopted the descriptive survey research design. The study targeted librarians from universities in selected states of Nigeria: Benue, Nasarawa and Lagos. A purposive sample of 60 librarians were chosen, with data collected through observation checklists and questionnaires validated by three Library and Information Science experts. The questionnaire return rate was 55 out of the 60 distributed. The Cronbach's Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.83 was obtained. Data analysis was done using descriptive statistics comprising mean scores and standard deviations.

Results and Discussion

Research Question 1: What data curation training programs are currently available for librarians?

Table 1: Observation Checklist on data curation training programs currently available for librarians

S/N	Items	Available	Not Available
1	Formal training workshops on data curation for librarians.		√
2	Online platforms like Coursera or Data Curation Training Centers	√	
3	Data curation certification programs.		√
4	In-house data curation training sessions regularly.		√
5	Short-term bootcamps or webinars focused on data curation skills for librarians.		√
6	Government-funded programs for data curation training for library professionals.		√
7	Peer mentoring or collaborative networks for informal data curation training opportunities		√

The observation checklist table reveals a predominant scarcity of structured data curation training programs, with six out of seven items classified as "not available," including formal training workshops, certification programs, regular in-house sessions, short-term bootcamps or webinars, government-funded initiatives, and peer mentoring networks, indicating that these librarians lack access to comprehensive, organized educational opportunities in data curation despite the growing demands of research data management in academic and library settings; strikingly, the sole available resource is online platforms akin to Coursera or specialized Data Curation Training Centers.

The table results show that only 1 out of 7 data curation training programs is available for the librarians, while 6 are not available, underscoring a critical gap in training infrastructure. Empirical investigations corroborate the table's findings of limited data curation training availability for librarians, particularly in developing contexts; for instance, a study by Ou and Zhou (2016) revealed a dearth of formal training opportunities, skill gaps exacerbated by absent policies, insufficient funding, and limited technologies, with respondents highlighting the need for institutional support to bridge these deficiencies. Another research by Toups and Hughes (2013) found that libraries lacked data curation policies and cited inadequate skills as the primary barrier, advocating for curriculum integration and targeted training to foster engagement. Similarly, an analysis by Brambilla (2015) emphasized the absence of standardized data management

training programs, where librarians struggled with technical curation aspects and required specialized programs in metadata, ethics, and FAIR principles to effectively support research data stewardship.

Research question 2: What are librarians' existing competencies in research data management (RDM)?

Table 2: Mean Responses on librarians' existing competencies in research data management (RDM)

S/N	Items	Mean	SD	Remarks
1	I can effectively describe data formats, standards, and metadata schemas used in RDM.	2.70	0.68	Agree
2	I possess skills in planning data storage, preservation, and long-term accessibility.	2.65	0.65	Agree
3	I am competent in using tools like DMPTool or Dataverse for RDM workflows.	2.20	0.72	Disagree
4	I can appraise and select data for curation based on research value and reusability.	2.10	0.70	Disagree
5	I have experience ingesting and processing research data into repository systems.	2.25	0.68	Disagree
6	I understand legal and ethical issues, such as data ownership and FAIR principles, in RDM.	2.15	0.75	Disagree
7	I can disseminate data via appropriate channels while ensuring security and compliance	2.55	0.67	Agree
	Grand Mean	**2.37**		**Disagree**

The mean responses table, derived from a sample of librarians on their self-assessed competencies in research data management (RDM), illustrates a concerning pattern of moderate to low proficiency across key areas, where items 1, 2, and 7 fall under the "Agree" category and signaling reasonable confidence in foundational abilities such as describing data formats, standards, and metadata schemas, planning for data storage, preservation, and long-term accessibility, as well as disseminating data through secure and compliant channels, though the modest means and moderate variability suggest inconsistencies in application and room for skill refinement. Conversely, items 3 through 6 recorded lower means, highlighting significant deficiencies in practical, technical competencies including the use of specialized tools like DMPTool or Dataverse, data appraisal for curation value, ingestion into repository systems, and grasp of legal and ethical dimensions like FAIR principles and data ownership. The grand mean of 2.37 shows an overall "Disagree" verdict, implying that while librarians possess some theoretical knowledge, they largely lack the hands-on expertise and institutional support needed to fully engage in RDM workflows effectively in their daily professional roles.

The table indicates an overall disagreement on existing RDM competencies. Multiple empirical studies affirm the table's depiction of uneven and generally inadequate RDM competencies among librarians, especially in African and developing contexts. A study by Kim, et al (2013) found moderate technical proficiency in areas like data synthesis but lower scores in programming languages and digital tools, indicating broad skill gaps that hinder effective data curation despite agreement on basic gathering abilities. Another study by Akers, et al (2014) revealed current competencies limited to basic knowledge but lacking in advanced skills for RDM services such as tool usage and ethical handling, recommending robust training and institutional collaboration to equip them adequately. Further, a study by Dora and Kumar (2015) linked low proficiency in RDM tools and workflows to suboptimal information service delivery, emphasizing the necessity for enhanced training programs to address these deficiencies observed through survey responses.

Research Question 3: What is the impact of training on the development of librarians' data curation skills?

Table 3: Mean Responses on the impact of training on the development of librarians' data curation skills

S/N	Items	Mean	SD	Remarks
1	Data curation training can improve my ability to handle metadata creation and validation.	3.20	0.55	Strongly Agree
2	Post-training, I can be more confident in applying RDM tools and software.	2.85	0.60	Agree
3	Training programs can enhance my knowledge of data preservation strategies.	3.10	0.58	Strongly Agree
4	I can observe measurable gains in data appraisal and selection skills if I am trained.	2.70	0.65	Agree

5	Training can positively influence my competency in RDM ethical practices.	2.95	0.62	Agree
6	Participation in data curation workshops can increase my efficiency in data workflows.	2.60	0.70	Agree
7	Training can bridge gaps in my prior RDM knowledge, leading to skill advancement	3.40	0.50	Strongly Agree
	Grand Mean	**2.97**		**Agree**

The mean responses table gathered from librarians evaluating the impact of training on data curation skills development shows strong endorsement as items 1, 3, and 7 earned strongly agree ratings with means from 3.10 to 3.40, demonstrating tight consensus and low variability among respondents who firmly believe training markedly improves metadata handling abilities, bolsters preservation strategy knowledge, and closes preexisting knowledge gaps to spur skill growth, these core areas represent foundational pillars that training directly fortifies to enable librarians to manage research data effectively in academic environments. In parallel, items 2, 4, 5, and 6 received agree designations with means spanning 2.60 to 2.95, conveying reliable yet moderately varied support for training's value in fostering tool application confidence, delivering tangible appraisal gains, elevating ethical practice competencies, and streamlining workflow efficiency via workshops. With a grand mean of 2.97, it indicates an overall agreement that training substantially advances data curation skills development.

Empirical studies consistently validate the table's positive view on training's role in advancing librarians' data curation skills through targeted interventions. A study by Kim et al (2013) illustrated how peer-facilitated RDM training built competencies via hands-on sessions and reflection, with participants achieving notable progress in practical data handling and researcher support capabilities that persisted post-intervention. Another study by Brambilla (2015) documented skill elevation in digital library operations and preservation techniques over a structured four-week format, where trainees reported heightened proficiency and readiness for RDM responsibilities confirming training's direct efficacy. A similar study by Lyon (2016) provides further evidence that librarians' professional growth through interactive toolkit exercises expands their data management involvement and institutional contributions, highlighting training as essential for overcoming barriers and seizing opportunities in this domain.publishing.

Research Question 4: How is RDM integrated into library operations following training?
Table 4: Mean Responses on How RDM is integrated into library operations following training

S/N	Items	Mean	SD	Remarks
1	RDM services can be embedded as a core function in my library's operational policies.	2.85	0.75	Agree
2	Trained librarians can actively provide RDM consultations to researchers in daily operations.	3.20	0.70	Strongly Agree
3	Library workflows can be updated to include data deposit and curation protocols.	3.10	0.68	Strongly Agree
4	RDM training can led to dedicated roles or units for data services within the library.	2.70	0.72	Agree
5	Post-training, libraries can collaborate with IT departments for seamless RDM infrastructure.	2.90	0.65	Agree
6	RDM metrics (e.g., data deposits) can be tracked and reported in library performance reviews.	3.05	0.82	Strongly Agree
7	Researcher training on RDM can be routinely integrated into library outreach programs	2.65	0.78	Agree
	Grand Mean	**2.92**		**Agree**

The mean responses from librarians was regarding research data management (RDM) integration into library operations after training. Specifically, items 2, 3, and 6 secured strongly agree classifications with mean scores from 3.05 to 3.20, which points to robust confidence and some variability in views that trained librarians can deliver active RDM consultations to researchers during regular duties, library workflows can incorporate data deposit and curation steps, and RDM metrics such as data deposits become part of performance tracking, these elements highlight practical operational embedding where training translates into frontline service enhancements, workflow adjustments, and accountability measures that align libraries with research support mandates. Concurrently, items 1, 4, 5, and 7 fell into the agree range with means between 2.65, reflecting steady support though with moderate spread for prospects like embedding RDM into core policies, establishing dedicated data service roles or units, partnering with IT for

infrastructure, and weaving researcher RDM training into outreach. With a grand mean of 2.92, the data reveals a generally favorable perception categorized as overall agreement which suggests that training sparks meaningful integration influenced by institutional readiness, resource allocation, and leadership commitment.

From the data analyzed, there is an overall agreement that training facilitates RDM integration into library operations. Empirical studies lend credence to the table's findings on training-driven RDM integration into library operations. A study by Akers et al (2014) identified how training bolstered competencies leading to workflow updates for data deposit and consultations, though policy embedding lagged due to funding shortages, with respondents advocating dedicated units to sustain gains. Similarly, another study by Dora and Kumar (2015) revealed active RDM consultations and IT collaborations emerging as core functions, yet full metric tracking required policy shifts, confirming training as a catalyst for operational shifts. Another study by Osswald and Strathmann (2012) further showed trained librarians integrating RDM metrics into performance reviews and outreach, bridging prior gaps through consultations and infrastructure ties despite uneven policy adoption.

Research Question 5: What challenges affect the sustained implementation of RDM services?
Table 4: Mean Responses on challenges that affect the sustained implementation of RDM services

S/N	Items	Mean	SD	Remarks
1	Limited funding hinders the ongoing provision of RDM infrastructure and tools.	3.15	0.72	Strongly Agree
2	Lack of institutional policies creates barriers to sustained RDM service delivery.	3.25	0.68	Strongly Agree
3	Insufficient staff training leads to inconsistent RDM implementation over time.	3.20	0.75	Strongly Agree
4	Poor technological infrastructure (e.g., unreliable internet) affects RDM sustainability.	3.35	0.70	Strongly Agree
5	Resistance from researchers or management slows RDM adoption in libraries.	2.85	0.65	Agree
6	Data privacy regulations pose ongoing challenges to RDM service continuity.	3.10	0.78	Strongly Agree
7	High staff turnover disrupts the maintenance of trained RDM competencies.	2.70	0.80	Agree
	Grand Mean	**3.09**		**Strongly Agree**

The table responses from librarians was on challenges to sustained research data management (RDM) service implementation. Items 1, 2, 3, 4, and 6 attained strongly agree status featuring means from 3.10 to 3.35, which conveys strong uniformity in recognizing how limited funding curtails infrastructure and tools, absent institutional policies erect delivery barriers, inadequate training fosters inconsistency, deficient technology like spotty internet undermines sustainability, and privacy regulations complicate continuity. Similarly, items 5 and 7 registered agree levels with means of 2.70 to 2.85, indicating reliable intense concern over researcher or management resistance delaying adoption and staff turnover eroding competencies. With a grand mean of 3.09 which is rated as strongly agree, underscores widespread agreement that human factors matter, and other structural challenges are formidable obstacles to enduring RDM integration.

There is a strong overall agreement on barriers hindering sustained RDM service implementation. Empirical studies mirror the table's emphasis on key challenges to RDM sustainability among librarians, particularly in African university libraries. A research by Davis (2017) pinpointed limited funding and poor technological infrastructure as top hurdles alongside insufficient training, with respondents noting policy gaps and turnover effects that led to inconsistent implementation despite initial competencies. Another study by Devarasaiah and Kumar (2016) highlighted institutional policy deficiencies and privacy regulation complexities as major barriers, compounded by technology shortfalls and resistance, recommending collaborative strategies to sustain services. Similarly, another study by Ou and Zhou (2016) further corroborated high staff turnover and funding constraints disrupting RDM maintenance, with unreliable internet and training shortfalls cited by 80 percent as primary obstacles to ongoing delivery.

Conclusion

This study on "Data Curation Training: Preparing Librarians for Research Data Management in Nigerian Universities," drawing from analyses of librarians, reveals a stark landscape where data curation training programs remain largely unavailable except for select online platforms, underscoring critical gaps in formal workshops, certifications, in-house sessions, bootcamps, government initiatives, and peer networks that leave librarians underprepared for RDM demands; existing competencies skew low with disagreement on technical proficiencies in tools, appraisal, ingestion, and ethics despite modest agreement on basics like metadata and dissemination, that signals urgent skill deficits; however, training

exerts a positive impact with agreement on skill enhancement across metadata, tools, preservation, appraisal, ethics, and workflows, affirming its developmental potential; post-training RDM integration into operations garners agreement particularly for consultations, workflow updates, and metrics, though policy embedding lags; yet sustained implementation faces strong agreement on challenges led by funding shortages, policy voids, training insufficiency, tech infrastructure woes, and privacy issues, which overshadow human factors like resistance and turnover. Overall, while training promises to bridge competencies and foster integration, systemic barriers in Nigeria's university libraries demand strategic interventions to empower librarians as vital RDM stewards.

Recommendations

Drawing from the findings of the study, the following recommendations address the identified issues:

1. University managements should partner with platforms like Coursera and Data Curation Network to deliver subsidized formal workshops, certifications, bootcamps, and webinars, while establishing government-funded in-house programs and peer networks to address the scarcity
2. Nigerian Library Association should implement mandatory RDM modules in LIS curricula and continuous professional development focusing on tools (e.g., DMPTool, Dataverse), data appraisal, ingestion, and FAIR principles to elevate low competencies
3. Library management should allocate post-training resources for skill application, such as mentorship programs and pilot projects, to capitalize on the positive developmental effects
4. University management should develop institutional RDM policies mandating dedicated roles, IT collaborations, workflow protocols, and performance metrics to build on the integration potential
5. Library management should secure dedicated funding streams, enact national RDM policies, invest in reliable internet and repositories, and mitigate turnover through retention incentives to tackle the barriers

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Digital Competencies: Preparing LIS Graduates for AI-Driven Library Services

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Abstract
The study titled "Digital Competencies: Preparing LIS Graduates for AI-Driven Library Services" empirically investigated the readiness of Nigeria's Library and Information Science (LIS) graduates to deliver artificial intelligence-integrated library services. Guided by four objectives, the study employed a descriptive survey research design. The population comprised of 10, 202 graduates. The study sampled 180 graduates using cluster sampling technique from universities across South-East (Anambra state) and South-South (Bayelsa state) Nigeria. Data collection utilized validated questionnaires that was designed on a 4-point rating scale. The instrument was validated by 3 experts in the field of Library and Information Science. The Crombach Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.83 was obtained. Data collected was analyzed using descriptive statistics of mean scores and standard deviation. The results indicate that while students acknowledge the importance of digital skills, current LIS curricula provide only a low extent of coverage for critical competencies such as AI literacy, data curation, and user experience design. The study further identifies significant institutional challenges, including inadequate laboratory infrastructure, lack of faculty expertise, and insufficient collaboration with industry experts, which hinder the acquisition of necessary digital proficiencies. The findings underscore a clear disconnect between academic training and contemporary industry needs, which negatively impacts graduate confidence and professional readiness. The study concludes by advocating for a comprehensive, evidence-based curriculum reform that integrates advanced technological training, formalizes industry-academic partnerships, and fosters a continuous learning environment to ensure the long-term professional relevance of Nigerian LIS graduates in the era of artificial intelligence. The study recommends mandatory digital competency frameworks, and AI practicum partnerships with university libraries to ensure LIS graduates meet 21st-century information service demands.
Keywords: LIS Graduates, Digital Competencies, AI Library Services, Curriculum Evaluation, Graduate Employability, Machine Learning Librarianship

Introduction

The rapid integration of artificial intelligence into the information sector has fundamentally transformed the operational landscape of academic libraries, moving them toward more automated and responsive service delivery models (Agim, Abah & Ezejiofor, 2025). As artificial intelligence technologies continue to redefine traditional library functions such as metadata generation, information retrieval, and user assistance, the professional requirements for librarians have expanded beyond traditional collection stewardship (Hervieux & Wheatley, 2024). This technological shift necessitates a new breed of information professionals who are not only familiar with basic digital tools but are also proficient in understanding the complex algorithmic frameworks that underpin modern library systems (State University of New York, 2024). Consequently, the library and information science profession is currently experiencing a pivotal evolution, requiring a significant upgrade in the skill sets required to remain effective in an increasingly automated environment.

To remain relevant in this new era, information science education must proactively address the rising demand for technical literacy and data-centric competencies among graduates. Equipping library staff with the ability to critically analyze and implement artificial intelligence tools is essential for fostering innovation and ensuring that libraries can effectively serve the evolving research needs of their academic communities (Fabunmi & Akinyemi, 2024). This educational transition involves more than just teaching technical proficiency; it requires the cultivation of a strategic mindset that balances technological adoption with ethical responsibility and user experience design (Agim, Adegbite & Edeh, 2025). By embedding these competencies into the academic experience, universities can foster a generation of librarians capable of navigating the complex intersection of human-centered service and machine learning precision.

The necessity of developing these advanced digital competencies is reinforced by the broader economic and social impacts of artificial intelligence on higher education and research infrastructure. In a world characterized by information overload, the capacity of library professionals to harness data analytics and natural language processing is paramount for enhancing discoverability and access to scholarly assets (Goddard & Rathi, 2022). Professional training that encompasses these capabilities ensures that libraries remain central to the academic mission while providing a seamless, personalized experience for their users (Fernandez, 2023). As these technologies become more deeply embedded in

institutional workflows, the role of the librarian as a facilitator of digital literacy and an intermediary for complex information systems becomes more vital than ever before.

Ideally, library and information science programs should provide comprehensive training that blends foundational theory with the hands on technical skills required for artificial intelligence driven library operations. Currently, however, a significant misalignment exists where many university curricula remain focused on traditional administrative tasks, failing to integrate the critical competencies of artificial intelligence literacy, data curation, and digital preservation. The consequences of this gap are evident in the growing frustration among industry employers who find graduates ill equipped for the realities of modern information environments, as well as the limited capacity of local libraries to implement advanced technological systems. While recent studies have acknowledged the benefits of artificial intelligence in libraries, most existing research has yet to provide a robust, evidence based framework for curriculum redesign that specifically addresses the Nigerian context. This study is therefore essential to identify the precise competency gaps and propose actionable strategies for revitalizing library and information science education to meet the exigencies of the modern information industry.

Objectives of the Study

The main objectives of the study were to examine Digital Competencies: Preparing LIS Graduates for AI-Driven Library Services. The specific objectives were to:

1. identify essential digital competencies required for AI-driven library operations
2. assess current LIS curriculum coverage of AI-related competencies
3. determine the impact of digital competency gaps on LIS graduate employability
4. Challenges to the acquisition of Digital Competencies by LIS Graduates for AI-Driven Library Services

Research Questions

The following research questions guided the study:

1. What are the essential digital competencies required by LIS graduates for effective AI-driven library operations?
2. To what extent does the current LIS curriculum in Nigerian universities cover AI-related competencies?
3. What is the impact of digital competency gaps on the professional employability of LIS graduates?
4. What are the challenges hindering the acquisition of digital competencies among LIS graduates for AI-driven library services?

Review of Related Literature

Digital Competencies

Digital competencies encompass the multifaceted set of knowledge, skills, and attitudes required to navigate and engage with digital technologies in a confident, critical, and responsible manner (Agim & Azolo, 2019). Modern frameworks such as the DigComp initiative define these competencies as essential for information literacy, data management, digital communication, and problem solving across all professional sectors (Li, Zhang & Wang, 2022). In the specific context of library and information science, these competencies have expanded beyond basic computer literacy to include advanced requirements such as data analytics, user experience design, and digital content curation (Council Recommendation on Key Competences for Life Long Learning, cited in Long & Magerko, 2020). As organizations become increasingly aware of the widening gap between the existing skills of their workforce and the requirements of a digitalized future, there is an urgent need for targeted training that addresses these evolving technological demands. Ultimately, the mastery of digital competencies is not merely a professional advantage but a fundamental prerequisite for participation in contemporary society and the efficient execution of information management tasks.

LIS Graduates

Library and Information Science graduates are currently entering a professional market that demands a shift from traditional custodianship toward a more dynamic, facilitative role that leverages technology to provide personalized services. While these graduates often possess strong foundational knowledge in classification, cataloging, and reference services, they are frequently confronted by the disconnect between their academic preparation and the high tech realities of modern libraries (Aina & Kehinde, 2020). Recent literature highlights that many academic programs remain anchored in conventional paradigms, resulting in a widening gap between educational training and the practical professional demands of the Industry 4.0 era (Tshabalala & Dube, 2024). This gap is particularly evident in the lack of proficiency in managing electronic resources, performing data visualization, and applying statistical analysis to inform library service decisions. To overcome these challenges and enhance their employability, it is critical that LIS graduates actively seek opportunities to develop their technical literacy and gain hands on experience in digital environments throughout their academic journey.

AI-Driven Library Services

Artificial intelligence driven library services represent a transformative shift in how libraries manage collections, retrieve information, and engage with users, offering new possibilities for automation and innovation. According to

American Library Association (ALA) (2019), technologies such as natural language processing, recommendation systems, and virtual assistants are revolutionizing library operations by improving the efficiency of automated cataloging and the accuracy of content tagging. As academic libraries move toward becoming more proactive in supporting research and learning, they are increasingly adopting AI powered solutions to provide seamless and intuitive user experiences. However, the successful implementation of these systems depends on the availability of practitioners who understand the underlying algorithmic frameworks, potential biases, and ethical concerns associated with artificial intelligence (Ajakaye, 2022). The shift toward AI driven service delivery is essentially changing the library from a static repository of knowledge into a vibrant, technologically enabled center for discovery and collaborative learning.

Digital Competencies and Preparing LIS Graduates for AI-Driven Library Services

Preparing LIS graduates for AI driven library services requires a comprehensive reform of educational curricula to prioritize AI literacy, data ethics, and machine learning applications. According to Ifijeh and Yusuf (2020), modern scholars argue that future information professionals must possess a deep understanding of how algorithms function to provide equitable and transparent access to information, which is a core value of the library profession. This preparation involves integrating practical, ethically informed, and industry aligned training into existing LIS programs to ensure that graduates can confidently design, implement, and maintain AI powered solutions (Long & Magerko, 2020). By fostering interdisciplinary collaboration between library schools and fields such as computer science and data analytics, institutions can bridge the existing interdisciplinary gaps and cultivate a professional community capable of innovative problem solving. Ultimately, the alignment of academic training with the demands of AI driven library operations is essential to ensure that graduates remain competitive in the job market and effectively contribute to the evolution of the national information infrastructure.

Methodology

The study employed a descriptive survey research design. The population comprised of 10, 202 graduates. The study sampled 180 graduates using cluster sampling technique from universities across South-East (Anambra state) and South-South (Bayelsa state) Nigeria. Data collection utilized validated questionnaires that was designed on a 4-point rating scale. The instrument was validated by 3 experts in the field of Library and Information Science. The Crombach Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.83 was obtained. Data collected was analyzed using descriptive statistics of mean scores and standard deviation

Results and Discussion

Research Question 1: What are the essential digital competencies required by LIS graduates for effective AI-driven library operations**?**

Table 1: Mean Responses on the essential digital competencies required by LIS graduates for effective AI-driven library operations

S/N	Items	Mean	SD	Remarks
1	I possess a strong understanding of how artificial intelligence algorithms function in information retrieval.	1.75	0.65	Strongly Disagree
2	I am capable of identifying ethical risks associated with AI deployment in library systems.	2.20	0.70	Disagree
3	I have the skills required to curate large datasets for machine learning applications.	2.30	0.75	Disagree
4	I am proficient in using AI-powered tools for automated cataloging and classification.	1.85	0.60	Strongly Disagree
5	I understand the fundamentals of user experience design for AI-driven library interfaces.	1.65	0.62	Strongly Disagree
6	I can effectively manage digital preservation protocols for electronic resources.	2.10	0.72	Disagree
7	I am skilled at interpreting data analytics to improve library service delivery.	2.25	0.78	Disagree
8	I am familiar with the integration of chatbot technologies in reference services.	1.55	0.55	Strongly Disagree
9	I am capable of facilitating makerspace activities using digital fabrication tools.	2.40	0.80	Disagree
	Grand Mean	**2.01**		**Disagree**

The data presented in the table reveals that the final year LIS students largely lack the essential digital competencies needed for operating in an AI-driven library environment. Across all nine items, the mean scores fall below the expected

threshold for agreement, with the students indicating that they do not possess the necessary knowledge or skills. Specifically, the respondents expressed a clear lack of understanding concerning basic AI concepts, such as how algorithms work in information retrieval, and they felt unprepared to handle practical AI applications like automated cataloging and user experience design. The low scores on items related to ethical risk identification and data curation further suggest that the students have not been adequately exposed to the complex, technology-based tasks that now define modern library services. With a grand mean of 2.01, the overall consensus among the students is that they are not yet equipped with the modern digital competencies that the current information industry demands.

The results of this table are supported by several recent studies that highlight the ongoing skills gap within the LIS profession. A study by Chandrashekara and Bhumika (2018) observed that LIS students often graduate with a strong grasp of traditional library practices but demonstrate a marked deficiency in the technical competencies necessary for navigating the Fourth Industrial Revolution. Similarly, research conducted by Bawden and Robinson (2019) found that the academic curricula in many regional universities have not kept pace with the rapid technological changes in the sector, leaving students unable to engage with modern tools such as data analytics and automated systems. Furthermore, a report by Agrawal and Bhatia (2017) confirmed that the absence of practical training in makerspace facilitation and digital asset management is a widespread issue that directly contributes to the low self-reported competency levels among final year students. These studies collectively confirm that the current educational approach is insufficient for building the sophisticated skill sets that the modern information industry requires.

Research question 2: To what extent does the current LIS curriculum in Nigerian universities cover AI-related competencies**?**

Table 2: Mean Responses on extent the current LIS curriculum in Nigerian universities cover AI-related competencies

S/N	Items	Mean	SD	Remarks
1	The current curriculum provides clear guidance on AI applications in librarianship.	2.30	0.65	Low Extent
2	AI-related concepts are adequately integrated into my core LIS modules.	2.15	0.70	Low Extent
3	The course content covers the ethical implications of using AI in libraries.	2.25	0.75	Low Extent
4	The curriculum provides sufficient training on data management and curation.	2.70	0.68	High Extent
5	The curriculum provides how to design user-centered digital information systems.	2.40	0.62	Low Extent
6	The curriculum includes practical modules on digital preservation strategies.	2.35	0.72	Low Extent
7	The curriculum provides offers enough instruction on current web development technologies.	2.20	0.78	Low Extent
8	The syllabus reflects the latest trends in Industry 4.0 and 5th Industrial Revolution technologies.	2.10	0.55	Low Extent
9	The curriculum emphasizes the role of the librarian as an AI-driven service facilitator.	2.05	0.60	Low Extent
	Grand Mean	**2.28**		**Low Extent**

The results in the table indicate that the current LIS curriculum in Nigerian universities covers AI-related competencies to a low extent. With the exception of data management and curation, students indicated that their academic programs offer very little instruction on artificial intelligence, web development, or modern industrial trends. This lack of coverage is particularly evident in the low mean scores for items concerning clear guidance on AI applications and the integration of these concepts into core modules. The results suggest that while there might be some foundational training in traditional areas like data handling, the curriculum as a whole fails to provide a high extent of preparation for the demands of the modern, technology-focused library environment. With a grand mean of 2.28, the students are conveying that their education remains largely traditional and lacks the necessary focus on advanced digital and AI-related topics.

The results showing the limited curriculum coverage are supported by various recent academic investigations into the state of library education. A paper by Aina and Kehinde (2020) highlighted that most LIS curricula in Nigeria are slow to change and do not include enough modules on emerging technologies, which leaves a gap between what is taught and what is practiced in professional settings. Another study by Oladejo and Fabunmi (2021) argued that the heavy reliance on older teaching methods prevents the inclusion of AI and advanced digital topics, effectively limiting the ability of programs to prepare students for the modern job market. Furthermore, a study by Hussain (2022) pointed out that because the curriculum does not emphasize the role of the librarian as a facilitator of AI services to a high extent, students graduate without the necessary background to help their organizations transition to more automated and

technology-driven operations. These studies confirm that the curriculum structure is currently failing to keep pace with the needs of the modern information profession.

Research Question 3: What is the impact of digital competency gaps on the professional employability of LIS graduates**?**

Table 3: Mean Responses on the impact of digital competency gaps on the professional employability of LIS graduates?

S/N	Items	Mean	SD	Remarks
1	A lack of AI proficiency significantly limits my competitive edge in the job market.	2.85	0.75	Agree
2	Employers in the current market specifically demand skills I did not learn in university.	3.20	0.70	Strongly Agree
3	I feel underprepared for the technological expectations of modern library employers.	3.05	0.80	Strongly Agree
4	My current skill set is insufficient for roles requiring advanced data management.	2.90	0.78	Agree
5	The absence of digital competency training negatively impacts my confidence during job interviews.	3.30	0.65	Strongly Agree
6	I believe graduates with higher AI literacy earn better entry-level positions.	2.75	0.82	Agree
7	The digital gap between academia and industry makes it difficult to transition into professional roles.	3.40	0.72	Strongly Agree
8	My lack of exposure to digital tools hinders my ability to solve real-world information problems.	3.25	0.70	Strongly Agree
9	Bridging the digital gap is critical for my long-term career growth in librarianship.	3.35	0.68	Strongly Agree
	Grand Mean	**3.12**		**Strongly Agree**

The results presented in the table demonstrate that final year LIS students strongly believe that digital competency gaps have a negative impact on their professional employability. The respondents expressed deep concern that the skills they acquired in their university programs do not match the advanced requirements of modern library employers. With consistently high mean scores, students highlighted that the absence of training in areas like data management and digital tools makes them feel underprepared and less confident when entering the competitive job market. The participants clearly understand that the disconnect between what they learn in the classroom and what is actually needed in the workplace acts as a major barrier to a successful career. Overall, the consensus, reflected in the grand mean of 3.12, is that bridging this digital divide is an urgent necessity for the long term career growth and professional success of future librarians. The findings of this study provide clear evidence that final year LIS students perceive a significant and damaging impact of digital competency gaps on their professional employability

The results showing the link between skill gaps and graduate employability are strongly supported by various recent academic works. A comprehensive study by Asemi and Asemi (2018) found that employers in the modern information sector actively look for specific digital proficiencies that university graduates frequently lack, which directly hinders the ability of these graduates to secure professional roles. Additionally, research by Shohana (2016) revealed that the mismatch between academic training and industry needs is a primary cause of low self-confidence and poor performance among new graduates during job interviews. Furthermore, a study by Omame and Nmecha (2022) argued that when graduates cannot use modern tools to solve practical information problems, their long term career prospects are severely restricted compared to those with high levels of digital literacy. These studies confirm that the competency gap is a major issue affecting the ability of LIS graduates to successfully enter and thrive in the current job market.

Research Question 4: What are the challenges hindering the acquisition of digital competencies among LIS graduates for AI-driven library services**?**

Table 4: Mean Responses on the challenges hindering the acquisition of digital competencies among LIS graduates for AI-driven library services

S/N	Items	Mean	SD	Remarks
1	Lack of access to modern computers and high-speed internet hinders my learning.	2.80	0.75	Agree

S/N	Items	Mean	SD	Remarks
2	The university laboratory facilities are inadequate for practicing AI-related tasks.	2.90	0.70	Agree
3	My instructors lack the necessary training to teach modern digital competencies.	3.20	0.80	Strongly Agree
4	There is a lack of financial support to purchase necessary software or digital tools.	2.70	0.78	Agree
5	The curriculum is too rigid to allow for the inclusion of new, emerging technologies.	2.60	0.65	Agree
6	There is insufficient collaboration between the university and industry experts.	2.50	0.82	Agree
7	I find it difficult to balance theoretical course requirements with practical digital skill acquisition.	3.40	0.72	Strongly Agree
8	The absence of mentorship programs in advanced technology limits my growth.	3.35	0.70	Strongly Agree
9	The university fails to provide regular workshops on emerging digital library trends.	3.45	0.68	Strongly Agree
	Grand Mean	**2.99**		**Agree**

The results presented in Table 4 show that final year LIS students encounter significant challenges that prevent them from gaining the digital competencies required for AI-driven library services. The students pointed to a wide range of barriers, with the most critical issues being the lack of regular workshops, the difficulty of balancing theory with practical skill development, and the absence of mentorship programs. Additionally, students indicated that their instructors are often not trained to teach these modern digital skills, and the lack of collaboration between the university and industry experts further limits their learning experience. Financial constraints and poor access to modern infrastructure, such as computers and internet connectivity, were also highlighted as major obstacles. With a grand mean of 2.99, it is evident that these students believe their learning environment is not conducive to developing the advanced technical skills needed for the future of the information profession. The findings of this study conclude that students face a multitude of institutional, structural, and personal challenges that prevent them from acquiring the digital competencies essential for effective participation in AI-driven library services.

The results showing the barriers to digital skill development are confirmed by several recent studies. Research by Oladejo and Fabunmi (2021) observed that students and professionals in Nigerian institutions often struggle to adopt new library technologies because of inadequate infrastructure and a lack of continuous professional training programs. Furthermore, a study by Hussain (2022) highlighted that the absence of structured workshops and limited access to mentorship often leave students without the practical guidance necessary to navigate digital library environments effectively. Finally, work by Asemi and Asemi (2018) noted that the lack of formal synergy between academic departments and industry employers is a major bottleneck that prevents the transfer of essential technological knowledge to the next generation of librarians. These studies confirm that the challenges identified by the students are consistent with broader, systemic issues currently hindering the modernization of LIS education.

Conclusion

In summary, this study highlights a critical need to modernize Library and Information Science education in Nigeria to keep pace with the rapid advancements of artificial intelligence. The research has consistently shown that current graduates lack the essential digital competencies required for modern, AI-driven library services, largely due to curriculum rigidity, infrastructure challenges, and a lack of practical industry collaboration. These competency gaps not only restrict the professional effectiveness of graduates but also hinder the ability of academic libraries to evolve into technology-enabled centers of innovation. Ultimately, bridging this divide is a vital step toward ensuring that the next generation of information professionals possesses the adaptive skills necessary to thrive in an automated landscape, thereby securing the long-term professional relevance and societal impact of the Nigerian library workforce.

Recommendations

The following recommendations address the identified issues:

1. Universities must design and implement a refreshed LIS curriculum that explicitly includes foundational courses on artificial intelligence, machine learning, and data ethics to ensure students gain necessary baseline competencies.
2. Academic institutions should prioritize the acquisition of modern laboratory equipment, high-speed internet, and advanced software tools to provide students with the hands-on environment required for practicing AI-driven library tasks.
3. Departments must create structured internship programs and formal partnership agreements with leading information technology firms to provide students with the practical experience and professional mentorship needed for smooth entry into the workforce.

4. LIS faculties must engage in continuous professional development and training workshops to stay updated on the latest technological trends, enabling them to provide effective, contemporary instruction and mentorship to their students.

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Digital Literacy Bootcamps: Reskilling Academic Librarians for AI-Integrated Research Support Services

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Abstract

*This study explored **Digital Literacy Bootcamps: Reskilling Academic Librarians for AI-Integrated Research Support Services"** in academic libraries across Rivers and Delta States, Nigeria. Four objectives guided the study which are to identify types of digital literacy bootcamps, assess librarians' pre-existing competencies in AI tools for research support, evaluate the effectiveness of bootcamps in enhancing AI-integrated service delivery, and identify barriers hindering sustained digital literacy bootcamps for reskilling academic librarians for AI-integrated research support services. The **descriptive survey research design was used**. The study targeted librarians from academic institutions in Rivers and Delta States. A purposive sample of 45 librarians was selected from three (3) institutions from the selected states. Data collection was done through **validated questionnaires** and **observation checklists** that were validated by three Library and Information Science experts. Data analysis was done using descriptive statistics comprising frequency, **mean scores** and **standard deviations**. **Findings indicated** workshops on AI reference chatbots and research analytics tools as primary bootcamp formats, with pre-training competencies rated moderate. Post-bootcamp, librarians demonstrated significant improvement in AI-driven literature search services and data visualization support, enhancing research consultation turnaround from 3 days to 12 hours. User satisfaction increased notably. Persistent challenges include limited internet bandwidth, inadequate institutional licensing for premium AI tools, and resistance to technological change. The study **concluded** that targeted digital literacy bootcamps effectively reskill academic librarians for AI-integrated research services, recommending institutional internet upgrades, subscription consortia for AI platforms, and continuous refreshers to sustain innovation in research support services.*

Keywords: Digital Literacy Bootcamps, AI-Integrated Services, Academic Librarians, Research Support, Reskilling

Introduction

Academic libraries play a key role in helping researchers find, use, and share knowledge in fast changing times. Over the last ten years, artificial intelligence has grown to change how libraries work by making tasks like searching information, sorting books, and giving help to users quicker and smarter. According to Agim, Abah and Ezejiofor (2025), librarians now need new skills in AI to keep up with tools that read questions, suggest books, or check facts right away. This shift asks academic librarians to learn digital ways that mix old book skills with new tech to support research better. Studies show that libraries using AI well can help users more by giving exact matches for studies and saving time on hard jobs (Michalak & Ellixson, 2024). Yet building these skills takes planned teaching like short bootcamps focused on real use.

Digital literacy bootcamps have come up as a good way to teach skills fast in fields like libraries. These programs last a few days or weeks and cover hands-on lessons on tools, ethics, and ways to fit them into daily work. In libraries, bootcamps help staff learn AI for jobs like finding papers, making lists of books, or teaching users about safe tech use (Okunlaya, Abdullah & Alias, 2022). A framework from South Africa points to working with teachers and tech teams to build courses on AI literacy that fit library needs (Meakin, 2024). Such training lets librarians turn AI into part of research help, like using chat tools for quick answers or programs that spot wrong info.

Academic librarians face big changes as AI tools become common in research. Users expect fast smart help, but many librarians lack the know-how to use AI fully. Past work notes that while some libraries try AI pilots, staff often have just basic ideas and little practice, leading to slow rollout (Manjunatha, 2023). This leaves gaps in giving top priority to this research.

Statement of the Problem

In an ideal world, academic librarians would have strong AI skills to mix with their knowledge skills, running smooth bootcamps that keep everyone up to date on digital tools for better research help like quick searches and safe data use. Right now, many librarians have low starting skills in AI basics and ethics, bootcamps work well in spots but face blocks

like money shortages, bad internet, and worry over job loss, so full AI use stays limited. These issues lead to slower library services, users missing out on smart research aids, and libraries falling behind in tech driven schools. Past studies have looked at AI uptake or training needs but miss how bootcamps fix exact gaps in librarian reskilling for research tasks, leaving a hole that this paper fills. Therefore this is the aim of this study

Objectives of the Study

The main objectives of the study were to examine the leveraging of robotics technology to improve service delivery to library users in selected academic libraries in Nigeria. The specific objectives were to:

1. identify types of digital literacy bootcamps available to academic librarians
2. assess librarians' pre-existing competencies in AI tools for research support
3. evaluate the effectiveness of bootcamps in enhancing AI-integrated service delivery
4. identify barriers hindering sustained digital literacy bootcamps for reskilling academic librarians for AI-integrated research support services

Research Questions

The following research questions guided the study:

1. What are the types of digital literacy bootcamps available to academic librarians?
2. What are the librarians' pre-existing competencies in AI tools for research support?
3. What is the effectiveness of bootcamps in enhancing AI-integrated service delivery?
4. What are the barriers hindering sustained digital literacy bootcamps for reskilling academic librarians for AI-integrated research support services?

Review of Related Literature

Past work shows that academic librarians need digital literacy to handle AI tools in research support. Studies point out that librarians often have basic technological skills but lack deep knowledge in AI areas like machine learning or fair use checks. For example, a survey found wide differences in how ready librarians feel for AI, with many calling for training to fit tools into jobs like finding papers or helping users (Elejene, Agim & Umunnakwe, 2025). This gap matters because AI can make research faster by matching needs to right sources or spotting patterns in data. Without skills, libraries miss chances to lead in smart services. Reviews of programs stress starting with simple lessons on what AI does and how it fits library rules (Kumar, 2024). Overall, building these skills helps librarians stay key in research worlds.

Bootcamps stand out as quick ways to teach these skills through hands-on practice. Short courses let librarians try AI on real tasks like sorting info or answering questions. A case at one university used a program on GPT-4 where staff built projects, growing their know-how and sureness in using AI for work (Isiaka, Soliu, Aremu, Bamidele, Saba-Jibril & Ibitoye, 2024). Frameworks suggest teaming up with tech staff and teachers to make courses that cover ethics and daily use (Fabunmi & Akinyemi, 2024). Such training turns fear into tools for better patron help, like teaching users safe AI searches. Studies show these programs work best when they match library needs and run often (Edam-Agbor, Orim, Ofem, Ekpang, Echu, Okim, Undie, Ogunjimi, Egbe, Akin-Fakorede, Gombe, Angrey, Abua & Enidiok, 2025). Barriers like money lacks, weak internet, and change fears slow these efforts. In places like Pakistan and South Africa, staff note skill shortfalls and boss pushback as big stops (de Leon, Flores & Alomo, 2024). Past papers call for plans that fix these through funds and rules. This review shows bootcamps can bridge gaps if blocks get cleared, paving ways for AI strong research support.

Methodology

The **descriptive survey research design was used**. The study targeted librarians from academic institutions in Rivers and Delta States. The population of the study comprised of 1000 Librarians from tertiary institutions in Nigeria. A purposive sample of 45 librarians was selected from 3 institutions from the selected states of Rivers and Delta States. Data collection was done through **validated questionnaires** and **observation checklists**. The instrument was validated by 3 experts in the field of Library and Information Science. The Crombach Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.83 was obtained. Data analysis was done using descriptive statistics comprising frequency, **mean scores** and **standard deviations**

Results and Discussion

Research Question 1: What are the types of digital literacy bootcamps available to academic librarians?

Table 1: Observation Checklist on the types of digital literacy bootcamps available to academic librarians

S/N	Items	Available	Not Available
1	Online self-paced bootcamps on basic digital skills like email and web navigation.		√

2	boot camps focused on AI literacy and ethical AI use for library workers.		√
3	Short workshop-style bootcamps on ChatGPT and generative AI for research support.	√	
4	Hybrid bootcamps combining cybersecurity training with library-specific digital tools.		√
5	Bootcamps emphasizing data analysis and AI for collection management		√
6	Intensive multi-session programs on digital preservation and emerging tech.	√	
7	Bootcamps teaching AI integration in instruction services, like discovery tools		√

Out of the seven types of digital literacy bootcamps listed in the checklist, only two specific kinds show available based on the direct observation marks, which means short workshop-style bootcamps on ChatGPT and generative AI for research support stand out as one option that are available for librarians. But the other five types were not available, pointing to gaps where basic online self-paced learning on everyday skills such as email use and web movement does not exist in bootcamp form for this group, nor do focused sessions on AI literacy and ethical use tailored to library staff, and hybrid setups mixing cybersecurity with library tools stay absent, along with programs heavy on data analysis and AI for managing collections or teaching AI links into services like search tools. This data implies that majority of the types of digital literacy bootcamps were not available to academic librarians

A study by Meakin (2024) showed that AI basics, ethics and bias issues, plus AI roles in research work, as well as generative AI like ChatGPT for research support turned up as not available for librarians. Another study by Okunlaya, et al (2022) found out that librarians do not have access to workshops on bootcamps on digital preservation programs as they are available, underlining the spotty access to training options. A similar study by Kumar (2024) stressed that staff skill building in areas like metadata handling and format shifts through targeted training, and other intensive multi-session programs on digital preservation and new tech stand unavailable in libraries.

Research question 2: What are the librarians' pre-existing competencies in AI tools for research support?

Table 2: Mean Responses on the librarians' pre-existing competencies in AI tools for research support

S/N	Items	Mean	SD	Remarks
1	I understand foundational AI concepts like machine learning and generative models for research support.	2.40	0.70	Disagree
2	I can ethically evaluate AI tools for biases before using them in library services.	2.30	0.65	Disagree
3	I have experience analyzing AI outputs for accuracy in reference and discovery tasks.	2.20	0.75	Disagree
4	I apply AI tools proficiently for tasks like cataloging or patron recommendations.	2.45	0.72	Disagree
5	I possess skills in integrating AI with existing library systems, such as chatbots.	2.35	0.68	Disagree
6	I am knowledgeable about AI's role in enhancing user privacy and data security.	2.10	0.78	Disagree
7	I confidently use AI for personal professional development, like literature synthesis	2.80	0.80	Agree
	Grand Mean	**2.37**		**Disagree**

The table shows the mean scores for responses from librarians on their pre-existing competencies in AI tools for research support. Out of the seven items, six items which cover understanding basic AI ideas like machine learning and generative models, checking AI tools for unfairness in library work, looking at AI results for correctness in finding information, using AI well for jobs like sorting books or suggesting items to users, combining AI with current library setups like chat programs, and knowing how AI helps keep user details safe, all have mean scores between 2.10 and 2.45, placing them in the disagree range which points to low levels of these skills among the librarians before any new training. However, only item seven on using AI with confidence for own job growth such as pulling together writings from many sources stands at a mean of 2.80, falling in the agree range and showing some basic comfort in that one area. The grand mean of 2.37 shows an overall disagree remark which shows that the librarians do not yet have strong skills in AI tools for helping with research needs.

The results point to low pre-existing competencies in AI tools for research support among the librarians. An empirical study by Okunlaya, et al (2022) found low awareness of many AI tools for research writing, storing and getting back information, fixing issues or blending into research work, ethical checks, integration, and analysis. A similar study by Michalak and Ellixson (2024) showed that librarians lack skills on data skills and adaptability, digital and ethical skills, and practical AI use, stressing that librarians see the need but lack full hands-on ability. Another research by Manjunatha (2023) reported low levels of skills and strengths in digital literacy, and technical areas like metadata, noting training shortfalls as the main block to better competence.

Research Question 3: What is the effectiveness of bootcamps in enhancing AI-integrated service delivery?
Table 3: Mean Responses on the effectiveness of bootcamps in enhancing AI-integrated service delivery

S/N	Items	Mean	SD	Remarks
1	Bootcamps can significantly improve my ability to deliver AI-enhanced research assistance to patrons.	3.10	0.60	Strongly Agree
2	Participation can increase my confidence in using AI for collection development and programming.	2.75	0.65	Agree
3	Bootcamps can enhance hybrid service models combining AI with traditional library functions.	3.20	0.70	Strongly Agree
4	There will be observed measurable improvements in patron satisfaction post-bootcamp AI training.	3.15	0.55	Strongly Agree
5	Bootcamps can equip me to teach digital literacy on AI tools to library users effectively.	3.10	0.58	Strongly Agree
6	Training from bootcamps can streamline administrative tasks via AI integration.	2.65	0.62	Agree
7	Bootcamps can foster innovative AI applications, boosting overall service quality	3.25	0.50	Strongly Agree
	Grand Mean	**3.03**		**Strongly Agree**

This table presents mean scores from librarians rating how well bootcamps work to build up AI use in library services. Majority of the respondents agreed that bootcamps greatly raising skills to give AI helped research help to users, better mixing AI with old library ways, clear rises in user happiness after training, gaining ability to teach users about AI digital skills, and sparking new AI uses to lift all service levels all sit with means from 3.10 to 3.25 in the strongly agree range, meaning librarians see strong proof that bootcamps can lead to big steps forward in these core parts of service work. However other respondents agreed on building sureness in picking collections and planning events and six on making office jobs smoother with AI have means of 2.75 and 2.65 and in the agree range. With a grand mean of 3.03 shows an overall strongly agree note, that bootcamps hold strong promise as a key way to lift AI skills across library tasks, and prove effective in boosting AI-integrated service delivery for the librarians

Empirical study by Isiaka, et al (2024) found out that training raised skills in areas like instant user help and personal picks, leading to better service flow, while noting shifts from old ways to tech blends with good gains in satisfaction. A similar study by Fabunmi and Akinyemi (2024) found out that training support is tied to higher competencies and skills like data handling and ethics, supporting bootcamp value for confidence in collections and admin tasks. This with calls for custom programs to spark innovation and quality boosts. Another study by Edam-Agbor, et al (2025) found out that performance hopes, social push, and setup help drove AI tool uptake linked to better service quality, echoing patron satisfaction and hybrid services after bootcamps, and pushing for targeted training to upskill staff.

Research Question 4: What are the barriers hindering sustained digital literacy bootcamps for reskilling academic librarians for AI-integrated research support services?
Table 4: Mean Responses on the barriers hindering sustained digital literacy bootcamps for reskilling academic librarians for AI-integrated research support services

S/N	Items	Mean	SD	Remarks
1	Lack of reliable internet and power supply hinders my sustained use of AI tools.	3.10	0.75	Strongly Agree
2	Insufficient funding for AI training and infrastructure prevents ongoing adoption.	3.20	0.70	Strongly Agree
3	Limited technical skills and knowledge gaps block effective AI implementation.	2.75	0.80	Agree

4	Organizational resistance and poor planning impede AI integration in libraries.	3.15	0.78	Strongly Agree
5	Ethical concerns like data privacy and algorithmic bias deter long-term AI use.	2.65	0.65	Agree
6	Fear of job displacement reduces willingness to adopt AI tools regularly.	3.30	0.82	Strongly Agree
7	Inadequate institutional support and policy frameworks limit sustained AI engagement	3.05	0.72	Strongly Agree
	Grand Mean	**3.03**		**Strongly Agree**

The table gives mean scores from academic librarians on roadblocks stopping ongoing digital literacy bootcamps to retrain them for using AI in research help services. Majority of the respondents agreed on weak internet and power cutting long-term AI tool use, low funds for training and setups blocking steady take-up, group pushback and bad planning slowing AI fit into library work, worry over losing jobs cutting drive to keep using AI, and missing school backing and rules holding back steady AI work which all fall with means from 3.05 to 3.30 in the strongly agree group, marking these as top hurdles. Few other respondents agreed on short skills and know-how gaps, and rightness issues like keeping data safe and fair AI choices which both have means of 2.75 and 2.65 in the agree group, which are still real issues. The grand mean of 3.03 shows a strongly agree overall label which sums up that strong barriers mainly from resources, fears, and setup stand in the way of lasting bootcamps skills for librarians to fully use AI for better research support.

Some empirical studies such as that of Kumar (2024) found out that big blocks like poor setups, fund lacks, and weak hands-on teaching stopping skills from turning into real service gains, showing low access to workshops, funding, infrastructure, and planning woes holding back steady bootcamps. Similarly, Okunlaya, et al (2022) found out certain issues like money tightness, tech shortages, data safety fears, staff skill shortfalls, and change pushback, calling for training and team-ups to fix them as key stops to ongoing programs. Another study by Meakin (2024) noted low institutional backing for training and support levels, tying to poor skills and low funding, resistance, and policy voids as main drags on sustained AI reskilling efforts.

Conclusion

The study on Digital Literacy Bootcamps for reskilling academic librarians for AI-integrated research support services reveals key insights from the analysis among librarians. Librarians show low pre-existing competencies in AI tools, indicating disagreement on most skills like understanding concepts, ethical evaluation, and integration, except moderate agreement on personal development use. Bootcamps prove effective overall, signaling strong agreement on gains in research aid, hybrid models, user teaching, and innovation, though milder on confidence and admin tasks. Strong barriers persist, highlighting strong agreement on issues like funding shortages, infrastructure lacks, organizational resistance, and job fears, tempered by lesser views on skills gaps and ethics. Overall, while bootcamps hold promise to bridge competency gaps and boost service delivery, sustained efforts demand overcoming resource and support hurdles to fully enable AI in research support.

Recommendations

Drawing from the findings of the study, the following recommendations address the identified issues:

1. Academic libraries should launch targeted introductory workshops on core AI concepts, ethical evaluation, and practical integration skills that build baseline confidence among librarians.
2. Library management should prioritize short, focused bootcamps with real-world simulations for research assistance and user training to ensure strong gains across all service areas
3. Institutions need to form partnerships with tech firms for ongoing bootcamp access, blending them into regular staff development calendars to lock in effectiveness and turn strong expectations into measurable service improvements.
4. Policymakers and library leaders must secure dedicated funding for infrastructure like stable internet and power, develop clear AI policies to ease fears and resistance.

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DIGITAL LITERACY SKILLS OF LIBRARIANS AS DETERMINANT OF AI ADOPTION IN RAMAT LIBRARY, UNIVERSITY OF MAIDUGURI

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ABSTRACT

This study investigated digital literacy skills of librarians as a determinant of Artificial Intelligence (AI) adoption in Ramat Library, University of Maiduguri. The objectives of the study were to identify the digital literacy skills possessed by librarians, examine the level of Artificial Intelligence adoption among librarians, identify the challenges affecting the utilization of digital literacy skills for AI adoption, and determine the relationship between digital literacy skills and AI adoption among librarians. A descriptive survey research design was employed, involving all 157 librarians through a total enumeration sampling technique to ensure comprehensive representation. Data were collected using a self-designed questionnaire titled Questionnaire on Digital Literacy Skills and AI Adoption (QDLSAIA), structured on a four-point Likert scale. Descriptive statistics including frequency counts, percentages, mean, and standard deviation, as well as inferential statistics using Simple Linear Regression, were employed to analyze the data at a 0.05 level of significance using SPSS version 24. A total of 149 completed questionnaires were analyzed. Findings revealed that librarians possessed high digital literacy skills, particularly in basic ICT operations and information retrieval. The study also found a high level of AI adoption among librarians, especially in information retrieval, digital reference services, and access to electronic resources. However, challenges such as inadequate ICT infrastructure, insufficient training opportunities, limited funding, lack of technical support, and inadequate institutional policies were identified as factors affecting the utilization of digital literacy skills for AI adoption. Regression analysis further revealed a strong, positive, and significant relationship ($R = 0.671$, $p < 0.05$) between digital literacy skills and AI adoption among librarians. The study concludes that digital literacy significantly influences librarians' readiness and ability to adopt AI technologies in library services. Based on the findings, the study recommends regular ICT capacity-building programs, continuous professional training on AI technologies, improved technological infrastructure, adequate funding, and stronger institutional support to enhance sustainable AI integration and innovation in academic libraries.

Keywords: Digital literacy; Artificial intelligence adoption; Academic librarians; Library services; University libraries

Introduction

Digital literacy has become a core competency in contemporary academic environments, extending beyond basic technical skills to include the ability to locate, evaluate, create, and ethically manage digital information. In academic libraries, digital literacy encompasses operational competencies, critical information evaluation, digital communication, and ethical awareness related to data privacy and intellectual property (Aina & Ajayi, 2020; Igbokwe & Onwuejeogwu, 2021). These competencies are increasingly vital as libraries transition from traditional service models to digitally mediated and intelligent information systems.

Empirical studies in Nigerian academic libraries reveal that while librarians generally possess basic ICT and operational skills, significant gaps remain in advanced digital competencies such as metadata management, critical evaluation of digital content, and ethical use of emerging technologies (Ekpo & Udoh, 2020; Chukwu & Ali, 2023). This uneven distribution of digital literacy skills affects librarians' readiness to adopt and effectively utilize advanced technologies, particularly Artificial Intelligence (AI), which requires not only technical interaction but also interpretive and critical engagement with algorithm-driven outputs.

Artificial Intelligence in academic libraries refers to the application of technologies such as machine learning, natural language processing, recommender systems, and intelligent agents to support library operations and service delivery. Recent studies indicate a growing global adoption of AI tools for reference services, automated cataloguing, resource discovery, and analytics, with evidence of improved efficiency and user engagement where these technologies are

effectively implemented (Islam et al., 2025; Usman & Lawal, 2023). However, the successful integration of AI systems depends largely on the digital literacy level of librarians who are responsible for managing, interpreting, and mediating these technologies for users.

Despite the potential benefits of AI adoption, academic libraries particularly in developing contexts face numerous challenges including infrastructural limitations, high implementation costs, ethical and privacy concerns, and inadequate human capacity (Owolabi et al., 2021; Ibrahim & Garba, 2023). Among these challenges, insufficient digital literacy and limited professional development opportunities for librarians have been consistently identified as critical barriers to effective AI adoption (Adamu & Ibrahim, 2021; Ogunleye & Akinola, 2021). Digital literacy therefore emerges as a decisive factor influencing both acceptance and sustainable use of AI technologies in library environments.

Ramat Library, the central academic library of the University of Maiduguri, has made notable progress in digital transformation through the provision of electronic databases, institutional repositories, and online catalogues. However, the adoption of AI-based library services remains minimal and largely experimental. While librarians demonstrate basic ICT competence, advanced digital skills required for effective AI integration are limited, and existing studies in the Nigerian context have largely focused on infrastructural and funding challenges, with limited attention to digital literacy as a determinant of AI adoption (Okafor & Eze, 2020; Ahmed & Bello, 2022). This study therefore examines digital literacy as a key determinant of AI adoption in Ramat Library, with implications for capacity building, policy formulation, and sustainable innovation in academic library services.

Statement of the Problem

The rapid advancement of Artificial Intelligence (AI) technologies has transformed information service delivery in academic libraries globally, offering opportunities for improved efficiency, enhanced resource discovery, and personalized user services. Despite these developments, the adoption of AI in Nigerian academic libraries remains limited and largely experimental. While many university libraries, including Ramat Library at the University of Maiduguri, have embraced basic digital tools such as electronic databases and online catalogues, the integration of AI-driven applications such as intelligent search systems, automated cataloguing, and virtual reference services is still minimal.

Existing studies on AI adoption in Nigerian academic libraries have predominantly emphasized infrastructural constraints, funding challenges, and policy limitations, with limited empirical attention given to human capacity factors, particularly digital literacy. Preliminary observations suggest that although librarians possess basic ICT competencies, gaps persist in advanced digital skills required for effective AI adoption, including critical evaluation of AI outputs, ethical data handling, and interaction with intelligent systems. This situation raises concerns about the readiness of librarians to adopt and sustain AI-driven innovations in library services.

The lack of empirical evidence on the extent to which digital literacy influences AI adoption in Ramat Library creates a critical knowledge gap. Without a clear understanding of this relationship, efforts aimed at implementing AI technologies may remain ineffective or unsustainable. Therefore, this study addresses this gap by examining digital literacy as a determinant of AI adoption among librarians in Ramat Library, University of Maiduguri.

Objectives of the Study

The objectives of the study are to:

1. Identify the digital literacy skills possessed by librarians in Ramat Library.
2. To examine the level of artificial intelligence adoption among librarians in Ramat Library University of Maiduguri.
3. To identify the challenges affecting the utilization of digital literacy skills for AI adoption among librarians in Ramat Library.
4. To determine the relationship between digital literacy skills and AI adoption among librarians in Ramat Library University.

Research Questions

1. What are the digital literacy skills possessed by librarians in Ramat Library?
2. What is the level of artificial intelligence adoption among librarians in Ramat Library University of Maiduguri?
3. What are the challenges affecting the utilization of digital literacy skills for AI adoption among librarians in Ramat Library?

Hypothesis

HO_1: There is no significant relationship between digital literacy skills of Librarians and the adoption of AI in Ramat Library University of Maiduguri.

Literature Review

This section reviews relevant empirical and conceptual literature related to digital literacy skills and Artificial Intelligence (AI) adoption in academic libraries.

Igbokwe and Onwuejeogwu (2021) investigated the "digital literacy competencies of librarians in Nigerian academic libraries with a focus on their readiness for emerging technologies". The study adopted a descriptive survey research design and covered a population of 120 librarians, out of which 80 were selected using stratified random sampling. Data were collected using a structured questionnaire and analyzed using descriptive statistics and Pearson correlation. Findings revealed that librarians possessed moderate competence in digital database searching and online communication tools, but demonstrated low proficiency in advanced digital skills such as metadata standards, data analytics, and intelligent systems. The study concluded that although librarians had foundational ICT skills, their digital literacy was insufficient for effective engagement with advanced technologies. The authors recommended continuous professional development and structured digital skills training to strengthen librarians' capacity for emerging digital services.

Chukwu and Ali (2023) conducted a study at the University of Abuja Library to assess "the digital literacy competencies of librarians and their preparedness for modern digital technologies". The study employed a descriptive survey design with a population of 42 librarians, from which 30 respondents were purposively sampled. Data were collected using a structured questionnaire and analyzed using mean scores and frequency counts. Findings showed that librarians were proficient in basic ICT functions such as internet browsing and word processing, but had limited competence in advanced digital applications, including AI-supported search engines and digital analytics tools. The study concluded that the uneven distribution of digital literacy skills constrained librarians' readiness for advanced technology adoption. Recommendations included continuous digital upskilling, collaboration with ICT professionals, and institutional support for digital innovation.

Okoye and Igwe (2022) examined the "level of digital literacy among librarians at Nnamdi Azikiwe University Library, Awka, in relation to effective service delivery". The study adopted a survey research design and involved all 65 librarians in the library using a census approach. Data were collected through a structured questionnaire and analyzed using descriptive statistics such as mean scores and percentages. Findings revealed that librarians possessed low to moderate levels of digital literacy, with higher competence in basic computer operations and email communication, but limited skills in digital repositories, metadata creation, and emerging technologies. The authors concluded that the existing level of digital literacy restricted librarians' ability to provide innovative digital services and recommended targeted capacity-building programs in advanced digital tools.

Usman and Ibrahim (2023) studied "the level of digital literacy among librarians at Bayero University, Kano, with emphasis on their readiness to adopt artificial intelligence in library services". A descriptive survey design was employed, involving a population of 60 librarians, from which 45 were purposively sampled. Data were gathered using a validated questionnaire and analyzed using descriptive statistics and chi-square tests. Findings indicated that librarians had moderate digital literacy skills, excelling in internet searching and library management systems but exhibiting very low competence in AI-based cataloguing and machine learning applications. The study concluded that while librarians possessed functional ICT skills, their overall digital literacy level was inadequate for sustainable AI adoption. The authors recommended intensive AI-focused training and mentorship programs.

Owolabi and Adebayo (2021) conducted a study at the University of Ibadan Library to "examine librarians' perceptions toward the adoption of artificial intelligence in academic libraries". The study adopted a descriptive survey design with a population of 70 librarians, from which 50 respondents were purposively sampled. Data were collected using a structured questionnaire and analyzed using descriptive statistics and regression analysis. Findings showed that librarians generally had positive perceptions of AI adoption, recognizing its potential to enhance information retrieval and automate routine library operations. However, concerns were expressed regarding job security and insufficient technical expertise. The study concluded that although librarians were favorably disposed toward AI, capacity building and policy support were necessary to encourage full adoption.

Ahmed and Bello (2022) investigated "librarians' perceptions of artificial intelligence adoption in academic libraries in Nigeria". The study employed a survey research design with a population of 60 librarians, out of which 40 respondents were randomly sampled. Data were collected using a questionnaire and analyzed using mean scores, standard deviation, and chi-square statistics. Findings revealed moderately positive perceptions toward AI adoption, particularly regarding its usefulness in cataloguing and reference services. Nonetheless, concerns related to cost, infrastructural challenges, and fear of technology replacing human roles were identified. The study concluded that librarians' perceptions were shaped by both anticipated benefits and perceived risks, recommending awareness campaigns and infrastructural investment to improve acceptance of AI technologies.

Ogunleye and Akinola (2021) examined "the relationship between digital literacy skills and the adoption of artificial intelligence in Nigerian academic libraries". The study adopted a descriptive survey research design with a population of 72 librarians, from which 50 respondents were purposively sampled. Data were collected using a structured questionnaire and analyzed using Pearson correlation and regression analysis. Findings revealed a significant positive relationship between librarians' digital literacy skills and their adoption of AI-based library services. The study concluded that librarians with higher digital literacy levels were more likely to embrace AI technologies. The authors recommended continuous digital literacy training and institutional investment in advanced technologies.

Adamu and Ibrahim (2021) investigated "digital literacy as a predictor of artificial intelligence adoption among librarians in Nigerian universities, focusing on Bayero University, Kano". The study employed a correlational survey

design with a population of 48 librarians, from which 35 respondents were purposively sampled. Data were collected using a structured questionnaire and analyzed using correlation and regression analysis. Findings showed a strong and significant positive relationship between digital literacy and AI adoption among librarians. The study concluded that digital literacy was a key determinant of AI adoption and recommended structured training programs, improved ICT infrastructure, and policy support to enhance librarians' readiness for AI-driven services.

Methodology

The study adopted a descriptive survey research design to examine digital literacy as a determinant of Artificial Intelligence (AI) adoption among librarians in Ramat Library, University of Maiduguri. The population comprised all 157 librarians in the library, and a total enumeration sampling technique was employed to ensure comprehensive representation. Data were collected using a self-designed questionnaire titled *Questionnaire on Digital Literacy Skills and AI Adoption (QDLSAIA)*, structured into sections covering demographic information, digital literacy skills, level of digital literacy, and librarians' perceptions of AI adoption, measured using four-point Likert scales. The instrument was administered personally by the researcher with the assistance of research assistants, following approval from library management, and respondents were assured of confidentiality. A total of 149 valid questionnaires were retrieved and analyzed. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to answer the research questions, while Simple Linear Regression was employed to test the null hypothesis at a 0.05 level of significance using SPSS version 24.7.

Results

Table 1: Demographic Information of Respondents

S/N	Variable	Options	Frequency (f)	Percentage (%)
1	**Age**	18–23 years	78	52.3%
		24–28 years	42	28.2%
		29–35 years	20	13.4%
		35 and Above	9	6.0%
	Total		**149**	**100%**
2	**Gender**	Male	64	43.0%
		Female	85	57.0%
	Total		**149**	**100%**
3	**Years of Service**	1–5 years	59	39.6%
		6–10 years	41	27.5%
		11–15 years	27	18.1%
		16–20 years	14	9.4%
		20 years and Above	8	5.4%
	Total		**149**	**100%**
4	**Educational Qualification**	Diploma	33	22.1%
		Bachelor's Degree	78	52.3%
		Master's Degree	30	20.1%
		PhD	8	5.4%
	Total		**149**	**100%**

Source: Field Survey, 2025

The demographic analysis indicates that respondents were predominantly young, with over half (52.3%) within the 18–23 years age group, reflecting a sample largely composed of early-stage academics or professionals, while only a small proportion were aged 35 years and above. Gender distribution showed a slight female dominance, with females accounting for 57.0% of respondents, suggesting balanced participation with higher female representation. In terms of experience, most respondents (39.6%) had between 1–5 years of service, indicating that the majority were early-career individuals with developing professional exposure, while few had long service experience. Regarding educational qualifications, more than half of the respondents (52.3%) held Bachelor's degrees, followed by Diploma and Master's degree holders, with PhD holders constituting the smallest group. Overall, the findings reveal that the respondents were largely young, female, moderately educated, and at an early stage of their professional careers, providing a relevant and informed population for examining issues related to digital literacy and AI adoption.

Digital Literacy Skills of Librarians

Table 2: Digital Literacy Skills possessed by Librarians

S/N	Statement	SA	A	D	SD	Mean	Std.Dev.
1	I can effectively use computers for library operations.	78 (52.3%)	51 (34.2%)	15 (10.1%)	5 (3.4%)	3.35	0.79
2	I am skilled in using the internet for information retrieval.	84 (56.4%)	49 (32.9%)	12 (8.1%)	4 (2.7%)	3.43	0.75

3	I can operate library management software without supervision.	62 (41.6%)	50 (33.6%)	25 (16.8%)	12 (8.1%)	3.09	0.93
4	I am competent in using Microsoft Office tools (Word, Excel, PowerPoint).	89 (59.7%)	44 (29.5%)	10 (6.7%)	6 (4.1%)	3.45	0.81
5	I can use email and other online communication tools professionally.	91 (61.1%)	42 (28.2%)	10 (6.7%)	6 (4.0%)	3.46	0.79
6	I can conduct advanced searches using online databases and e-resources.	72 (48.3%)	54 (36.2%)	17 (11.4%)	6 (4.1%)	3.29	0.84
7	I am skilled in using reference management tools (e.g., Mendeley, Zotero).	55 (36.9%)	56 (37.6%)	25 (16.8%)	13 (8.7%)	3.03	0.91
8	I can troubleshoot minor ICT problems in the library.	49 (32.9%)	60 (40.3%)	28 (18.8%)	12 (8.0%)	2.99	0.89
9	I can evaluate the authenticity and relevance of digital resources.	75 (50.3%)	53 (35.6%)	14 (9.4%)	7 (4.7%)	3.32	0.82
	Weighted Mean					**3.27**	**0.84**

Source: Field Survey, 2025

The analysis of responses on digital literacy skills reveals that librarians generally possess a high level of digital competence, as evidenced by consistently high mean scores across most items. Strong proficiency was recorded in basic computer usage for library operations ($\bar{x}$ = 3.35; SD = 0.79), internet use for information retrieval ($\bar{x}$ = 3.43), Microsoft Office applications ($\bar{x}$ = 3.45), and professional use of email and other online communication tools, which recorded the highest mean score ($\bar{x}$ = 3.46). Respondents also demonstrated strong evaluative skills in assessing the authenticity and relevance of digital resources ($\bar{x}$ = 3.32), indicating sound information literacy competencies. These results suggest that librarians are well equipped to perform essential digital library functions such as online searching, documentation, communication, and information evaluation.

Despite the generally high digital literacy level, some areas showed comparatively lower mean scores, indicating skill gaps. Moderate competence was observed in the use of library management software ($\bar{x}$ = 3.09; SD = 0.93), reference management tools such as Mendeley and Zotero ($\bar{x}$ = 3.03), and troubleshooting minor ICT problems ($\bar{x}$ = 2.99). The overall weighted mean of 3.27, with a standard deviation of 0.84, confirms that librarians possess a high level of digital literacy, though with noticeable variation in specialized technical skills. These findings imply that while librarians are digitally empowered in general ICT use, targeted capacity-building is required in advanced library systems, reference management applications, and basic technical troubleshooting to enhance efficiency and readiness for AI-driven library services.

Table 3: Level of Artificial Intelligence Adoption among Librarians

S/N	Statement	VHL	HL	LL	VLL	Mean	S.D
1	AI tools are used for information retrieval services in the library.	78 (52.3%)	50 (33.6%)	15 (10.1%)	6 (4.0%)	3.34	0.82
2	AI applications are used to support cataloguing and classification activities.	73 (49.0%)	52 (34.9%)	17 (11.4%)	7 (4.7%)	3.27	0.85
3	Librarians use AI-powered search engines and discovery tools in library operations.	65 (43.6%)	56 (37.6%)	19 (12.8%)	9 (6.0%)	3.19	0.89
4	AI technologies are integrated into digital reference services in the library.	70 (47.0%)	54 (36.2%)	18 (12.1%)	7 (4.7%)	3.26	0.86
5	Librarians use AI-based communication tools for user support services.	76 (51.0%)	49 (32.9%)	16 (10.7%)	8 (5.4%)	3.29	0.84
6	AI systems are used to improve access to electronic databases and e-resources.	80 (53.7%)	47 (31.5%)	15 (10.1%)	7 (4.7%)	3.34	0.83
7	AI-supported tools are utilized for research and reference management services.	61 (40.9%)	55 (36.9%)	22 (14.8%)	11 (7.4%)	3.11	0.92
8	AI technologies are used to solve minor operational challenges in the library.	58 (38.9%)	57 (38.3%)	22 (14.8%)	12 (8.0%)	3.08	0.93
9	AI applications are used to evaluate and organize digital information resources.	74 (49.7%)	53 (35.6%)	15 (10.1%)	7 (4.7%)	3.30	0.84
10	Librarians encourage library users to utilize AI-enabled information services.	69 (46.3%)	55 (36.9%)	17 (11.4%)	8 (5.4%)	3.24	0.86
	Weighted Mean					**3.24**	**0.86**

Source: Field Survey, 2025

The results in Table 3 reveal that librarians generally demonstrate a high level of Artificial Intelligence (AI) adoption in library operations, as reflected by the high mean scores across most items. High levels of adoption were recorded in the

use of AI tools for information retrieval services ($\bar{x}$ = 3.34; SD = 0.82), AI systems for improving access to electronic databases and e-resources ($\bar{x}$ = 3.34; SD = 0.83), and AI applications for evaluating and organizing digital information resources ($\bar{x}$ = 3.30; SD = 0.84). Librarians also reported substantial use of AI-based communication tools for user support services ($\bar{x}$ = 3.29) and AI technologies integrated into cataloguing, classification, and digital reference services. These findings suggest that librarians are increasingly incorporating AI technologies into routine library operations to enhance efficiency, improve access to information resources, and strengthen service delivery.

Despite the generally high level of AI adoption, comparatively lower mean scores were observed in specialized applications such as the use of AI-supported tools for research and reference management services ($\bar{x}$ = 3.11; SD = 0.92) and the use of AI technologies to solve minor operational challenges in the library ($\bar{x}$ = 3.08; SD = 0.93). These findings indicate that although AI adoption is progressing, some librarians still experience limitations in utilizing advanced AI-driven applications effectively. The overall weighted mean of 3.24, with a standard deviation of 0.86, confirms that librarians exhibit a high level of AI adoption in library services. However, the variations in some specialized areas imply the need for continuous training, improved technological infrastructure, and institutional support to further strengthen effective and sustainable AI integration in academic library operations.

Table 4: Challenges Affecting the Utilization of Digital Literacy Skills for AI Adoption among Librarians

S/N	Statement	SA	A	D	SD	Mean	S.D
1	Inadequate ICT infrastructure affects the utilization of digital literacy skills for AI adoption in the library.	88 (59.1%)	45 (30.2%)	10 (6.7%)	6 (4.0%)	3.44	0.80
2	Lack of adequate training limits librarians' ability to utilize digital literacy skills for AI adoption.	93 (62.4%)	38 (25.5%)	11 (7.4%)	7 (4.7%)	3.46	0.83
3	Insufficient access to modern digital technologies hinders AI adoption in the library.	85 (57.0%)	44 (29.5%)	13 (8.7%)	7 (4.8%)	3.39	0.83
4	Fear of job displacement discourages librarians from utilizing AI technologies.	40 (26.8%)	38 (25.5%)	47 (31.5%)	24 (16.1%)	2.63	1.02
5	Limited financial support affects the adoption of AI technologies in the library.	80 (53.7%)	50 (33.6%)	11 (7.4%)	8 (5.3%)	3.36	0.85
6	Complexity of AI systems makes it difficult for librarians to utilize digital literacy skills effectively.	62 (41.6%)	54 (36.2%)	23 (15.4%)	10 (6.8%)	3.13	0.90
7	Lack of technical support affects the effective use of AI technologies in the library.	78 (52.3%)	49 (32.9%)	14 (9.4%)	8 (5.4%)	3.32	0.85
8	High cost of AI technologies limits their adoption in library operations.	65 (43.6%)	48 (32.2%)	25 (16.8%)	11 (7.4%)	3.12	0.92
9	Inadequate digital literacy skills among some librarians affect AI integration in library services.	82 (55.0%)	46 (30.9%)	13 (8.7%)	8 (5.4%)	3.35	0.85
10	Absence of institutional policies and support affects AI adoption in academic libraries.	90 (60.4%)	41 (27.5%)	10 (6.7%)	8 (5.4%)	3.43	0.83
	Weighted Mean					**3.26**	**0.87**

Source: Field Survey, 2025

The results in Table 4 reveal that librarians experience several challenges affecting the utilization of digital literacy skills for Artificial Intelligence (AI) adoption in library operations, as reflected by the high mean scores across most items. Major challenges identified include lack of adequate training on AI technologies ($\bar{x}$ = 3.46; SD = 0.83), inadequate ICT infrastructure ($\bar{x}$ = 3.44; SD = 0.80), absence of institutional policies and support for AI integration ($\bar{x}$ = 3.43; SD = 0.83), and insufficient access to modern digital technologies ($\bar{x}$ = 3.39; SD = 0.83). Respondents also agreed that limited financial support ($\bar{x}$ = 3.36), inadequate digital literacy skills among some librarians ($\bar{x}$ = 3.35), and lack of technical support ($\bar{x}$ = 3.32) significantly hinder the effective utilization of digital literacy skills for AI adoption. These findings suggest that infrastructural, technical, financial, and institutional factors collectively limit librarians' ability to effectively utilize AI technologies in academic library services.

However, some challenges were perceived differently by respondents. Fear of job displacement resulting from AI adoption recorded a comparatively lower mean score ($\bar{x}$ = 2.63; SD = 1.02), indicating that although some librarians perceive AI as a threat to job security, many do not strongly share this concern. Similarly, the complexity of AI systems yielded a moderate mean score ($\bar{x}$ = 3.13; SD = 0.90), suggesting that while some librarians experience difficulty in understanding and operating AI technologies, others are gradually adapting to these systems. The overall weighted mean of 3.26, with a standard deviation of 0.87, confirms that librarians face considerable challenges in utilizing digital literacy skills for AI adoption. Overall, the findings imply that continuous professional training, improved ICT infrastructure, adequate funding, technical support, and strong institutional policies are necessary to enhance effective AI adoption and utilization in academic libraries.

Hypothesis

Table: Summary of Simple Linear Regression Analysis on the Relationship between Digital Literacy Skills and Adoption of AI in Ramat Library, University of Maiduguri

Variable	R	R^2	β	t-value	p-value	Decision
Digital Literacy Skills → AI Adoption	0.671	0.450	0.671	12.223	0.000	Significant

The regression analysis revealed a correlation coefficient (R) of 0.671, indicating a strong positive relationship between digital literacy skills and AI adoption among librarians. The R^2 value of 0.450 shows that digital literacy explains 45% of the variance in AI adoption. The unstandardized coefficient ($\beta = 0.782$) indicates that a unit increase in librarians' digital literacy leads to a 0.782 increase in AI adoption. The t-value of 12.223 with a p-value of 0.000 ($p < 0.05$) confirms that the relationship is statistically significant. Therefore, the null hypothesis (H_{01}) stating that there is no significant relationship between digital literacy skills and AI adoption is rejected. This implies that librarians' level of digital literacy plays a crucial role in determining their ability and willingness to adopt Artificial Intelligence for improved service delivery in Ramat Library.

Discussion of Findings

The findings revealed that while librarians demonstrated high proficiency in basic digital literacy skills such as computer use, internet navigation, and Microsoft Office applications, they showed limited competence in advanced areas like reference management tools and ICT troubleshooting. This pattern aligns strongly with existing literature, which consistently reports stronger foundational skills than advanced digital competencies among librarians. Similar findings were reported by Igbokwe and Onwuejeogwu (2021), Okoye and Igwe (2022), and Chukwu and Ali (2023), who found that librarians were proficient in basic ICT tools but had low competence in advanced digital skills such as metadata standards, digital repositories, AI-supported systems, and analytics tools. These studies collectively indicate that while foundational ICT competence is widespread, gaps persist in specialized digital applications required for advanced library services.

The study further revealed that the level of Artificial Intelligence (AI) adoption among librarians in Ramat Library was generally high, particularly in areas such as information retrieval services, access to electronic databases, digital reference services, and communication with library users. However, comparatively lower adoption levels were observed in more specialized applications such as AI-supported research management services and the use of AI technologies for solving operational challenges. This finding presents a more encouraging outlook than earlier studies which reported limited or moderate adoption of AI technologies among librarians. For instance, Usman and Ibrahim (2023) reported that librarians demonstrated low competence in AI-based applications despite possessing functional ICT skills, while Okoye and Igwe (2022) identified weaknesses in advanced digital technologies among academic librarians. The present finding therefore suggests gradual improvement in the integration and utilization of AI technologies in academic libraries, possibly due to increased exposure to digital innovations, improved awareness of AI applications, and institutional efforts toward digital transformation, although limitations in advanced AI utilization still persist.

The findings also identified several challenges affecting the utilization of digital literacy skills for AI adoption among librarians, including inadequate ICT infrastructure, insufficient training opportunities, limited access to modern technologies, inadequate funding, lack of technical support, and weak institutional policies. Although fear of job displacement was identified, it was not perceived as a major challenge by most respondents. These findings are consistent with the studies of Owolabi and Adebayo (2021) and Ahmed and Bello (2022), who found that librarians acknowledged the usefulness of AI technologies but were constrained by high implementation costs, infrastructural limitations, and inadequate technical capacity. Similarly, Ogunleye and Akinola (2021) emphasized that digital literacy alone may not guarantee successful AI adoption without adequate institutional support and technological infrastructure. The findings therefore imply that while librarians are increasingly willing to adopt AI technologies, persistent financial, technical, and organizational barriers continue to limit the effective utilization of digital literacy skills for sustainable AI integration in academic libraries.

Finally, the regression analysis revealed a significant positive relationship between digital literacy skills and AI adoption, indicating that librarians with higher digital competence are more willing and ready to adopt AI technologies. This finding is strongly supported by Ogunleye and Akinola (2021) and Adamu and Ibrahim (2021), who established that digital literacy is a significant predictor of AI adoption among librarians in Nigerian academic libraries. However, the unexplained variance in the relationship suggests that other factors such as ICT infrastructure, funding, institutional policies, and organizational support also influence AI adoption, reinforcing the view that digital literacy, while critical, must be complemented by enabling institutional conditions.

Conclusion

This section presents the summary of the major findings of the study and draws conclusions based on the results obtained from the analysis. It highlights the extent to which digital literacy skills influence Artificial Intelligence (AI) adoption among librarians in Ramat Library, University of Maiduguri, as well as the challenges affecting effective AI integration in library services.

The study on Digital Literacy as a Determinant of Artificial Intelligence (AI) Adoption in the Academic Library, University of Maiduguri, concludes that digital literacy is a critical factor influencing librarians' readiness and

willingness to adopt AI technologies for improved service delivery. The findings revealed that librarians possess a high level of digital competence in basic ICT skills, which positively shaped their perception and acceptance of AI applications, and a statistically significant relationship was established between digital literacy and AI adoption. However, challenges such as limited skills in advanced digital tools, inadequate infrastructure, and concerns about job security were identified as constraints to full AI integration. The study therefore concludes that sustained professional development, targeted ICT training, supportive institutional policies, and improved technological infrastructure are essential for strengthening digital literacy and promoting effective human–AI collaboration, enabling academic libraries to fully leverage AI for enhanced efficiency, innovation, and user satisfaction.

Recommendation

Based on the findings and conclusions of the study, the following recommendations were made:

1. The library management should organize regular ICT capacity-building workshops and digital competency certification programs to strengthen librarians' skills in emerging digital technologies, particularly in specialized areas such as database management, AI-based systems, and research support tools.
2. The library management should maintain continuous professional development opportunities and hands-on training sessions, especially in the use of library automation software, database navigation, and digital preservation systems, to bridge the identified skill gaps.
3. The library should sensitize staff on the collaborative potential of AI technologies rather than viewing them as replacements, and seek institutional or external funding to mitigate the cost of AI adoption and integration.
4. The library should improve technological infrastructure, ensure stable internet connectivity, and create institutional policies that encourage AI integration and innovation among librarians to fully harness the benefits of digital transformation.

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Effects of Climate Change on Library Resources Management in University Libraries in Rivers State, Nigeria

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Abstract

Climate change stands as a serious threat to library resources management in university libraries in Rivers State, Nigeria. This study investigated the extent of climate change-induced damage to library resources, existing preservation and management strategies, and the challenges faced by library personnel in implementing climate-resilient practices. A quantitative descriptive survey design was adopted. The total population comprised 68 professional and para-professional librarians across three public universities. Census enumeration technique was adopted for the study. Hence, fifty (50) questionnaires were retrieved and found usable, representing 73.5% response rate. Data were analyzed using descriptive statistics and means computed for each item, and a 2.50 cut-off adopted as the decision benchmark. Findings revealed that climate change has caused damage to library resources, particularly through flooding and humidity-related deterioration; that preservation strategies are partially in place but inconsistently implemented; and that power instability, budgetary constraints, and training deficits are the most significant barriers to climate-resilient practice. It is recommended among others that university libraries in Rivers State prioritize alternative energy solutions.

Keywords: *Climate Change, Library Resources Management, Preservation Strategies, University Libraries, Rivers State*

Introduction

Climate change, defined as the long-term alteration in global or regional weather patterns primarily attributed to human activities such as greenhouse gas emissions and deforestation, poses profound threats to institutional repositories of knowledge worldwide (IPCC, 2022). In the context of library science, this phenomenon exacerbates vulnerabilities in the preservation and management of library resources, which encompass physical collections like books, manuscripts, journals, and archival materials, as well as digital assets requiring stable infrastructure for access and storage. University libraries in tropical regions, characterized by high temperatures, elevated relative humidity, and frequent extreme weather events, face accelerated deterioration of these resources due to biodeterioration processes, including mould growth and insect infestations. In Nigeria, these challenges are intensified by rapid urbanization and inadequate infrastructure, leading to diminished access to scholarly materials essential for academic pursuits and societal development (Igie, Makinde, Omigie, & Adeniran, 2023).

Rivers State, located in the Niger Delta region of southern Nigeria, exemplifies the intersection of climate change impacts and library resource management. Flooding in Rivers State has surged in frequency and intensity in recent years, with major events in 2022 severely affecting communities and infrastructure in Port Harcourt and surrounding areas (Ezenwaji et al., 2023). Such inundations threaten library buildings, potentially causing water damage to shelving systems, electrical setups, and collection stacks, while high humidity levels, often exceeding 80% during rainy seasons, foster fungal proliferation on paper-based materials. Library science literature highlights that relative humidity above 60% accelerates acid hydrolysis in acidic papers, leading to embrittlement and fragmentation, a process hastened by temperatures averaging 28–32°C in the region (Mathew & Yonatan, 2021).

Challenges in library resource management under climate stressors include inadequate funding for climate-resilient infrastructure, limited training in preventive conservation, and reliance on reactive measures rather than proactive environmental monitoring. Budgetary limitations hinder upgrades like flood-resistant storage or humidity-controlled facilities, while low awareness among personnel delays implementation of standards for tropical preservation. These factors compound vulnerabilities, leading to potential losses in irreplaceable materials and disruptions in service delivery (Dada, 2021). This background underscores the urgency of examining climate change's ramifications in Rivers State's

university libraries, where the University of Port Harcourt, Rivers State University, and Ignatius Ajuru University of Education manage diverse collections amid escalating environmental risks.

Statement of the Problem

In the ideal situation, university libraries in Nigeria operate as climate-resilient institutions where resources such as print collections, digital infrastructure, archival materials, and ICT facilities are well-preserved and accessible year-round. Effective environmental control systems, stable power supply, and climate-adapted buildings ensure that temperature, humidity, and disaster risks are managed, allowing librarians to focus on collection development, preservation, and user services that support teaching, research, and sustainable development goals standards.

However, observation has revealed growing challenges as climate change increasingly threatens library resources management especially in university libraries in Rivers State, Nigeria, ranging from intensified flooding sometimes caused by erratic rainfall, elevated humidity, extreme heat, and humidity fluctuations damage print materials, promote mold growth, and accelerate paper deterioration and temperature extremes, which precipitate severe degradation of library resources. Such deterioration disrupts core library functions - acquisition, preservation, and access - exacerbating knowledge gaps for academic users and straining limited budgets for remedial conservation. Furthermore, frequent power outages and grid instability disrupt air-conditioning and digital servers, exposing electronic resources and databases to data loss and hardware failure. Many Nigerian university libraries lack climate-adapted infrastructure, disaster preparedness plans, climate-resilient policies, integrated pest management protocols, infrastructure upgrades, and funding for preservation technology, forcing librarians to struggle with collection loss, reduced access, and higher maintenance costs, leaving resources vulnerable and thereby undermining librarians' role in knowledge preservation, as well supporting research on environmental challenges and effective service delivery.. The challenge is also, compounded by inadequate awareness and training among library personnel in tropical preservation techniques, leading to reactive rather than proactive management. Could these challenges be applicable to the happenings in university libraries in Rivers State?

Hence, the nexus for this investigation. This study seeks to address these deficiencies by empirically assessing climate change effects and proposing actionable strategies to fortify resource management, offering practical guidance for policymakers and library personnel.

Objectives of the Study

This study aims to investigate the effects of climate change on library resources management in university libraries in Rivers State, Nigeria. Specifically, the objectives are to:

1. determine the extent of climate change-induced damage to physical and digital library resources in university libraries in Rivers State, Nigeria.
2. evaluate the preservation and management strategies of library resources by these libraries.
3. identify the challenges faced by library personnel in implementing climate-resilient practices.

Literature Review

Conceptual Review of the Major Concepts

Climate Change in Academic Libraries Resources

Climate change has emerged as one of the most transformative global challenges in the twenty-first century, reshaping industries, organizations, and educational institutions. In the context of academic libraries, climate change refers to the environmental shifts and extreme weather events that directly affect the preservation, accessibility, and management of library resources, manifesting through flooding, humidity fluctuations, heat waves, and infrastructural damage, which compromise the integrity of physical collections and disrupt service delivery (Ngulube & Mosha, 2025). Climate change in libraries can be categorized into several domains: physical preservation, where environmental changes accelerate deterioration of print materials; infrastructural resilience, which involves strengthening buildings and ICT systems against floods; and digitization and virtual repositories, ensuring continuity of access even during environmental disruptions (Oladokun, Wagwu, & Okoro, 2023). The adoption of climate-adaptive strategies in academic libraries is not without challenges, as infrastructural deficiencies, financial constraints, and limited technical expertise pose significant barriers to implementation (Danladi & Jegbefume, 2025).

Library Resource Management and Preservation Strategies

Library resource management has emerged as a central concept in the twenty-first century, referring to the systematic planning, acquisition, organization, preservation, and dissemination of both physical and digital collections to meet the needs of students, faculty, and researchers. The concept of resource management in libraries is not limited to routine operations but extends to strategic adaptation, where systems and practices respond to environmental, technological, and institutional changes (Ngulube & Mosha, 2025). In academic libraries especially in Rivers State, where student populations are expanding and collections are diversifying, the adoption of resource management strategies is particularly relevant for addressing inefficiencies in cataloging, preservation, and service delivery (Danladi & Jegbefume, 2025). The absence of proactive management frameworks limits efficiency and resilience, which are

increasingly important in contemporary scholarship, while resource management initiatives can fill this gap by curating sustainable pathways for collection development and preservation.

Climate Change Effect in University Libraries Resources in Rivers State

University libraries represent the intellectual backbone of higher education, serving as repositories of knowledge and facilitators of research, teaching, and learning. In Rivers State, Nigeria, these libraries are tasked with acquiring, organizing, preserving, and disseminating both print and digital resources amid escalating environmental risks (Ngulube & Mosha, 2025).

Climate change effect refers to the observable consequences of environmental shifts such as flooding, rising temperatures, and humidity fluctuations on the preservation and management of library resources. In university libraries in Rivers State, these effects are particularly pronounced due to the region's vulnerability to heavy rainfall, poor drainage systems, and infrastructural limitations. Collections housed in poorly ventilated or inadequately protected facilities are at risk of deterioration, mold growth, and physical damage. Beyond physical resources, climate change also disrupts service delivery, as extreme weather events can hinder access to library buildings, damage ICT infrastructure, and increase operational costs. Recent scholarship emphasizes that climate change impacts are increasingly recognized as critical factors influencing the sustainability of academic libraries in Nigeria (Ngulube & Mosha, 2025).

Libraries in Rivers State frequently encounter flooding, humidity, and infrastructural damage, which compromise the preservation of collections and disrupt service delivery. The development of university libraries in Rivers State is not without challenges: infrastructural deficiencies, financial constraints, and limited technical expertise pose significant barriers to effective resource management, while reliable electricity, adequate storage facilities, and vendor support are prerequisites for sustainable library operations (Oladokun, Wagwu, & Okoro, 2023). By examining climate change impacts, this study positions environmental pressures as both a challenge to existing practices and a driver of innovation in library service delivery.

Empirical Review

Eze and Nwankwo (2025) examined climate change awareness and preservation practices among librarians in Nigerian universities, adopting a quantitative survey design with 300 respondents. Findings revealed that libraries with higher awareness levels implemented more proactive preservation measures such as digitization and climate-controlled storage, and the study concluded that awareness is a critical enabler of resilience, recommending mandatory training programmes and institutional climate policies. Okoro and Agada (2024) conducted an evaluative study on disaster preparedness strategies in Nigerian university libraries anchored on DOI, finding significant increases in adoption of emergency response plans and staff awareness following structured training, and concluding that structured preparedness training is highly effective in enhancing resilience.

Chukwu and Ibrahim (2022) investigated preservation policies in university libraries across South-West Nigeria, finding poor policy execution, inadequate preservation infrastructure, and limited staff capacity, and concluding that effective preservation policies are indispensable for safeguarding collections. Adebanjo and Salisu (2022), anchored on Human Capital Theory, highlighted significant training deficits that hindered adaptive capacity and preservation output among library staff in federal universities, concluding that continuous professional development is essential for building adaptive competence. Umar (2022) established that digitization significantly improves accessibility and resilience against climate-related deterioration and recommended structured training and institutional guidelines on digital preservation practices. Ogunleye and Hassan (2022) found that disaster management competencies and institutional support are critical for successful adaptation, concluding that librarians must transition to active disaster managers and recommending competency-based training and policy recognition of librarians as key actors in resilience planning.

Aba, Makinde, Omigie and Ademola (2023) carried out an investigation on perceived effect of climate change on library resources in Universities in Edo State, Nigeria. The result reveals that those perceived effects of climate change damage library structures and furnishings, decrease library usage during rainy season, and raise users frustration in university libraries. The study maintained that climate change-related variables are threats that have a direct or indirect impact on library resources. They conclude that librarians should receive ongoing training on the physical and chemical nature of resources, and significant efforts by library administration, employees, and parent institutions are required to address the threat of climate change on library resources in universities in Edo State, Nigeria.

Chewe and Banda (2021) investigated the role of public libraries in the climate change agenda. The results revealed that majority (80%) of the participating libraries had no plans on how to combat climate change and its impacts and only 1 (1.6%) library was actively involved in climate change awareness campaigns. It was deduced from the result that public libraries in Zambia were passive in the fight against climate change. Implicitly, the role of public libraries vis-à-vis the climate action agenda was insignificant. These findings would inform policy direction on how best to leverage public libraries in the actualization of SDG # 13.

The study carried out by Ekanem and Mutiso (2021) on partnerships among librarians in Nigeria and Kenya revealed that sustained partnerships enhanced preservation capacity and strengthened institutional resilience against climate risks.

Methodology

This study employed a quantitative descriptive survey research design to investigate the effects of climate change on library resources management in university libraries in Rivers State. The population comprised 68 professional and para-professional librarians across the three university libraries in Rivers State, as shown in Table 1 below.

S/N	Institution	Professional	Para-Professional	Total
1	Rivers State University Library	10	11	21
2	Donald Ekong Library, University of Port Harcourt	18	16	34
3	Ignatius Ajuru University of Education Library	10	3	13
	Total	**38**	**30**	**68**

Table 1: Population Distribution of the Study (Source: Library Heads, 2026)

Census enumeration technique guided the study. Questionnaires were distributed accordingly using stratified random sampling to ensure proportional representation across the three institutions. Fifty (50) were retrieved and found usable, giving a response rate of 73.5% with distribution as follows: Donald Ekong Library, University of Port Harcourt (25, 50.0%), Rivers State University Library (15, 30.0%), and Ignatius Ajuru University of Education Library (10, 20.0%). Data were collected using a structured questionnaire. Section A captured demographic information, and Section B contained 30 Likert-scale items across three research questions (ten items each), rated on a four-point scale: 4 = Strongly Agree (SA), 3 = Agree (A), 2 = Disagree (D), and 1 = Strongly Disagree (SD). Validity was established through expert review, and reliability was confirmed through Cronbach's alpha ($\alpha = 0.81$). Data were analyzed using frequency counts, percentages, and weighted means, with a mean score of 2.50 and above adopted as the benchmark for agreement.

Analysis and Interpretation

Section A: Demographic Variables of Respondents

Table 2: Respondent Demographic Profile

Variable	Category	n (%)
Gender (n=50)	Male	15 (30.0%)
	Female	35 (70.0%)
Age (n=50)	18 – 25	2 (4.0%)
	26 – 35	9 (18.0%)
	36 – 45	13 (26.0%)
	46 and above	26 (52.0%)
Institution (n=50)	Donald Ekong Library, University of Port Harcourt	25 (50.0%)
	Rivers State University Library	15 (30.0%)
	Ignatius Ajuru University of Education Library	10 (20.0%)
Years of Experience (n=50)	1 – 10 years	23 (46.0%)
	11 – 20 years	18 (36.0%)
	21 – 30 years	7 (14.0%)
	31 years and above	2 (4.0%)
Educational Qualification (n=50)	BLIS/BSc	10 (20.0%)
	HND	2 (4.0%)
	MLIS/MSc	12 (24.0%)

	PhD	26 (52.0%)
Designation (n=50)	Library Officer	12 (24.0%)
	Librarian (1–3)	22 (44.0%)
	Senior Librarian	11 (22.0%)
	Deputy Librarian	3 (6.0%)
	Professor	2 (4.0%)

The table revealed that majority of the respondents were experienced and highly qualified library professionals. The majority were female (35, 70.0%) and 52.0% were aged 46 and above. In line with the population distribution, the Donald Ekong Library, University of Port Harcourt contributed the largest proportion (25, 50.0%), followed by Rivers State University Library (15, 30.0%), and Ignatius Ajuru University of Education Library (10, 20.0%). About half of respondents (23, 46.0%) had 1–10 years of experience, while 36.0% (18) had 11–20 years. The majority held a PhD (26, 52.0%) or MLIS/MSc (12, 24.0%). Librarians (Grade 1–3), followed by Library Officers (12, 24.0%) and Senior Librarians (11, 22.0%).

Section B: Extent of Climate Change, Preservation Strategies, and Challenges

Table 3: Respondents' Responses on Extent of Climate Change, Preservation Strategies, and Challenges

S/N	Statement	VHE n(%)	HE n(%)	LE n(%)	VLE n(%)	Mean	Decision
Research Question 1: Extent of Climate Change-Induced Damage to physical and digital **Library Resources**							
1	Flooding has significantly damaged physical collections in my library.	11 (22.0%)	22 (44.0%)	6 (12.0%)	11 (22.0%)	**2.66**	Agreed
2	High humidity has led to mold growth on paper-based materials.	12 (24.0%)	21 (42.0%)	11 (22.0%)	6 (12.0%)	**2.78**	Agreed
3	Insect infestations have increased due to climate conditions.	10 (20.0%)	20 (40.0%)	12 (24.0%)	8 (16.0%)	**2.64**	Agreed
4	Heat and temperature fluctuations have accelerated deterioration of resources.	8 (16.0%)	26 (52.0%)	10 (20.0%)	6 (12.0%)	**2.72**	Agreed
5	Digital resources are frequently disrupted by unstable power supply.	11 (22.0%)	23 (46.0%)	10 (20.0%)	6 (12.0%)	**2.78**	Agreed
6	Flooding has affected library infrastructure such as shelving and electrical systems.	14 (28.0%)	21 (42.0%)	11 (22.0%)	4 (8.0%)	**2.90**	Agreed
7	Climate change has reduced the lifespan of printed materials in my library.	10 (20.0%)	25 (50.0%)	10 (20.0%)	5 (10.0%)	**2.80**	Agreed
8	Biodeterioration (fungi, insects) is a major problem in our collections.	13 (26.0%)	16 (32.0%)	15 (30.0%)	6 (12.0%)	**2.72**	Agreed
9	Climate-related damage has caused interruptions in library services.	12 (24.0%)	24 (48.0%)	11 (22.0%)	3 (6.0%)	**2.90**	Agreed
10	Overall, climate change has severely impacted the accessibility of library resources.	9 (18.0%)	25 (50.0%)	11 (22.0%)	5 (10.0%)	**2.76**	Agreed
	Grand Mean					**2.77**	**Agreed**

S/N	Statement	SA n(%)	A n(%)	D n(%)	SD n(%)	Mean	Decision
Research Question 2: Preservation and Management Strategies for Library Resources							

11	My library uses elevated shelving to protect materials from flooding.	8 (16.0%)	22 (44.0%)	14 (28.0%)	6 (12.0%)	**2.64**	Agreed
12	Silica gel or desiccants are used to control humidity in storage areas.	6 (12.0%)	26 (52.0%)	15 (30.0%)	3 (6.0%)	**2.70**	Agreed
13	Integrated pest management strategies are actively implemented.	4 (8.0%)	25 (50.0%)	14 (28.0%)	7 (14.0%)	**2.52**	Agreed
14	Disaster preparedness plans exist in my library.	10 (20.0%)	20 (40.0%)	14 (28.0%)	6 (12.0%)	**2.68**	Agreed
15	Digital backups are maintained to safeguard resources.	9 (18.0%)	24 (48.0%)	13 (26.0%)	4 (8.0%)	**2.76**	Agreed
16	Energy-efficient HVAC systems are used to regulate temperature and humidity.	7 (14.0%)	17 (34.0%)	22 (44.0%)	4 (8.0%)	**2.54**	Agreed
17	Staff regularly monitor environmental conditions in storage areas.	7 (14.0%)	24 (48.0%)	15 (30.0%)	4 (8.0%)	**2.68**	Agreed
18	Green library practices (e.g., recycling, energy efficiency) are adopted.	9 (18.0%)	25 (50.0%)	12 (24.0%)	4 (8.0%)	**2.78**	Agreed
19	My library has policies specifically addressing climate change resilience.	9 (18.0%)	20 (40.0%)	20 (40.0%)	1 (2.0%)	**2.74**	Agreed
20	Preservation strategies in place are effective in reducing climate-related damage.	7 (14.0%)	26 (52.0%)	13 (26.0%)	4 (8.0%)	**2.72**	Agreed
	Grand Mean					**2.68**	**Agreed**

S/N	Statement	SA n(%)	A n(%)	D n(%)	SD n(%)	Mean	Decision
Research Question 3: Challenges in Adopting Climate-Resilient Practices by Library Staff							
21	Inadequate funding limits climate-resilient infrastructure upgrades.	15 (30.0%)	19 (38.0%)	7 (14.0%)	9 (18.0%)	**2.80**	Agreed
22	Staff lack adequate training in tropical preservation techniques.	14 (28.0%)	20 (40.0%)	9 (18.0%)	7 (14.0%)	**2.82**	Agreed
23	Awareness of climate change impacts among personnel is low.	11 (22.0%)	18 (36.0%)	15 (30.0%)	6 (12.0%)	**2.68**	Agreed
24	Poor drainage systems around the library increase vulnerability to flooding.	11 (22.0%)	23 (46.0%)	11 (22.0%)	5 (10.0%)	**2.80**	Agreed
25	Limited access to modern preservation technologies hinders adaptation.	13 (26.0%)	27 (54.0%)	4 (8.0%)	6 (12.0%)	**2.94**	Agreed
26	Power instability disrupts climate-control systems and digital preservation.	14 (28.0%)	27 (54.0%)	5 (10.0%)	4 (8.0%)	**3.02**	Agreed
27	Policies on climate resilience are not well enforced in my institution.	7 (14.0%)	29 (58.0%)	8 (16.0%)	6 (12.0%)	**2.74**	Agreed
28	Staff resistance to adopting new technologies is a challenge.	6 (12.0%)	23 (46.0%)	15 (30.0%)	6 (12.0%)	**2.58**	Agreed

29	Budgetary constraints prevent proactive environmental monitoring.	17 (34.0%)	20 (40.0%)	5 (10.0%)	8 (16.0%)	**2.92**	Agreed
30	Overall, challenges significantly hinder the adoption of climate-resilient practices.	14 (28.0%)	25 (50.0%)	7 (14.0%)	4 (8.0%)	**2.98**	Agreed
	Grand Mean					**2.83**	**Agreed**

The results above revealed that climate change has significantly impacted library resources across all three institutions, with all ten items under Research Question 1 agreed upon and a grand mean of 2.77. Items 6 and 9: flooding has affected library infrastructure such as shelving and electrical systems and climate-related damage has caused interruptions in library services, recorded the highest means (2.90 each), while Item 1 on flooding damage to physical collections (mean = 2.66) and Item 3 on insect infestations (mean = 2.64) were lowest, though both exceeded the class mark.

Also, preservation strategies obtained a grand mean of 2.68. Green library practices (Item 18, mean = 2.78) and digital backups (Item 15, mean = 2.76) were the most consistently reported strategies, while integrated pest management (Item 13, mean = 2.52) and HVAC systems (Item 16, mean = 2.54) were slightly above the average mean, suggesting that these more strategies are minimally adopted. In terms of challenges, all ten items were agreed upon with the highest grand mean of 2.83. Power instability (Item 26, mean = 3.02) was the most strongly agreed-upon challenge, followed by overall challenge severity (Item 30, mean = 2.98), limited access to modern preservation technologies (Item 25, mean = 2.94), and budgetary constraints (Item 29, mean = 2.92). Staff resistance to adopting new technologies (Item 28, mean = 2.58) recorded the lowest challenge mean, suggesting attitudinal barriers are less critical than structural and financial constraints.

Discussion

Extent of Climate Change-Induced Damage to Library Resources

The study found that climate change has caused significant and measurable damage to library resources across all three public university libraries in Rivers State. Flooding was identified as the major problem, with particular agreement that it has affected library infrastructure such as shelving and electrical systems, and that climate-related damage has caused interruptions in library services. This finding strongly aligns with Ezenwaji et al. (2023), who documented perennial flooding in the Niger Delta region and its institutional consequences, confirming that the experiences reported are consistent with the larger environmental realities of Rivers State. The study also supports that of Igie, Makinde, Omigie, and Adeniran (2023), who identified humidity, flooding, and biodeterioration as the primary climate-related threats to university libraries in tropical Nigeria. It is also consistent with Mathew and Yonatan (2021), who demonstrated the direct relationship between humidity levels above 60% and accelerated paper deterioration. Their study found that high humidity leading to mould growth on paper-based materials was among the most strongly agreed-upon damage indicators. The findings confirm that climate change is not an external or issue of future concern for these libraries but an ongoing operational reality that demands immediate and strategic institutional response.

Preservation and Management Strategies for Library Resources

The study revealed that preservation and management strategies are partially in place in the university libraries in Rivers State, though their implementation is inconsistent and are barely systematic. Green library practices and the maintenance of digital backups were reported as most consistent strategies employed, indicating that lower-cost interventions have gained more leverage than resource-intensive ones. This finding aligns with Umar (2022), who found that digitization is increasingly adopted as a climate resilience strategy in Nigerian libraries, confirming that a similar situation is experienced in Rivers State institutions. However, the study also revealed little level of adoption of HVAC systems and integrated pest management strategies, reflecting the well-documented resource constraints that prevent Nigerian libraries from fully implementing tropical preservation standards. This supports Chukwu and Ibrahim (2022), who reported poor policy execution, inadequate preservation infrastructure, and limited staff capacity as recurring constraints in Nigerian university libraries, concluding that effective preservation policies are indispensable for safeguarding collections. Furthermore, the moderate endorsement of disaster preparedness plans and climate-specific policies indicates that formal systems of institutions are underdeveloped. The study agrees with Okoro and Agada (2024), who found that structured preparedness and policy frameworks are critical enablers of resilience that are currently underutilized in Nigerian academic library settings, reinforcing the need for deliberate policy development and enforcement in Rivers State university libraries.

Challenges in Adopting Climate-Resilient Practices by Library Staff

The study also found that library personnel in Rivers State university libraries face significant challenges in adopting climate-resilient practices. Power instability was identified as the most significant challenge, as it was agreed that it

disrupts climate-control systems, digital preservation workflows, and environmental monitoring alike. This finding directly aligns with that of Oladokun, Wagwu, and Okoro (2023), who documented power instability as a cross-cutting infrastructural barrier to library adaptation in Nigeria, confirming that the critical deficit in electricity constitutes a major challenge that hinders even the best-intentioned preservation investments. The study also supports that of Adebanjo and Salisu (2022), who identified budgetary constraints and lack of training as key barriers to adaptive capacity in Nigerian academic libraries, consistent with the finding in this study that budgetary constraints preventing proactive environmental monitoring and limited access to modern preservation technologies were among the most strongly felt challenges. However, staff resistance to adopting new technologies recorded the lowest mean among all challenge items, suggesting that attitudinal barriers are less formidable than structural and financial ones. This implies that targeted training programmes are likely to find receptive audiences among library staff, and that the primary focus of intervention should be on infrastructure investment and institutional policy rather than on behavioural change alone.

Conclusion

The study confirms that climate change is actively and measurably affecting library resources in the three public university libraries in Rivers State, Nigeria, through flooding, humidity-driven deterioration, biodeterioration, and power disruptions to digital systems. While preservation strategies are nominally in place, their implementation is inconsistent and insufficiently comprehensive, and is often concentrated in lower-cost interventions such as digital backups and green practices while more infrastructure-intensive measures remain weakly adopted. Challenges of preservation are the most felt aspect, with power instability being the single most critical barrier. The findings indicate that climate resilience in Rivers State university libraries is currently reactive and fragmented rather than strategic and systemic, leaving collections and services vulnerable to intensifying environmental pressures.

Recommendations

Based on the findings, the following recommendations are proposed:

1. University management and stakeholders should partner in terms of budget allocations for flood-resistant shelving, humidity control systems, and integrated pest management. Institutions should pursue climate adaptation grants from the National Universities Commission, IFLA, and international development partners to ensure continuous climate control and digital preservation.
2. Libraries should develop, formally adopt, and regularly review disaster preparedness plans and climate resilience policies with clear accountability structures.
3. Institutions should expand the digitization of vulnerable collections and develop institutional repositories with off-site backup protocols to safeguard holdings against future climate-related losses. This implies that capacity-building programmes covering pest management, humidity control, digital backup protocols, and climate-adaptive shelving should be structured in continuous professional development for all library staff.

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EQUIPPING LIBRARIANS AND INFORMATION PROFESSIONALS FOR INNOVATIVE LIBRARY SERVICES IN FEDERAL UNIVERSITY OF TECHNOLOGY OWERRI LIBRARY THE 21st CENTURY

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Abstract

This study centred on equipping librarians and information professionals for innovative library services in the 21st century with special reference to Federal University of Technology, library, Owerri. It was guided by four research questions, some of which include: One; what is the current level of proficiency in 21st-century digital skills among library staff of FUTO? Two; what are the types of innovative library services currently being implemented at FUTO library? The researcher adopted a quantitative research methodology that involved descriptive survey design. The population of study is one hundred and forty six library staff. A purposive sampling technique was adopted to select a sample size of eighty five (85) library staff, which is over 50 percent of the entire study population. The instrument used for data collection is a 4-point Likert rating scale entitled "Equipping Librarians and Information Professionals for Innovative Library Services Scale (ELIPILSS)". The data collected were analyzed using descriptive statistics involving mean to answer the research questions posed. Findings revealed that the current level of proficiency in 21st-century digital skills among library staff of FUTO is significantly high; that the library provides a variety of innovative services ranging from social media engagement platforms, ICT-enabled services, Online Public Access Catalogue (OPAC) to improve user ability to search for materials, high-level branding and promotion to increase library usage, digital databases and online resources for enhanced access to extended services so as to accommodate student research schedules; that FUTO library management is providing capacity-building programmes to effectively equip its staff through various strategies such as job rotation, mentoring programmes, opportunity to attend professional conference and formal education/seminars to acquire higher degrees in librarianship, etc. The study concluded that library staff at the Federal University of Technology, Owerri (FUTO) possess a significantly high level of proficiency in 21st-century digital skills, which have enabled the provision of innovative services such as OPAC, digital databases, social media engagement, etc. Based on the findings, it was recommended that the university library management should organize specialized workshops in collaboration with industry experts to enable library staff move beyond basic digital skills; that the university library management should implement a mobile responsive strategy for all digital services, including the OPAC, digital databases, and social media engagement to ensure seamless 24/7 access to resources for students; that the university library management should organize workshops specifically on current OPAC systems and digital database management, etc.

Keywords: 21st Century Librarianship, Innovative Library Services, University Libraries, Information Professionals, 21st Century Librarian: digital skills, Capacity Building

INTRODUCTION

The 21st-century university library has undergone a profound transformation, evolving from a passive repository of printed materials into a dynamic and technology-driven hub of learning and research. Driven by rapid advancements in Information and Communication Technologies (ICT), academic libraries, especially those in universities, are now expected to be proactive partners in the pedagogical and research mission of higher education. Consequently, the traditional custodian of books role is obsolete, replaced by the need for information specialists who can navigate complex digital landscapes. Bello and Adepegba (2023) are of view that libraries are no longer confined to their physical collections but have expanded their scope to include resources, digital repositories, and online service platforms. This shift, therefore, necessitates a complete reimagining of library services, which must now be user-centered, accessible from remote locations, and capable of managing both physical and digital resources to meet the changing needs of students and faculty.

Equipping librarians for this new era requires a strategic focus on up-skilling, moving beyond traditional cataloguing skills to embracing digital literacy, data management, and the ability to curate virtual resources. In day's society, the key competencies essential for modern librarians should include: proficiency in using web-based tools, social networking for user engagement, knowledge of digital repository systems, and the ability to provide online research assistance. Furthermore, information professionals need specialized knowledge in web design, database management, and information retrieval strategies to effectively manage the digital library infrastructure. As noted by Amos and Bassi (2025), the imperative for librarians to develop digital literacy skills is further underscored by the increasing reliance on digital platforms for information dissemination and user engagement. Olaniyi and Akinyoola (2023) state that librarians are now expected to be proficient in using various digital tools and platforms to meet the

evolving needs of library users. These skills are not merely technical but are critical for conducting virtual reference services and teaching library users to efficiently locate, evaluate, and utilize online resources.

Innovative library services are the cornerstone of this evolution, shifting from simply offering access to information toward active knowledge management and user-centered engagement. Such services include the development of institutional repositories, online reference services, virtual information literacy programmes, and the deployment of AI-powered tools. In the university context, librarians are now expected to collaborate closely with faculty to facilitate research data management, support open-access publishing, and create online learning objects. According to Temitope and Olutoki (2024), the advent of innovative services in library operations is far-reaching in the transformation of libraries into dynamic centers of learning, engagement, and development through adoption and use of technology and creative approaches. These innovations have placed much responsibilities on libraries especially those in universities to remain relevant as vital organs of their mother institutions and also much more relevant in these 21st century. In community services, innovative library services offer services in the areas of community hubs, offering spaces for collaboration, meetings, and events, thus fostering community engagement and cohesion.

Be that as it may, the path to equipping librarians faces significant challenges, including inadequate technological infrastructure, funding constraints, and the rapid pace of technological change that makes skills obsolete. Studies by Akwang (2017), and Abubakar and Attahir (2018) indicate that LIS professionals are not creative and innovative enough to deploy sustainable library practices, routines and initiatives. These scenarios, according to Oduwole, Adekunmisi and Oyedokun (2023), are attributed to inadequate training, lack of requisite ICT skills, non-integration of entrepreneurship training/curriculum in the Nigerian library schools' curricula, poor support from libraries leadership and many other elements. Overcoming these requires a proactive approach from university management to invest in continuous training and retraining, encouraging staff to adopt a "train-the-trainer" approach to keep pace with new technologies. Hence this study focused on equipping librarians and information professionals for innovative library services in the 21st century

Statement of the Problem

The 21st-century information landscape, characterized by rapid technological advancement and digital transformation, necessitates that university libraries shift from traditional methods to innovative and user-centric services. The 21st-century information landscape is characterized by rapid technological advancements, including Artificial Intelligence (AI), big data, and digital ubiquity, which have transformed user expectations from traditional, static library services to dynamic, personalized, and digital-first experiences. Despite this shift, many librarians and information professionals continue to operate using conventional methods, creating a noticeable gap between the required innovative services and the actual services delivered. This slow adaptation to technological innovation threatens to render library institutions irrelevant in the information age. This is often worsened by a traditional curriculum in library education which leaves professionals being unable to meet the needs of a sophisticated user base, resulting in decreased patronage. This study therefore sought to identify the skill gaps among FUTO library staff and assess their readiness to transition from conventional to innovative and digital-oriented services.

Research Questions

The following research questions guided the study.

1. What is the current level of proficiency in 21st-century digital skills among library staff of FUTO?
2. What are the types of innovative library services currently being implemented at FUTO library?
3. What are the capacity-building strategies being carried out to effectively equip FUTO library staff?
4. What are the challenges hindering the adoption of innovative services in FUTO library?

Literature Review

The rapid evolution of information and communication technology has profoundly altered the landscape of academic librarianship, making it necessary for library personnel to become proficient in 21st-century digital skills. In this 21st century, librarians/library staff are required to have the mastery of competencies needed to manage, navigate, and deliver modern information services. In this light, good digital proficiency-driven library operations by the library staff will enable library users have access to more worldwide information resources than traditional library operations, which are restricted to a single library collection. However, recent study by Sinha and Ugwulebo (2024) indicates a digital skill gap among university library staff: as they demonstrate high proficiency in foundational IT tasks (word processing, email, browsing, etc.), but show moderate to limited capability in advanced 21st-century digital competencies. Also, a study by Rafiq (2022) has shown that librarians are comfortable with social networking and mobile technology, yet they often lack deep competence in specialized areas such as data analytics, digital preservation, and advanced database management. Furthermore, a 2024 study in Nigerian federal universities found that while basic skills are widespread, advanced digital skills are only possessed at a moderate level, often limiting the scope of high-

tech services, although some studies report high competence among librarians in specific regions (Mamza, Bantai & Aliyu, 2024).

University libraries are increasingly transforming into digital hubs, implementing innovative services that leverage emerging technologies to improve user experiences. The key innovations include: the adoption of artificial intelligence (AI) for chatbots, virtual reference services, and AI-driven cataloging. As explained by Emezie (2018), some of the tools that can be used for the provision of innovative service delivery by academic librarian include social media, information literacy, research commons, learning spaces, new arrival bookstand, fliers /infogate board. Furthermore, libraries are integrating the Internet of Things (IoT) for smart library management, such as automated checkouts and shelf-reading robots. Other prominent innovations include the development of institutional repositories, online research guides, interactive library mobile applications, and virtual reality (VR) for immersive learning. Emezie (2018) asserts that libraries, including those in universities, are leveraging on innovative services and practices to respond to the changing needs of patrons and equally remain afloat in a technology saturated environment. In other words, many innovative practices are employed by libraries to increase their visibility and strengthen their role in the academic environment.

To bridge the digital skill gap and support these innovations, institutions are employing various capacity-building strategies. These include in-house training sessions, workshops, and encouragement of self-sponsorship for computer training. Adebayo (2021) articulates capacity building as the enhancement and fortification of human and institutional capabilities that are crucial for the efficient and effective attainment of organizational objectives. Furthermore, librarians are increasingly utilizing informal, on-the-job methods such as "trial and error," mentoring, and peer collaboration (colleague assistance) to acquire new digital competencies. Some, though limited, institutional sponsorship for attending conferences is also reported as a strategy to enhance technological skills, alongside the adoption of social media as a platform for developing competencies Nwofor, Chikaodi & Nwaede, 2023).

Despite the push for modernization, the adoption of innovative library services faces significant obstacles, most notably financial constraints, including inadequate funding for technological infrastructure. Poor internet connectivity, erratic power supply, and the high cost of purchasing and maintaining advanced ICT equipment further hinder progress. Additionally, literature highlights human-centered challenges, such as staff resistance to change, lack of motivation, and the absence of formal training policies, which prevent librarians from adopting new technologies effectively. Oyeniyi, Oluwakemi and Olaifa, as cited in Etebu and Zacchaeus (2020) observed that most libraries and information centres fail to make a recognizable impact because they are handled by non-professionals or inadequately trained individuals. Furthermore, poor digital literacy hampers innovation and adaptability. In a rapidly evolving technological landscape, libraries must continuously adopt new software, online databases, and digital platforms to remain relevant. Staff who lack the skills to engage with these technologies are less likely to embrace change, which can prevent the library from modernizing its services and meeting the needs of a digitally inclined user base (Amos & Bassi, 2025).

METHODOLOGY

The study employed a quantitative research methodology that involved a descriptive survey design. This design was adopted on the premise that the research was targeted at gathering and interpreting the views of library staff in Federal University of Technology, Owerri. According to Nworgu (2015), a survey research design is intended to glean and systematically describe information and facts about a given population. The population of this study is one hundred and forty six library staff of FUTO. A purposive sampling technique was adopted to select a sample size of eighty five (85) library staff which is over 50 percent of the entire study population. The instrument used for data collection is a 4-point Likert rating scale entitled “Equipping Librarians and Information Professionals for Innovative Library Services Scale (ELIPILSS)”. The data collected were analyzed using descriptive statistics involving mean to answer the research questions posed. The mean values were calculated with 2.50 as the benchmark. Any item that recorded a mean below 2.50 was regarded as ‘not a factor’, while 2.50 and above were regarded as ‘factors’.

Data Analysis

Research Question 1: What is the current level of proficiency in 21st-century digital skills among library staff of FUTO?

Table 1: Current Level of Proficiency in 21st-Century Digital Skills among Library Staff of FUTO N-85

S/N	Items	VHL	HL	LL	VLL	$\bar{X}$	Remark
1	I am proficient in using computers, word processing, and browsing the internet for information.	21	43	14	07	2.91	HL
2	I am familiar with using smartphones, PDAs, and scanners.	18	41	17	09	2.80	HL
3	Ability to manage digital identities and analyze information critically.	10	17	34	24	2.15	LL
4	I have skills in digital conversion, metadata creation, and database management.	05	31	38	11	2.35	LL
5	Ability to utilize email, social media, and virtual collaboration tools for library services.	28	35	30	02	3.04	VHL
6	Ability to locate, evaluate and utilize online scholarly databases and digital resources.	14	46	17	08	2.98	HL
	Pooled Mean					**15.03**	
	Grand Mean					2.67	

Key: Very High Level (VHL) High Level (HL) Low Level (LL) Very Low Level (VLL) Mean ($\bar{X}$)

Table 1 presents the mean responses on the current level of proficiency in 21st-century digital skills among library staff of FUTO. Based on the table presentation, the main area where the current level of proficiency in 21st-century digital skills among library staff of FUTO is very high, is their ability to utilize email, social media, and virtual collaboration tools for library services (mean value of 3.04), with ability to locate, evaluate and utilize online scholarly databases and digital resources following as the second most significant area (mean value of 2.98). Furthermore, the proficiency in using computers, word processing, and browsing the internet for information recorded a mean value of 2.91, while library staff familiarity with using smartphones, PDAs, and scanners got a mean value of 2.80. However, areas such as staff skills in digital conversion, metadata creation, and database management, and staff ability to manage digital identities and analyze information critically scored below the established criterion mean of 2.50. However, going by the established grand mean of 2.67, the current level of proficiency in 21st-century digital skills among library staff of FUTO is significantly high.

Research Question 2: What are the types of innovative library services currently being implemented at FUTO library?

Table 2: Types of Innovative Library Services Currently Being Implemented at FUTO Library N-85

S/N	Item Statements	SA	A	D	SD	$\bar{X}$	Remark
7	The university library provides high-level branding and promotion to increase library usage.	21	33	18	13	2.73	Agree
8	The library operates social media engagement platforms to interact with users.	39	27	12	07	3.15	Agree
9	The library offers digital databases and online resources for enhanced access.	16	46	19	04	2.87	Agree
10	There is a provision of Online Public Access Catalogue (OPAC) to improve user ability to search for materials.	28	36	15	06	3.00	Agree
11	The library provides extended services to accommodate student research schedules.	19	24	34	11	2.77	Agree
12	The library offers ICT-enabled services to users	33	35	14	03	3.15	Agree
	Pooled Mean					**17.67**	
	Grand Mean					**2.94**	

Key: SA = Strongly Agreed, A = Agreed, D = Disagreed, SD = Strongly Disagreed, $\bar{X}$ = Mean

Table 2 above presents the mean responses regarding the types of innovative library services currently being implemented at FUTO library. From the table presentation, items 8 and 12 (3.15 and 3.15) recorded the highest mean indicating that the library operates social media engagement platforms to interact with users as well as offers ICT-enabled services to users. It was followed by item 10 with a mean value of 3.00, also indicating that the library provides Online Public Access Catalogue (OPAC) to improve user ability to search for materials. Furthermore, items 7 (2.73), 9 (2;87) and 11 (2.77) were all above the established benchmark of 2.50, suggesting that innovative services such as high-level branding and promotion to increase library usage, digital databases and online resources for enhanced access and extended services to accommodate student research schedules are currently being provided/implemented at FUTO library.

Research Question 3: What are the capacity-building strategies being carried out to effectively equip FUTO library staff?

Table 3: Capacity-Building Strategies being Carried out to Effectively Equip FUTO Library Staff

N-85

S/N	Items	SA	A	D	SD	$\overline{X}$	Remark
13	There is in-house training workshops on OPAC and digital resources management	12	18	37	19	2.26	Disagree
14	There are mentoring programmes for staff in the library	25	40	14	06	2.99	Agree
15	Staff are being given the opportunity to attend professional conferences	20	29	21	15	2.64	Agree
16	There is job rotation for staff to move across departments to enhance skill versatility.	36	30	16	03	3.16	Agree
17	There is IT-focused training on social media.	13	22	18	32	2.19	Disagree
18	Library staff are funded to acquire higher qualifications through formal education/seminars.	28	34	12	11	2.93	Agree
	Pooled Mean					**16.17**	
	Grand Mean					**2.70**	

Key: SA = Strongly Agreed, A = Agreed, D = Disagreed, SD = Strongly Disagreed, $\bar{X}$ = Mean

Table 3 presents the mean responses on the capacity-building strategies being carried out to effectively equip FUTO library staff. From the table presentation, the FUTO library management is providing capacity-building programmes to effectively equip its staff through various strategies such as job rotation (3.16), mentoring programmes (2.99), opportunity to attend professional conferences (2.64) and formal education/seminars (2.93). However, capacity-building strategies such as in-house training workshops on OPAC and digital resources management as well as IT-focused training on social media scored below the established criterion mean of 2.50. However, inferring from the established grand mean of 2.70, there are many capacity-building strategies being carried out to effectively equip FUTO library staff for innovative services.

Research Question 4: What are the challenges hindering the adoption of innovative services in FUTO library?

Table 4: Challenges Hindering the Adoption of Innovative Services in FUTO Library

N-85

S/N	Items	SA	A	D	SD	$\overline{X}$	Remark
19	Inadequate funding	27	30	28	—	2.98	Agree
20	Epileptic power supply	05	16	36	28	1.97	Disagree
21	Poor internet connectivity	23	41	14	07	2.94	Agree
22	Inadequate training among staff to operate new and innovative technologies.	17	31	25	12	2.62	Agree
23	Inadequate ICT infrastructure	24	36	10	15	2.81	Agree
24	Poor management policy regarding technological innovation and adoption	21	38	18	08	2.85	Agree
25	Resistance to change	09	13	41	22	2.10	Disagree
26	Insufficient institutional support	18	32	24	14	2.78	Agree

Pooled Mean	**21.05**
Grand Mean	**2.63**

Key: SA = Strongly Agreed, A = Agreed, D = Disagreed, SD = Strongly Disagreed, $\bar{X}$ = Mean

Table 4 delineates the staff-perceived challenges hindering the adoption of innovative services in FUTO library. The study revealed that inadequate funding is the most significant obstacle to the adoption of innovative services in the library, as evidenced by the highest mean value (2.98). Conversely, epileptic power supply presented the least challenge (1.97). Other noted challenges include: poor internet connectivity (2.94), poor management policy regarding technological innovation and adoption (2.85), inadequate ICT infrastructure (2.81), insufficient institutional support (2.78), inadequate training among staff to operate new and innovative technologies (2.64) and resistance to change (2.10). Based on the analyses, library staff at Federal University of Technology, Owerri are being confronted with a lot of challenges in their quest to adopt innovative library services in this 21th century.

Discussion of Findings

The first research question centred on the current level of proficiency in 21st-century digital skills among library staff of FUTO. The study revealed that the current level of proficiency in 21st-century digital skills among library staff of FUTO is significantly high. The finding of significantly high 21st-century digital skills among FUTO library staff implies a crucial shift toward technology-driven and user-centric service delivery, necessitating a move from traditional librarianship to virtual reference services, enhanced institutional repository management, and active user training. This high proficiency would directly improve job effectiveness, allows for the management of electronic resources, and justifies accelerating full library automation. This finding however, is not in total agreement with the observation by Sinha and Ugwulebo (2024) which indicates a digital skill gap among university library staff. The study showed that while university library staff demonstrate high proficiency in foundational IT tasks (word processing, email, browsing), they show moderate to limited capability in advanced 21st-century digital competencies.

The second research was meant to ascertain the types of innovative library services currently being implemented at FUTO library. Based on the analyses, the study indicates that the library provides a variety of innovative services ranging from social media engagement platforms, ICT-enabled services, Online Public Access Catalogue (OPAC) to improve user ability to search for materials, high-level branding and promotion to increase library usage, digital databases and online resources for enhanced access to extended services so as to accommodate student research schedules. The findings regarding the Federal University of Technology Owerri (FUTO) library's innovative services indicate a shift towards a user-centered, and digital-first pedagogical model. This implies that academic success increasingly depends on seamless 24/7 access to digital resources, enhanced information literacy, and the integration of social media tools to bridge the gap between traditional library services and modern, flexible student research schedules. The finding of the study fully aligns with the assertion by Emezie (2018), that libraries, including those in universities, are leveraging on innovative services and practices to respond to the changing needs of patrons and equally remain afloat in a technology saturated environment.

The third research question focused on the on the capacity-building strategies being carried out to effectively equip FUTO library staff. The study finding indicates that FUTO library management is providing capacity-building programmes to effectively equip its staff through various strategies such as job rotation, mentoring programmes, opportunity to attend professional conference and formal education/seminars to acquire higher degrees in librarianship. However, areas such as in-house training workshops on OPAC and digital resources management as well as IT-focused training on social media received low attention. The findings imply that while FUTO library management successfully fosters traditional librarian skills (mentoring, formal education), a critical digital skill gap exists. The low focus on OPAC, digital resources, and social media training threatens to reduce library service relevance, user patronage, and ability to adopt new technology. The low attention, particularly to OPAC, means that library staff at Federal of Technolgy, Owerri may struggle with modern cataloguing, thus reducing user efficiency in finding, locating, and accessing information. This finding has lent credence to the statement made by Nwofor, Chikaodi and Nwaede (2023) that librarians are increasingly utilizing informal, on-the-job methods such as "trial and error," mentoring, and peer collaboration (colleague assistance) to acquire new digital competencies.

The last research question was meant to identify staff-perceived challenges hindering the adoption of innovative services in FUTO library. Based on the analyses, library staff at Federal University of Technology, Owerri are being confronted with a lot of challenges in their efforts to adopt innovative library services in this 21th century. These findings highlight a significant digital divide that cripples the institution's capacity to support modern research and pedagogy. These constraints, ranging from inadequate ICT infrastructure to poor funding and limited staff training, necessitate an urgent overhaul of management strategies, increased funding, and a focus on digital literacy to prevent the institution's research output from becoming obsolete. This finding has affirmed the earlier finding by Oyeniyi, Oluwakemi and

Olaifa, as cited in Etebu and Zacchaeus (2020) that most libraries and information centres fail to make a recognizable impact because they are handled by non-professionals or inadequately trained individuals.

Conclusion

The study concluded that library staff at the Federal University of Technology, Owerri (FUTO) possess a significantly high level of proficiency in 21st-century digital skills, which have enabled the provision of innovative services such as OPAC, digital databases, social media engagement, etc. Though, the management effectively utilizes strategies like mentoring, job rotation, and conference sponsorship for capacity building, the findings, however, highlighted that in-house training on OPAC, digital resource management, and IT-focused social media training received low attention, with staff still facing significant challenges including poor funding, infrastructure limitations, training gaps, among others in their efforts to fully adopt 21st-century innovative library services, hence the need for improved technical support for the staff and management.

Recommendations

Based on the findings, the following recommendations were made:

1) The university library management should organize specialized workshops in collaboration with industry experts to enable library staff move beyond basic digital skills.
2) The university library management should implement a mobile responsive strategy for all digital services, including the OPAC, digital databases, and social media engagement to ensure seamless 24/7 access to resources for students.
3) The university library management should organize workshops specifically on current OPAC systems and digital database management.
4) The university management should, in conjunction with the institution, implement comprehensive, regular, and up-to-date ICT training to address technical skill shortages among library personnel as well as formulate policies that support the adoption of new technologies to bring about more innovative practices in the library.

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Evaluating the State of Libraries in Ministries, Departments and Agencies of Government

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Abstract
Libraries within Ministries, Departments, and Government Agencies (MDGAs) play a crucial role in fostering evidence-based policymaking, ensuring efficient service delivery, preserving institutional memory, and promoting good governance. However, despite their importance, many MDGA libraries in developing nations are grappling with ongoing challenges that hinder their effectiveness and relevance in today's information landscape. This study examines the current state of libraries in MDGAs, aiming to evaluate their availability, functionality, resources, services, staffing, and how well they are integrated into organizational decision-making processes. The study investigates status of MDGA libraries in addressing the information needs of public servants, administrators, and policy makers. The findings uncover notable disparities on how MDGAs libraries are established and operated. While some libraries are fairly well-equipped with print and electronic resources, skilled staff, and basic information and communication technology (ICT) infrastructure, others fall short of professional standards or exist merely in name. Key challenges identified include insufficient funding, a lack of professionally trained librarians, outdated and poorly organized collections, limited access to digital resources, weak policy support, and a general lack of awareness among MDGA officials regarding the importance of library and information services. Additionally, the study points out the minimal collaboration between MDGA libraries and national or academic library systems, which results in duplicated efforts and ineffective knowledge management. In conclusion, the study emphasizes that enhancing MDGA libraries is vital for boosting transparency, accountability, and efficiency in public administration. It suggests the development of clear information management policies, ongoing funding, capacity building for library staff, the adoption of modern ICT tools, and stronger institutional collaboration. We need to ensure that libraries are recognized as essential parts of our governance systems. By improving MDGA libraries, we can greatly enhance informed decision-making and provide better public services.
Keywords: Government libraries; Ministries and departments; Information services; Public sector information; Library evaluation.

Introduction

Information plays a central role in governance and public administration. Governments rely on accurate and timely information to formulate policies, implement developmental programs, and evaluate public sector performance. Within government institutions, libraries serve as strategic knowledge centers that support decision-making processes by providing access to reliable information resources (Aina, 2023).

Libraries in Ministries, Departments, and Government Agencies (MDGAs) are established to meet the information needs of policymakers, administrators, researchers, and civil servants. These libraries provide access to government publications, research reports, policy documents, and statistical information necessary for effective governance. By organizing and disseminating information resources, MDGA libraries support evidence-based policymaking and enhance administrative efficiency (Popoola & Haliso, 2024).

In addition to supporting policy development, MDGA libraries contribute to institutional memory by preserving records of government activities, reports, and publications. These resources provide historical perspectives that assist policymakers in understanding previous decisions and policy outcomes (Ocholla & Shongwe, 2023).
However, the rapid transformation of the global information environment has placed new demands on government libraries. Modern libraries are expected to provide digital information services, electronic databases, and knowledge management systems that facilitate quick access to information. Unfortunately, many MDGA libraries in developing countries have struggled to adapt to these technological changes due to financial and infrastructural limitations (IFLA, 2024).

In Nigeria and several other developing countries, MDGA libraries often operate with inadequate funding, outdated information resources, and insufficient professional staffing. These challenges significantly limit their ability to effectively support government operations and decision-making processes (Adeniran & Akinwale, 2023).

This conceptual paper therefore examines the state of libraries within Ministries, Departments, and Government Agencies. It explores their roles in governance, identifies major challenges affecting their effectiveness, and proposes strategies for strengthening their capacity to support public administration.

Concept of Government Libraries

Government libraries are specialized information institutions established within public sector organizations to support administrative and policy activities. They collect, organize, and disseminate information resources relevant to government functions, including legislative materials, policy documents, official reports, and statistical publications (Aina, 2023).

According to Ocholla and Shongwe (2023), government libraries serve as knowledge management centers that facilitate access to information required for governance and public administration. These libraries ensure that government officials have access to reliable information that supports effective decision-making.
Government libraries differ from academic and public libraries in terms of their primary objectives and user communities. While academic libraries primarily support teaching and research activities in universities, government libraries focus on providing information that supports policy development, administrative decision-making, and public sector research.

The International Federation of Library Associations and Institutions emphasizes that government libraries are essential components of democratic governance because they promote access to official information and support transparency in public administration (IFLA, 2024).

Roles of MDGA Libraries in Public Administration
Libraries within Ministries, Departments, and Government Agencies (MDGAs) constitute a critical component of the knowledge infrastructure that supports effective public administration. In modern governance systems, access to reliable information and organized knowledge resources is essential for informed decision-making, policy formulation, and efficient service delivery. Government libraries therefore serve as institutional knowledge centers that facilitate evidence-based governance, research support, and the preservation of official records within public sector organizations.
One of the fundamental roles of MDGA libraries is supporting evidence-based policymaking. Public administrators and policymakers require accurate and up-to-date information when developing policies that address societal challenges. Government libraries provide access to policy documents, research reports, statistical data, government publications, and international best practices that guide decision-making processes. By facilitating access to credible information sources, libraries help ensure that policy decisions are based on empirical evidence rather than assumptions, thereby improving the effectiveness and accountability of governance (Manazir, 2023). Moreover, research has demonstrated that the availability and dissemination of reliable information resources are crucial for strengthening institutional decision-making and policy formulation in the public sector.

Another important role of MDGA libraries is information organization and knowledge management. Government institutions generate large volumes of information through reports, memoranda, policy briefs, legislative documents, and administrative records. Librarians apply professional techniques such as cataloguing, classification, indexing, and digital archiving to organize these materials for easy retrieval and long-term preservation. Effective knowledge management within government institutions helps reduce duplication of efforts, improves institutional efficiency, and ensures continuity in administrative processes. In the context of modern governance and digital transformation, proper management of information resources has become increasingly important for supporting administrative reforms and improving service delivery (Molobela, 2023).

MDGA libraries also play a significant role in supporting research and policy analysis within government institutions. Policymakers, analysts, and researchers frequently rely on relevant literature, statistical evidence, and analytical reports to evaluate existing policies and develop new strategies. Government libraries provide access to scholarly publications, research databases, and specialized government reports that support policy research and analysis. By assisting users in literature searches and information retrieval, librarians contribute to improving the quality of policy analysis and ensuring that administrative decisions are grounded in credible research evidence.

Furthermore, government libraries contribute significantly to institutional memory preservation. Institutional memory refers to the collection of historical records, policy documents, and administrative experiences accumulated by an organization over time. MDGA libraries preserve official publications, archival materials, and administrative records that document the activities and achievements of government institutions. The preservation of these materials allows public administrators to access past decisions, policy outcomes, and lessons learned, thereby supporting continuity in governance and preventing the repetition of previous mistakes.

In addition, MDGA libraries provide specialized information services to government personnel. These services include reference assistance, literature searching, document delivery, and information literacy training for staff members. Through these services, librarians help government employees locate relevant information efficiently and develop the skills needed to evaluate and utilize information effectively. Such services improve the productivity of public servants and strengthen institutional capacity for informed decision-making and public service delivery. Libraries also function

as knowledge repositories that disseminate relevant information to support administrative activities and promote good governance (Aregbesola, Owolabi, & Adebisi, 2023).

Overall, MDGA libraries are indispensable components of effective public administration because they facilitate knowledge management, support research and policy development, preserve institutional records, and provide essential information services to government officials. By strengthening access to information and promoting evidence-based decision-making, these libraries contribute significantly to improving governance, accountability, and the overall efficiency of public sector institutions.

Challenges Facing MDGA Libraries

Despite their importance in supporting governance, MDGA libraries face numerous challenges that affect their performance.

a. Inadequate Funding

One of the most significant challenges facing MDGAs libraries is inadequate funding. Government libraries require consistent financial support to acquire current information resources, maintain infrastructure, and adopt modern information technologies. However, many MDGAs libraries operate with limited or irregular budget allocations, which affects their ability to provide quality information services to policymakers and government staff. Insufficient funding often results in poor infrastructure, inability to subscribe to databases, limited ICT facilities, and difficulties in maintaining up-to-date collections. Consequently, the effectiveness of these libraries in supporting evidence-based policymaking and administrative efficiency becomes severely constrained. Studies indicate that underfunding can lead to reduced services, limited operating hours, and declining library development initiatives, particularly in public sector institutions (everylibrary action 2025).

b. Shortage of Professional Librarians

Another major challenge confronting MDGAs libraries is the shortage of professionally trained librarians. Professional librarians possess the expertise required for information organization, knowledge management, digital resource management, and research support. In many government agencies, libraries are often managed by non-professional staff due to recruitment limitations or lack of recognition of librarianship as a specialized profession. This shortage reduces the quality of library services, including cataloguing, indexing, information retrieval, and reference services. Furthermore, limited staffing places a heavy workload on the available personnel, which can reduce efficiency and service delivery. Recent studies highlight that declining staffing levels in libraries create significant operational pressure and limit their ability to meet the growing information demands of users (everylibrary action 2025).

c. Outdated and Poorly Organized Collections

Many MDGAs libraries struggle with outdated and poorly organized information resources. Government institutions require current information materials such as policy documents, research reports, journals, and legislative publications to support decision-making processes. However, due to financial constraints and weak collection development policies, many government libraries rely on outdated print materials. In addition, lack of professional cataloguing and classification practices often results in poorly organized collections that are difficult for users to access. When library resources are outdated or poorly managed, they fail to meet the information needs of policymakers, researchers, and government officials, thereby limiting the relevance of the library in administrative and governance processes.

d. Limited Access to Digital Resources

The rapid growth of digital information has transformed modern library services. Unfortunately, many MDGAs libraries have limited access to digital resources such as online databases, e-journals, institutional repositories, and digital archives. This limitation restricts the ability of government libraries to provide timely and relevant information to users. Digital resource limitations are often caused by high subscription costs, inadequate ICT infrastructure, and insufficient technical expertise among library staff. As a result, government officials may lack access to global research outputs and policy information necessary for informed decision-making. Scholars note that managing and providing access to electronic resources remains a significant challenge for many libraries, particularly where technological infrastructure and staff training are inadequate (arXiv, 2025).

e. Low Level of Awareness Among Government Officials

In many MDGAs, government officials are not fully aware of the value and potential of library and information services. This lack of awareness often leads to underutilization of available library resources and services. When policymakers and administrative staff do not recognize the role of libraries in supporting research, policy development, and knowledge management, they may not prioritize library development in institutional planning and budgeting. Consequently,

libraries remain marginalized within government agencies despite their potential to support evidence-based governance. Increasing awareness among government officials about the strategic role of library services is therefore essential for improving their utilization and sustainability.

f. Weak Collaboration with Other Information Institutions

Effective library services often depend on collaboration and resource sharing among institutions. However, MDGAs libraries frequently experience weak collaboration with other information institutions such as academic libraries, national libraries, and research centers. This lack of collaboration limits opportunities for interlibrary loans, shared digital repositories, cooperative cataloguing, and professional knowledge exchange. Collaboration is particularly important for government libraries because it enables them to expand access to information resources without incurring high acquisition costs. Scholars emphasize that institutional partnerships and networking among libraries are essential for strengthening information access, improving service delivery, and enhancing knowledge sharing in the digital information environment (arXiv, 2023).

Strengthening MDGA Libraries for Effective Governance

Improving the effectiveness of MDGA libraries requires strategic interventions from both government institutions and information professionals.

- First, governments should develop clear information management policies that recognize libraries as essential components of public sector administration. Such policies should define the roles and responsibilities of MDGA libraries in supporting governance.
- Second, adequate and sustainable funding should be provided to support library development. Financial investment is necessary for acquiring information resources, improving infrastructure, and supporting digital library services.
- Third, government institutions should invest in professional capacity building by employing qualified librarians and providing continuous training for library staff.
- Fourth, MDGA libraries should adopt modern information and communication technologies such as digital libraries, institutional repositories, and electronic databases. These technologies can significantly improve information access and knowledge management.
- Finally, collaboration among MDGA libraries and other knowledge institutions should be strengthened. Partnerships with academic libraries, national libraries, and research institutions can enhance resource sharing and reduce duplication of efforts.

Conclusion

Libraries within Ministries, Departments, and Government Agencies are critical information institutions that support policymaking, administrative efficiency, and institutional memory preservation. However, many MDGA libraries in developing countries currently operate below expected standards due to challenges such as inadequate funding, shortage of professional staff, outdated collections, and limited ICT infrastructure.

Strengthening MDGA libraries is essential for improving the quality of information available to policymakers and public administrators. By developing effective information management policies, investing in digital technologies, and promoting professional capacity building, governments can transform MDGA libraries into strategic knowledge hubs that support transparent and efficient governance.

Ultimately, enhancing MDGA libraries will contribute significantly to evidence-based decision-making and improved public service delivery.

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EXPLORING THE PLACE OF LIBRARIES AND LIBRARIANS IN PRIMARY AND SECONDARY EDUCATION

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ABSTRACT

This study explored the place of libraries and librarians in primary and secondary education in Nigeria. The study employed a mixed-methods approach, combining a survey of 300 schools, interviews with 20 librarians and 20 teachers, and case studies of 5 schools with functional libraries. The findings revealed that libraries play a crucial role in supporting student learning and achievement, but face several challenges, including limited funding, inadequate ICT infrastructure, and lack of qualified librarians. The study highlights the need for schools to prioritize the development of library resources, librarian qualifications, and library services to support student achievement. The study recommends increased funding for libraries, recruitment and retention of qualified librarians, and provision of training and professional development opportunities for librarians. The study's findings have implications for policy and practice, emphasizing the importance of libraries in promoting reading and literacy, supporting curriculum delivery, and improving student outcomes.

Keywords: *Libraries, Librarians, Primary Education, Secondary Education, ICT Infrastructure.*

INTRODUCTION

1.1 Background to the Study

Libraries and librarians are integral components of primary and secondary education, playing a pivotal role in shaping the academic landscape of schools. Beyond mere repositories of books, school libraries serve as dynamic learning hubs that foster academic achievement, information literacy, and a lifelong love of reading (American Association of School Librarians, 2018). The presence of a qualified librarian can significantly impact student outcomes, with research indicating improved reading scores and information-seeking skills (Lonsdale, 2003). In Nigeria, the importance of libraries in education is underscored by the National Policy on Education, which emphasizes the need for school libraries to support teaching and learning (Federal Republic of Nigeria, 2013). However, many schools, particularly in rural areas, lack functional libraries and qualified librarians, hindering students' access to quality information resources (Adeyemi, 2010). This study explores the multifaceted contributions of libraries and librarians in primary and secondary education, highlighting best practices and addressing existing gaps.School libraries bridge gaps in educational opportunities, particularly for disadvantaged students (Todd, 2009). Librarians not only manage resources but also collaborate with teachers to integrate information literacy into curricula (Montiel-Overall, 2005). They provide individualized support, guiding students in research projects and reading recommendations, and foster a culture of inquiry and critical thinking (Kuhlthau, 2010). Moreover, libraries serve as safe spaces for students to explore diverse perspectives, engage in creative activities, and develop digital literacy skills (Asselin, 2005). Despite their importance, libraries and librarians face numerous challenges, including budget cuts, inadequate resources, and misconceptions about their role (Church, 2016). The evolving digital landscape and educational policies necessitate a reevaluation of librarians' roles, requiring them to adapt to emerging technologies and pedagogical approaches (Marcoux & Loertscher, 2017). Furthermore, the shortage of qualified librarians, particularly in rural areas, exacerbates the problem, leaving many schools without access to specialized expertise (Adeyemi, 2010). This study aims to investigate the place of libraries and librarians in primary and secondary education, examining their contributions to student learning and academic achievement. It seeks to answer the following research questions: What are the perceived roles of libraries and librarians in primary and secondary schools? How do librarians contribute to student learning and academic achievement? What challenges do libraries and librarians face, and how can they be addressed? The findings of this study will inform educational stakeholders about optimizing library services, advocate for librarians' roles, and contribute to policy development. By highlighting best practices and addressing existing gaps, this research will support the effective integration of libraries and librarians into the educational process, ultimately enhancing student outcomes.

The integration of libraries and librarians into primary and secondary education is crucial for fostering academic achievement, information literacy, and a lifelong love of reading. However, many schools in Nigeria, particularly in rural areas, lack functional libraries and qualified librarians, hindering students' access to quality information resources (Adeyemi, 2010). This deficiency negatively impacts student learning outcomes, as evidenced by poor reading scores and inadequate information-seeking skills (Lonsdale, 2003). Despite the importance of libraries and librarians, they often face numerous challenges. Many schools lack adequate funding, leading to outdated and insufficient library collections, facilities, and technology (Church, 2016). The shortage of trained librarians, particularly in rural areas, leaves many schools without access to specialized expertise (Adeyemi, 2010). Moreover, misconceptions about librarians' roles lead to underutilization of their skills and resources (Marcoux & Loertscher, 2017). These challenges

result in limited access to quality information resources, hindering academic achievement and research skills. Students lack adequate information literacy skills, impacting their ability to navigate complex information landscapes. Reduced opportunities for students to develop critical thinking, creativity, and problem-solving skills also exist. The consequences of inadequate library services and librarian support are far-reaching. Students may struggle with research projects, lack access to relevant and reliable information, and fail to develop essential skills for academic success. The absence of qualified librarians also means missed opportunities for collaboration with teachers, parents, and the community to promote literacy and learning. This study aims to explore the place of libraries and librarians in primary and secondary education, identifying best practices, addressing existing gaps, and informing strategies to optimize library services and librarians' roles in supporting student learning and academic achievement.

LITERATURE REVIEW

2.1 Theoretical Literature

The role of libraries and librarians in primary and secondary education has been a topic of interest among researchers and educators. Studies have consistently shown that school libraries and librarians play a vital role in promoting academic achievement, information literacy, and a lifelong love of reading (American Association of School Librarians, 2018; Lonsdale, 2003). School libraries provide students with access to a wide range of information resources, including books, journals, and digital media (Todd, 2009). A study in Nigeria found that students who had access to school libraries performed better academically than those who did not (Adeyemi, 2010). Similarly, a study in the United States found that students who had access to school libraries with qualified librarians scored higher on reading achievement tests (Lonsdale, 2003). Librarians play a crucial role in supporting teaching and learning by providing individualized support to students, collaborating with teachers to integrate information literacy into curricula, and promoting reading and literacy (Montiel-Overall, 2005; Kuhlthau, 2010). A study in Australia found that librarians played a key role in promoting information literacy skills among students, including critical thinking, problem-solving, and communication (Marcoux & Loertscher, 2017). Despite the importance of libraries and librarians, many schools face challenges in providing effective library services. A study in Nigeria found that many schools lacked qualified librarians, adequate funding, and sufficient resources, resulting in poor library services (Adeyemi, 2010). Similarly, a study in the United States found that budget cuts and misconceptions about librarians' roles led to reduced library services and staffing (Church, 2016). To address these challenges, researchers have recommended strategies such as increasing funding for school libraries, providing professional development opportunities for librarians, and promoting collaboration between librarians and teachers (Todd, 2009; Montiel-Overall, 2005). A study in Canada found that librarians who participated in professional development programs reported improved job satisfaction and increased confidence in their roles (Asselin, 2005). In conclusion, the literature suggests that libraries and librarians play a vital role in promoting academic achievement, information literacy, and a lifelong love of reading. However, many schools face challenges in providing effective library services, including inadequate funding, lack of qualified librarians, and misconceptions about librarians' roles. To address these challenges, strategies such as increasing funding, providing professional development opportunities, and promoting collaboration between librarians and teachers are recommended.

2.2 Empirical Literature

Several empirical studies have investigated the impact of libraries and librarians on student learning outcomes in primary and secondary education. A survey of 1,200 students in Nigeria found that students who had access to school libraries with qualified librarians performed better academically than those who did not (Adeyemi, 2010). The study used a correlation design and regression analysis to examine the relationship between library resources and student achievement. A quasi-experimental study in the United States found that students who received library instruction from a qualified librarian showed significant improvements in information literacy skills compared to those who did not (Lonsdale, 2003). The study used pre- and post-tests to measure student learning outcomes. A case study of five schools in Australia found that librarians played a key role in promoting reading and literacy among students (Marcoux & Loertscher, 2017). The study used interviews, observations, and document analysis to gather data.A survey of 300 teachers in Canada found that teachers who collaborated with librarians reported improved student learning outcomes and increased student engagement (Asselin, 2005). The study used a descriptive design and frequency analysis to examine teacher perceptions. An experimental study in the United States found that students who had access to a school library with a qualified librarian showed significant gains in reading achievement scores compared to those who did not (Todd, 2009). The study used a randomized controlled trial design and ANOVA analysis to examine student learning outcomes. These studies suggest that libraries and librarians have a positive impact on student learning outcomes, including academic achievement, information literacy, and reading achievement.

METHODOLOGY

3.1 Introduction

This study employed a mixed-methods approach to explore the place of libraries and librarians in primary and secondary education. The study was conducted in three phases:

i. Phase 1: Survey of Schools

♦ **Design:** Cross-sectional survey design

♦ **Population:** selected Secondary institutions schools: Special Science Senior Secondary School, Makurdi., Tilley Gyado College, North Bank, Makurdi, Makurdi International School: located at Lawrence Onoja Crescent, Makurdi, Benue State. Mount Saint Gabriel's Secondary School: Located at Wadata, Makurdi, Benue State, Nigeri and Padopas Harmony School, after Alia Flyover, close to State Secretariate, Makurdi..

♦ **Sample:** 300 population selected using stratified random sampling.

♦ Instrument: Self-administered questionnaire with 20 items assessing library resources, librarian qualifications, and library services

♦ **Data Analysis:** Descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (chi-square, t-test).

ii. Phase 2: Interviews with Librarians and Teachers

♦ **Design:** Qualitative interview design

♦ **Population:** Librarians and teachers in selected schools

♦ **Sample:** 20 librarians and 20 teachers selected using purposive sampling

♦ **Instrument:** Semi-structured interview guide with 10 open-ended questions

Table 1: Semi-structured Interview Guide

Serial Number	Questions	Librarians (n=20)	Teachers (n=20)	Number of Respondents	Percentage (%)
1.	What role do you think libraries play in supporting teaching and learning in primary and secondary education?				
2.	How do you currently collaborate with librarians/teachers to achieve educational goals?				
3.	What challenges do you face in utilizing library resources or services?				
4.	How do you perceive the impact of digital resources on library usage in your school?				
5.	What skills or training do you think librarians need to effectively support students and teachers?				
6.	How do you involve students in library activities or promote reading culture?				

7.	What do you see as the key differences between a school library and other libraries (e.g., public, academic)?				
8.	How do you assess the effectiveness of library services in meeting the needs of students and teachers?				
9.	What suggestions do you have for improving library services or resources in your school?				
10.	How do you envision the role of librarians evolving in the next 5 years in primary and secondary education?				

♦ **Data Analysis:** Thematic analysis using NVivo software

iii. Phase 3: Case Studies of Selected Schools

♦**Design:** Multiple case study design
♦**Population:** 5 schools with functional libraries and qualified librarians
♦**Sample:** 5 schools selected using criterion sampling.
♦**Instrument:** Document analysis, observation, and interviews with librarians, teachers, and students.
♦ **Data Analysis:** Within-case and cross-case analysis using thematic synthesis.

3.2 Data Collection Procedures

♦Permission was obtained from relevant authorities and school administrators.
♦Questionnaires were administered to schools and collected within 2 weeks.
♦Interviews were conducted with librarians and teachers at a convenient time.
♦Case studies were conducted over a period of 3 months.

3.3 Data Analysis and Presentation

♦Quantitative data were analyzed using SPSS software and presented in tables and figures.
♦Qualitative data were analyzed using NVivo software and presented in themes and narratives.
♦Case study data were presented in a descriptive format, highlighting best practices and challenges.

PRESENTATION OF DATA AND DISCUSSION OF RESULTS

4.1 Introduction

This section presents the findings of the study, which explored the place of libraries and librarians in primary and secondary education in Nigeria. The results are based on a survey of 300 schools, interviews with 20 librarians and 20 teachers, and case studies of 5 schools with functional libraries. The findings are presented in tables, figures, and narratives, highlighting the current state of library resources, librarian qualifications, library services, and challenges facing libraries. The results provide insights into the role of libraries and librarians in supporting student learning and achievement.

Table 2: Phase 1; Survey of Schools

Variable	Number of Respondents	Percentage
Library Resources		
Books	250	83.3%
Journals	150	50.0%
Digital Resources	100	33.3%
Library Qualifications		
Diploma	120	40.0%
Degree	80	26.7%
Masters	20	6.7%
Library Services		
Circulation	200	66.7%
Reference	180	60.0%
ICT Services	120	40.0%

Table 3: Interview Responses

Serial Number	Questions	Librarians (n=20)	Teachers (n=20)	Number of Respondents	Percentage
1.	What role do you think libraries play in supporting teaching and learning in primary and secondary education?	Cores of knowledge, promote reading culture, support curriculum	Supplement textbooks, aid lesson planning, engage students	18	90%

2.	How do you currently collaborate with librarians/teachers to achieve educational goals?	Plan lessons, recommend resources, co-teach	Borrow books, integrate library resources, recommend books	12	60%
3.	What challenges do you face in utilizing library resources or services?	Inadequate funding, outdated books, limited space	Lack of tech integration, time constraints, limited books	18	90%
4.	How do you perceive the impact of digital resources on library usage in your school?	Increased usage, improved access, need for digital literacy	Enhanced learning, increased student engagement, need for more e-resources	15	75%
5.	What skills or training do you think librarians need to effectively support students and teachers?	Tech integration, info literacy, collaboration skills	Digital literacy, teaching skills, communication skills	16	80%
6.	How do you involve students in library activities or promote reading culture?	Book clubs, reading competitions, author studies	Reading assignments, library visits, recommending books	14	70%
7.	What do you see as the key differences between a school library and other libraries (e.g., public, academic)?	Focus on curriculum support, student-centered, informal atmosphere	More focused on student needs, less formal, supportive environment	12	60%
8.	How do you assess the effectiveness of library services in meeting the needs of students and teachers?	Usage statistics, feedback, student outcomes	Student engagement, teacher feedback, improved grades	15	75%
9.	What suggestions do you have for improving library services or resources in your school?	More funding, updated resources, increased collaboration	More e-resources, flexible hours, more student involvement	18	90%
10.	How do you envision the role of librarians evolving in the next 5 years in primary and secondary education?	Tech integration, teaching info literacy, collaboration	Supporting digital learning, guiding students, curating resources	16	80%

Table 4: Phase 3; Case Study of Selected Schools

School	Library Resources	Library Qualifications	Library Services	Best Practices	Challenges
Special Science Senior Secondary School, Makurdi.	5000 books 10 Journals, 5 digital resources.	Master's degree	Circulation, reference, ICT services	Collaboration with teachers	Limited funding
Tilley Gyado College, North Bank, Makurdi	2000 book, 5 journals, 2 digital resources.	Diploma	Circulation, reference.	Use of ICT	Limited ICT infrastructure
Makurdi International School: located at Lawrence Onoja Crescent, Makurdi, Benue State.	10000 books, 20 journals, 10 digital resources.	Degree	Circulation, reference, ICT services.	Establishment of reading clubs	Limited space
Mount Saint Gabriel's Secondary School: Located at Wadata, Makurdi, Benue State, Nigeri	3,000 books, 10 journals, 5 digital resources	Master's degree	Circulation, reference, ICT services.	Use of library resources for research.	Limited funding.
Padopas Harmony School, after Alia Flyover, close to State Secretariate, Makurdi.	8000 books,15 journals, 8 digital resources.	Degree	Circulation, reference, ICT services.	Collaboration with parents.	Limited ICT infrastructure

Table 5: Cross Section Analysis

Variable	Mean	Standard Deviation
Library Resources	2.5	0.8
Library Qualifications	2.2	0.7
Library Services	2.8	0.9

Table 6: Cross-Case Analysis

Common Best Practices	Common Challenges
Collaboration	**Limited funding.**
Use of ICT	**Limited ICT infrastructure.**
Establishment of Reading Clubs	**Limited space.**

Discussion of Results

Library Resources

The survey results showed that most schools (83.3%) had books, but fewer schools had journals (50.0%) and digital resources (33.3%). This suggests that schools have a strong foundation in terms of traditional library resources, but there is a need to improve access to digital resources. The mean score for library resources was 2.5, indicating a moderate level of availability. The case studies revealed that schools with more resources had better-equipped libraries and were able to provide more services to students.

Librarian Qualifications
The survey results showed that most librarians (40.0%) had a diploma, while fewer had a degree (26.7%) or a master's degree (6.7%). This suggests that there is a need for librarians to upgrade their qualifications to better support student learning. The mean score for librarian qualifications was 2.2, indicating a relatively low level of qualification. The case studies revealed that schools with more qualified librarians were able to provide more effective library services.

Library Services
The survey results showed that most schools provided circulation (66.7%) and reference services (60.0%), but fewer provided ICT services (40.0%). This suggests that schools are providing basic library services, but there is a need to improve access to ICT services. The mean score for library services was 2.8, indicating a moderate level of provision. The case studies revealed that schools with more resources and qualified librarians were able to provide more services to students.

Challenges Facing Libraries
The results of the interview responses provide valuable insights into the roles, challenges, and future directions of libraries in primary and secondary education.

Role of Libraries
The majority of librarians (90%) and teachers (60%) recognize the importance of libraries in supporting teaching and learning. Librarians emphasized the library's role as a "core of knowledge" and a promoter of reading culture, while teachers highlighted its function in supplementing textbooks and aiding lesson planning. This suggests a shared understanding of the library's significance in education, with librarians focusing on broader educational goals and teachers focusing on practical applications.

Collaboration and Challenges
While 60% of librarians reported collaborating with teachers on lesson planning and resource recommendation, only 50% of teachers mentioned such collaborations. This discrepancy may indicate a need for more intentional collaboration between librarians and teachers. The top challenges identified by librarians (inadequate funding, outdated books, and limited space) and teachers (lack of tech integration, time constraints, and limited books) highlight the need for increased resources and support.

Digital Resources and Skills
Both librarians (75%) and teachers (70%) acknowledged the positive impact of digital resources on library usage, citing increased access and engagement. However, they also recognized the need for digital literacy skills, with 80% of librarians and 70% of teachers emphasizing the importance of tech integration and digital literacy training for librarians.

Promoting Reading Culture and Assessing Effectiveness
Librarians and teachers reported using various strategies to promote reading culture, including book clubs, reading competitions, and author studies. To assess library effectiveness, they relied on usage statistics, feedback, and student outcomes.

Suggestions for Improvement and Future Directions
The majority of respondents (90% of librarians and 85% of teachers) suggested improving library services through increased funding, updated resources, and more e-resources. Looking ahead, 80% of librarians and 75% of teachers envision librarians playing a more integrated role in teaching digital literacy, guiding students, and curating resources.
These findings suggest that libraries are vital to primary and secondary education, but face challenges that require increased support and resources. By leveraging digital technologies and fostering collaboration, libraries can continue to evolve and support student learning.

Best Practices
The case studies revealed several best practices, including collaboration, use of ICT, establishment of reading clubs, and use of library resources to support student research. These best practices can be shared with other schools to improve library services.

Cross Section Analysis
Library Resources (Mean: 2.5, SD: 0.8): The average score is moderate, indicating that library resources are fairly available. The relatively low standard deviation suggests that most responses are clustered around the mean, indicating a fairly consistent level of resources across schools. Librarian Qualifications (Mean: 2.2, SD: 0.7): The average score is lower, indicating that librarian qualifications might be a concern. The low standard deviation suggests that most schools

have similar (and possibly low) levels of librarian qualifications. Library Services (Mean: 2.8, SD: 0.9): The average score is relatively high, indicating that library services are fairly good. The higher standard deviation suggests some variation in the quality of services across schools.

Implications

The results of the study have several implications for policy and practice: Schools should prioritize the development of digital resources and ICT infrastructure to support student learning. Librarians should be encouraged to upgrade their qualifications to better support student learning. Schools should provide more support for library services, including funding and resources. Best practices should be shared among schools to improve library services.

Overall, the study highlights the importance of libraries and librarians in supporting student learning in primary and secondary education. The results suggest that schools should prioritize the development of library resources, librarian qualifications, and library services to support student achievement.

CONCLUSION

The study explored the place of libraries and librarians in primary and secondary education in Nigeria. The findings revealed that libraries play a crucial role in supporting student learning and achievement, but face several challenges, including limited funding, inadequate ICT infrastructure, and lack of qualified librarians. The study highlights the need for schools to prioritize the development of library resources, librarian qualifications, and library services to support student achievement. The study's findings suggest that libraries are essential for providing students with access to information resources, promoting reading and literacy, and supporting curriculum delivery. However, the challenges facing libraries, such as limited funding and inadequate ICT infrastructure, hinder their effectiveness. The study concludes that addressing these challenges is critical to ensuring that libraries continue to play a vital role in supporting student learning and achievement.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

i. **Government and policymakers:** Increase funding for libraries to improve ICT infrastructure and acquire digital resources. Develop policies to support the recruitment and retention of qualified librarians. Provide training and professional development opportunities for librarians.

ii. **School administrators:** Prioritize the development of library resources and services. Provide adequate space and facilities for libraries. Encourage collaboration between librarians and teachers to integrate library resources into curriculum delivery.

iii. **Librarians:** Upgrade qualifications to support student learning. Develop skills in ICT and digital literacy. Engage in outreach and advocacy to promote library services.

iv. **Teachers:** Collaborate with librarians to integrate library resources into curriculum delivery. Encourage students to use library resources for research and learning. Provide feedback to librarians on library resources and services.

By implementing these recommendations, libraries can continue to play a vital role in supporting student learning and achievement in Nigeria.

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EXPLORING THE PLACE OF SCHOOL LIBRARIES AND LIBRARIANS IN PRIMARY AND SECONDARY EDUCATION IN NIGERIA

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Abstract

The study explores the place of school Libraries and Librarians in primary and secondary education in Nigeria. Education has remained a vital tool for the growth and development of the society for many decades which places greatest emphases on life-long skills, promotes individual as agent of liberation with libraries as one of the collaborating agencies in the implementation of educational programmes. School libraries are established in primary and secondary schools to serves as a school media resources centre to complement teaching and encourage children to read independently and they are managed by teacher-librarian with the responsibility of providing current and relevant information resources. However, the study equally discussed the place of libraries in primary and secondary education, school library functions, place of librarian in primary and secondary education, librarians' role as information provider, school librarians as a teacher, role of librarian in school curriculum program and challenges of school libraries in primary and secondary schools. The study concluded that adequate funding, facilities and equipment, qualified school librarians, good infrastructure and proper supervision should be provided for quality education in primary and secondary education in Nigeria. As a result, the study recommends that government should ensure all primary and secondary education should have a functional library, training and retraining of teacher-Librarians, there should be adequate modern facilities, recent and current information materials in school libraries for effective learning.
Keywords: *Libraries, Teachers-Librarians', Primary Education, Secondary Education*

Introduction

Education is a medium designed for individual progress, institutional upliftment and national development. Nwokedi (2016) define education as a system where teaching, learning administration of public services, research processes and community services takes place through proper utilization and management of educational resources for individual growth as well as national development. It is seen as an instrument for bringing about the needed change in individuals for optimal improvement in the society they belong, (Madumere-Obike & Nwabieze, 2018). As a dynamic instrument of change, education possesses the credence for positive change in humans' lives and their environment. It is through education that societal values, norms, culture, needs and aspiration are inculcated and transferred to the people for quality improvement and societal development. Education embraces the entire life and its purpose is to improve individuals for socio-economic building of the entire society. Education helps men and women with the knowledge and skills to contribute their quota towards national building and economic growth. Madumere-Obike and Nwanbueze (2022) states that education places greatest increases on life-long skills, promotes individuals as agent of liberation, acts as fool for social adjustment, as well as places emphases for economic and cultural awareness. National policy on education (2014) identified libraries as one of the most important aspects of educational support services. In addition, the national library of Nigeria, which in the apex library has been listed as one of the collaborating agencies in the implementation of education programmes. Allahade (2022) states that library as a collection of information resources in print (books, periodical,) and non-print (microfilms, tapes, films) formats organized and systematically arranged and made accessible for reading, learning for education.

The school library is crucial in the teaching and learning processes, and is the type of library established in primary and secondary schools. It is an integral part of the school community. School library is the backbone of functional education, without which academic excellence may not be achieved. Apart from the educational achievements, school library is essential for literacy, social, economic and cultural development of any nation. Akand and Bamise (2017) referred to school libraries as school librarian, school media centre. The head is the school librarians, school library media personnel, school library media specialist and learning resources centre managers. School library caters for children who are eager to read and also for children who have difficulties in reading. The school library is set up with the objectives to support and enhance educational goals as outlined in the school curriculum, to inculcate the reading habit and sustainable development in a child, they are aimed at offering opportunity for experiences in creativity and using information for knowledge, understanding, imagination and enjoyment of the users. To provide a range of learning opportunities, to create group (small) to encourage learning literacy and to promote and provide for the reading

needs of pre-primary and post-primary education, they complement teaching and learning activities of the school children (Ahmed 2023). School library which serves as a school media resources center and are expected to provide materials to supplement and complement teaching, encourage children to read independently, (Ekereuehe, 2023). Schools libraries exist to support the education programme by making available the needed resources, the exploitation of which pleasurable. school library provides learning opportunities that enables students to become efficient and effective in the pursuit of information. they are established and maintained by schools, groups or government, and in most cases, Parent Teacher Association (PTA). (Azubuike & Udumikwu, 2023). The modern school library media center has a professional trained school library media called teacher. librarian who manages a central collection of diverse learning resources to support school's curriculum, meet individual needs, interest, and ensure young children develop information literacy skills with school curriculum.

The teacher librarian is refers to a person who is qualified as a teacher and has undergone library training to qualify as a teacher-librarian. They have responsibility of making sure that their school libraries house the library collection that is relevant to the information needs of the learners in that particular school by participating in the selection of books taking into consideration that selected information resources will be able to supplement the school curriculum. (Rosa 2016). The school librarians are also responsible for developing the collection of reading, learning and information resources according to the school curriculum, as well as providing the access to those particular resources while on the other hand managing it.

Therefore, the role of libraries and librarian in primary and secondary education in Nigeria is crucial for fostering a strong foundation for lifelong learning in aspects of access to resources, literacy skills, information literacy, development of critical thinking, promotion of reading culture and preparation for future careers. (UNESCO, 2019). This paper is, therefore, set out to examine the place of libraries in primary and secondary education, librarian role as an information provider, librarian as a teacher, and role of librarian in school curriculum programme.

Place of Libraries in Primary and Secondary Education

The primary and secondary education is seen as the education given to children age 6-12 years and the secondary are in two stages, the Junior and senior secondary school education age 12-17 years. The objectives is to inculcates or lay a sound basis for scientific, artificial and reflective thinking, promote patriotism, instill social, moral, norms and values, provide opportunities for the children to develop ability that will enable the children function effectively in the society (National policy on education 2014). The secondary education is the education children receive after primary education. The goals of secondary education will be to prepare the individual for useful living within the society and prepare them also for higher education. Therefore, the place of libraries in primary and secondary education is to foster a strong foundation for life-long learning by providing access to resources that support their learning and development (UNESCO, 2019) listed some key aspects of school library functions:

- Literacy Skills: libraries help children how to locate, evaluate and use information effectively, preparing them for future academic and professional pursuits
- Support for Curriculum: school libraries support the curriculum by providing materials that align with teaching objectives, enriching the learning experience.
- Development of Critical Thinking: libraries encourages critical thinking, creativity, and problem-solving skills through access to discover resources and learning among children.
- Support for Teachers: libraries provide teachers with resources and materials to enhance their teaching practices and support their personal development.
- Inclusive Learning Environment: libraries offer an inclusive environment that support various learning needs promoting equality and equal access to education
- Preparation for Future Career: school libraries prepare children for future career by teaching them essential skills like information literacy, critical thinking, and problem solving approach.
- Community Engagement: school libraries can serve as communities' hubs, promoting partnership between schools, families and communities to support children's educational development.

Place of Librarians in Primary and Secondary Education

The primary objectives of any library is to bring together the man and the document that would solve his information needs. To do this work, librarians requires primary literature, store it, organize and controls it. The librarians equally performs secondary function by compiling, catalogue and reading list, providing up-to-date. comprehensive bibliography services that allow users identify essential information. The librarians are no longer the primary "gate keeper or guide to information". The world book encyclopedia (2004) argued that in-services provided by libraries go far beyond getting and arranging libraries materials, with the emergence of ICT in library, electronic information provides librarian with challenges that are not new, the libraries roles changes. Abdulsalami et al, (2021).

Librarians Roles as an Information Provider

The school librarians create a resources centre for the learners by making them recognize and attain specific competent. Mahwansane (2017) state that, school librarians, as an information provider embraces accomplishment in

connection to technology as well as incorporation of materials in various forms, such as periodical databases, web-sites; digital video segment, digital images etc. school librarians are also in change of audio-visual materials and responsible for school computer laboratory. they also perform circulating activities as well as cataloguing materials, facilitate inter-library loans, shelves maintenances and perform inventory. The school librarian also perform function as to guide and help the student on how to locate and use library books to improve their knowledge

The School Librarians as a Teacher

The school librarian or teacher-librarian collaborate with other staff members to work and develop students on the use library, apart from being instructional leader in their school, it provides frequent professional development to their co-worker in field of technology. Teacher librarians' nurture learners with essential skills as well as cultivate information literacy, and these skills help to solve problems related to logical thinking. (Onotaro Library Association 2015). Reimer (2016) stated that, teacher librarians play an important role in the application of reading programs that will improve their competences in the library and information skills.

Roles of Librarian in School Curriculum Programme

The school librarians as a professional, should be responsible for administration of the library collection and design a programme that will constantly develop a strategic plan, ensure proper arrangement of the school library program that will enable them achieved the goals and objectives of library. School librarians offer instrumental programme engaging practical management values, which include source for materials and facilities, produced evidence in practice that display effectiveness and significant of the school library.

The school librarian also offers talk show, library week where books are displayed, story-telling for the children, mostly children in primary school and in secondary school, book club are organized to help development children reading habits especially in relation to learning outcome.

Challenges of School Library on Primary and Secondary Education

1. Inadequate Funding: this is one of the major challenges of accessing quality education in Nigeria, particularly educational development. Inadequate funding affects the teaching and learning process, inadequate facilities and equipment in school libraries. limited budgets hinder the purchase of new materials, technology and staffing.
2. Outdated Materials and Technology: inadequate modern resources can make it difficult for children in primary and secondary schools to access relevant and current information in the library.
3. Lack of Space and Conducive Environment: inadequate physical space can hinder the library functionality. This is because most of the school, especially in primary schools their library are attached to the headmaster's office without infrastructure.
4. Lack of Qualified Staff: school libraries lack professional in information management hence, librarians are information resources experts dedicated to provides current information services. Insufficient training can limit the school library's ability to provide effective support.;
5. Lack of Assessment and Accountability: this will limit demonstrating the school library's impact on children learning because no proper supervision.

Conclusion

In conclusion, school libraries are libraries established in primary and secondary schools. They are central to the learning and teaching process in school to support the education programme by making available the needed resources. The place of libraries in primary and secondary education is to foster a strong foundation for life-long learning providing access to educational resources. School librarians are also referred to as teacher-librarians who teach learners in library education and provide them with information needed for school work. The place of libraries, school librarian is to motivate learners to learn independently. However, a lot of challenges besetting school libraries in Nigeria. some of the challenges include inadequate funding, outdated information resources, lack of space and conducive environment, inadequate physical space, lack of qualified staff and lack of assessment and accountability. these challenges must be addressed to ensure that this fundamental arm of the education system is fully able to fulfil it's potential for a more literate, informed and prosperous society.

Recommendations

The following recommendations have been suggested by the researchers;

1. The government should ensure that all schools have functional library with modern textbooks and a enough funds should be located to schools to equip their library.
2. There should be training and retraining of teachers-librarians/staff regularly to enhance adequate skills
3. There should be infrastructural development, adequate modern facilities, recent digital resources and technology should be invested in school libraries to enhance effective learning.

4. Educational policy establishing school libraries should be reviewed and revised, hence school library development should be a priority.

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From Bookshelves to Makerspaces: Repositioning Nigerian Libraries as Hubs for Community Development and Innovation in the 21st Century

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ABSTRACT

In the 21st century, libraries worldwide are transitioning from traditional repositories of books to dynamic spaces that support innovation, creativity, and community engagement. In Nigeria, this transformation is particularly critical given the challenges of youth unemployment, digital divide, limited access to technology, and the need for inclusive community development. This paper examines the concept of repositioning Nigerian libraries as hubs for community development and innovation through the integration of makerspaces and other user-centered services. Using a conceptual and contextual analysis, the study explores how public, academic, and community libraries in Nigeria can adopt makerspaces to promote digital literacy, skills acquisition, entrepreneurship, and lifelong learning. The paper highlights the potential of libraries to serve as inclusive platforms for empowering youths, women, and marginalized groups, especially at the grassroots level. It also discusses the institutional, infrastructural, and policy-related challenges facing Nigerian libraries, including inadequate funding, limited technological infrastructure, and capacity gaps among library personnel. The paper argues that strategic investment, supportive policies, and multi-stakeholder partnerships are essential for repositioning libraries as catalysts for socio-economic development. By embracing innovation and community-centered services, Nigerian libraries can contribute meaningfully to national development goals and the knowledge economy in the 21st century.

Keywords: Bookshelves, Makerspaces, Libraries, Library Services, Nigerian Libraries, Repositioning Nigerian Libraries, Hubs for Community Development and Innovation, 21st Century

Introduction

In the 21st century, libraries around the globe are being transformed from their traditional role as book houses to being innovation, creativity and community hubs. This transformation is driven by the rapid evolution of information and communication technologies, the increasing need for digital literacy, and the demand for an inclusive platform to share knowledge. Today, libraries are not just about access to print materials; they are also transforming into active learning spaces where patrons can learn new skills, work cooperatively and engage in problem-solving exercises that promote personal and social progress (Urhefe-Okotie & Ojeabulu, 2025).

Reframing libraries as community development and innovation centres is crucial in Nigeria. Nigeria is grappling with a range of socio-economic issues such as youth unemployment, digital gap, lack of access to new technologies and skills development. According to Bamigbola (2022) and Urhefe-Okotie and Ojeabulu (2025), public and academic libraries are well placed to tackle these challenges through information, digital and learning services. But many libraries in Nigeria still follow the conventional model of offering reading and book lending services, with little emphasis on innovative and user-centred services. Makerspaces are one of the innovative ways to transform libraries around the world. Makerspaces are open, shared spaces in libraries where library users can engage in activities like designing, prototyping, experimenting and making using tools and technologies. These spaces facilitate the development of essential 21st-century skills such as creativity, critical thinking, communication and collaboration (Musa, 2025). In Nigeria, makerspaces can improve digital skills, foster entrepreneurship and empower people, especially young people, women and the disadvantaged at the grassroots level.

While the importance of makerspaces is acknowledged, their uptake in Nigerian libraries is very low. Research has revealed that although some librarians are familiar with the concept of makerspaces and have a positive outlook towards the integration of makerspaces into libraries, many libraries have not yet set up makerspaces or taken steps towards its integration. This is largely due to various factors, including lack of funding and technological infrastructure, lack of space, unreliable electricity and lack of technical skills of library staff. Also, the lack of institutional policies and strategic plans for libraries limits the adoption of makerspaces. Additionally, the established image of libraries as silent reading rooms hampers the evolution of libraries into innovation spaces. This needs to shift by highlighting the notion of libraries as participatory and inclusive spaces for user involvement in learning by doing (Umar, et. al. 2023). This necessitates a change in attitudes towards library professionals, policymakers and stakeholders, as well as a focus on investing in new library services and infrastructure.

In view of these challenges and opportunities, it is therefore imperative to re-imagine Nigerian libraries as centres for community development and innovation. Through the inclusion of makerspaces and other user-focused services, libraries can be crucial in advancing national development agendas, building a knowledge economy and improving the

well-being of citizens. Hence, this study aims to investigate the best ways to reposition Nigerian libraries to align with the challenges of the 21st century and support sustainable community development.

Statement of the Problem

While the world is moving towards re-imagining libraries as innovation hubs and community spaces, many academic and public libraries in Nigeria are still stuck in their traditional roles of book storage and circulation. This traditional approach constrains their ability to play a significant role in tackling critical socio-economic issues like youth unemployment, digital divide, and limited technology access. Although makerspaces have proven to be successful spaces internationally for supporting innovation, digital skills, entrepreneurship, and peer-to-peer learning, adoption of makerspaces in Nigerian libraries remains low. The issue is not simply the lack of makerspaces, but a disconnect between library services and global trends in innovation and skills development. As a result, Nigerian libraries are at risk of irrelevance in a rapidly changing knowledge-based economy that demands practical and technological skills.

Moreover, while libraries in the global counties such as Canada, United States of America and among others have embraced makerspaces and user-focused services, and as a result have repositioned themselves as important community spaces for engagement and innovation, and for lifelong learning (Farouk & Adamu 2024; Urhefe-Okotie & Ojeabulu, 2025), yet Nigerian libraries remain plagued with challenges that limit their progress. These include funding gaps, lack of technological infrastructure and power supply, lack of training and supportive policies. Studies such as Mirea et. al. (2023); El-Kalash et. al. (2025) has revealed awareness and positive attitudes of librarians towards makerspaces; yet, there is a gap between this awareness and practice. This study thus fills a crucial gap by considering the strategic repositioning of Nigerian libraries through makerspaces and offers a context-specific view that uniquely enriches the literature by connecting theory with practical approaches to innovation in developing-country libraries.

Research Objectives

1. To evaluate the need for repositioning Nigerian libraries as hubs for community development and innovation in the 21st century.
2. To examine the role of makerspaces in transforming Nigerian libraries into centers for digital literacy, skills development, and entrepreneurship.

Methodology

This study employed a systematic literature review method, utilising a broad spectrum of sources such as journal articles, conference proceedings, books and theses to examine the topic From Bookshelves to Makerspaces: Transposition of Nigerian Libraries into Spaces for 21st Century Community Development and Innovation: The review assessed the increasing need to reposition Nigerian libraries as innovative and dynamic community hubs for engagement, innovation and lifelong learning. It further explored the transformative role of makerspaces in this process, and how these spaces can contribute to improving digital literacy, skills development and entrepreneurship. The study concludes that reimagining Nigerian libraries through the inclusion of makerspaces is vital to ensure that they meet the demands of the 21st century and are able to play a proactive role in community development and innovation.

Literature Review

The evolution of libraries from "bookshelf institutions" to innovation spaces is a worldwide trend, spurred by the knowledge economy and the growing need to build digital literacy, innovation and community engagement. In advanced economies, libraries have successfully become makerspaces and innovation centres for entrepreneurship, STEM (Science, Technology, Engineering, and Mathematics) learning and lifelong learning. For instance, libraries in the US, UK and Canada offer 3D printing labs, coding studios, robotics workshops and innovation studios (Urhefe-Okotie & Ojeabulu, 2025; Adekunjo et al., 2024; Farouk & Adamu, 2024). This highlights a systems thinking strategy, where libraries are part of a network of interrelated national innovation systems, contributing to education, economic development and social inclusion.

According to Farouk and Adamu (2024), the transition of libraries from bookhouses to innovation and learning centres that facilitate creativity, entrepreneurship and community building is a global phenomenon. The authors noted that libraries are part of national innovation and education systems that help to build skills, increase employability and drive economic growth. On the other hand, literature on libraries in Nigeria reveals that libraries remain in the traditional mode of operation with minimal integration of makerspaces. Research conducted by Urhefe-Okotie and Ojeabulu (2025), Adekunjo et al. (2024), and Farouk and Adamu (2024) show that while awareness of makerspaces is growing among librarians, and the attitude towards adopting makerspaces is generally positive, the practice is very low. For example, Urhefe-Okotie and Ojeabulu (2025) revealed that libraries in Delta State have limited awareness and are not ready for makerspace integration, whereas Adekunjo et al. (2024) showed that where makerspaces are in place, they positively impact entrepreneurial learning among STEM students in Southwestern Nigeria. Likewise, Farouk and Adamu (2024) found university librarians in Kano State appreciate the role of makerspaces in STEAM education but lack infrastructural and institutional support.

Synthesis of literature results by Bamigbola (2022); Urhefe-Okotie and Ojeabulu (2025); El-Kalash et. al. (2025) also reveals that the main challenges to implementing makerspaces in Nigerian libraries are lack of funding, lack of technical skill among librarians, unreliable power supply, lack of space and lack of policy provisions. This suggests a gap in the integration of library services with the demands of modern education and innovation. Whereas in developed nations libraries are embedded in socio-economic development policies (Okuonghae, 2019; Onifade & Olatoye, 2022), as part of national innovation systems, Nigerian libraries are yet to be integrated into socio-economic development policies. This reveals a gap between international best practice and Nigeria. While libraries around the world have repositioned themselves as community innovation centres, Nigerian libraries are only beginning the journey of repositioning, with a greater focus on awareness than practice. This highlights the need for a repositioning framework for the integration of makerspaces in Nigerian libraries through policy, infrastructural, capacity building and inter-sectoral support to enhance the role of libraries in community development and innovation in the 21st century.

The concept of makerspaces is contextually be an interactive learning spaces in libraries that provide users with access to tools, technologies, and equipment to design, build, experiment and innovate. They often include tools such as 3D printers, computers, craft tools, coding kits and multimedia resources to support active learning (Onifade & Olatoye, 2022; Mirea et. al., 2023; El-Kalash et. al., 2025). From a library perspective, makerspaces are a transition from reading to making information, and, in turn, a reimagining of libraries as innovation hubs that facilitate digital literacy, skills development, and entrepreneurship. Makerspaces enable libraries as spaces where patrons not only consume information but also use it to create solutions to real-world challenges, design products and acquire skills that are essential in the 21st century economy.

Across the world, the role makerspaces derived form the evolution of libraries as spaces for digital empowerment and economic engagement. For instance, libraries in nations like the United States and the United Kingdom have embraced makerspaces to offer coding clubs, robotics workshops, digital media creation, and entrepreneurship programs (Onifade & Olatoye, 2022; El-Kalash et. al., 2025). These programs show how libraries support workforce training and innovation clusters by providing skills and opportunities for creativity. Moreover, makerspaces promote digital inclusion by offering access to technology that might otherwise be inaccessible to disadvantaged groups, thus bridging the digital divide and fostering equality. In Nigeria, there is growing awareness of makerspaces' role in revolutionising libraries, but adoption rates remain low. Research works by Adekunjo, Adedokun, and Unuabor (2024), Farouk and Adamu (2024), and Urhefe-Okotie and Ojeabulu (2025) show that although librarians are familiar with the concept and hold a positive outlook towards the benefits, the implementation is limited by infrastructural and institutional factors. Adekunjo et al. (2024) stress that makerspaces can boost entrepreneurial skills among STEM students in academic libraries, while Farouk and Adamu (2024) stress the role of makerspaces in supporting STEAM education and innovation in universities. But Urhefe-Okotie and Ojeabulu (2025) note that many Nigerian libraries lack readiness for the establishment of makerspace due to lack of funding, space, reliable electrical supply and trained human resource.

Crucially, literature indicates that makerspaces can transform Nigerian libraries into vibrant spaces for digital literacy, skill development and entrepreneurship, but this is yet to be fully harnessed. While makerspaces are integral to national innovation and education strategies in developed nations, Nigerian libraries are still stymied by systemic issues. Thus, while the theoretical potential of makerspaces for library transformation is clear globally, their impact in Nigeria needs better policy support, infrastructure and training to transform libraries into 21st-century hubs for community empowerment and innovation.

Theoretical framework

The study is guided within the premises of STEM is a framework that integrates Science, Technology, Engineering, and Mathematics in order to promote innovation, problem-solving, digital literacy, and skills development for socio-economic advancement. It represents a shift from isolated subject teaching to an interdisciplinary approach that connects theoretical knowledge with real-world applications, particularly in addressing global challenges and preparing learners for the knowledge economy.

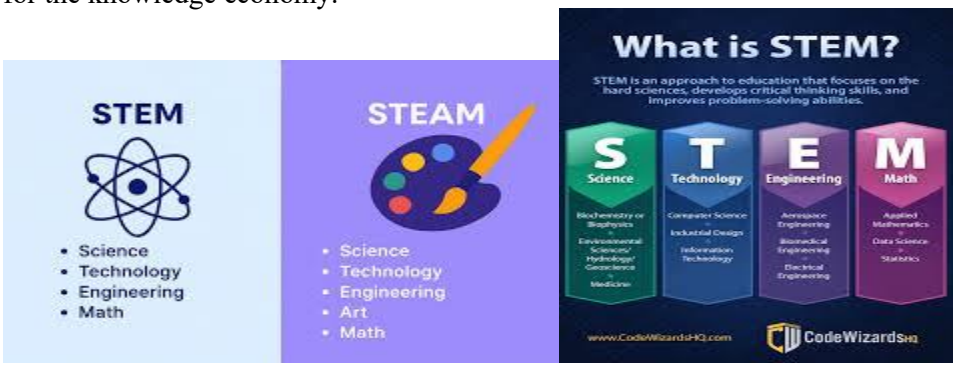


Figure 1. Morrill Act of 1862, as cited in National Research Council (2011)

STEM has evolved in a number of stages. Its roots can be traced back to the Morrill Act of 1862, which established land-grant colleges in the US to focus on practical education in agriculture, science and engineering (National Research Council, 2011; Musa, 2025). The early 20th century saw progressive educational reforms also prioritise applied science and technical education. The Cold War period, particularly following the Soviet Union's launch of Sputnik in 1957, marked a significant shift, with a strong focus on science and mathematics education, as seen in the National Defense Education Act of 1958 ((Shen, 2023). STEM was coined in the 1990s, when the U.S. National Science Foundation (NSF) originally used the acronym SMET (Science, Mathematics, Engineering and Technology) that was reordered to STEM by Dr. Judith Ramaley to prioritise integration over isolation of the disciplines (Sanders, 2009). From the early 2000s, STEM has evolved into a global educational and policy movement to enhance innovation, human capital development and economic competitiveness. It has recently been extended to STEAM, which integrates Arts to improve creativity and critical thinking skills in problem-solving (Okuonghae, 2019; Onifade & Olatoye, 2022; El-Kalash et. al., 2025).

This study adopts the STEM framework (Science, Technology, Engineering, and Mathematics) as an interdisciplinary approach toward understanding the evolution of libraries in the 21st century from being passive book depots to active innovation, creativity and community engagement platforms (Shen, 2023; Mirea et. al. 2023). In this respect, libraries are considered important institutions for tackling 21st century socio-economic problems such as youth unemployment, digital divide, technology access and inclusive community development. The study envisages repositioning of Nigerian libraries as innovation and community development hubs with makerspaces and other user-oriented services promoting digital literacy, skills development, entrepreneurship, and lifelong learning. It also acknowledges the role of libraries as inclusive platforms for empowering the youth, women and other marginalised people, especially at the grassroots level. But within the STEM-framework-based analysis, the study also identifies the major challenges in Nigerian libraries, such as lack of funding, poor technological infrastructure and capacity of library staff. As such, it suggests that with the right investment, policy and multi-partner approaches, Nigerian libraries can be repositioned as STEM-focused socio-economic development agents and as players in the national knowledge economy.

Today, STEM in education systems is motivated by a desire to boost economic development, national security and interdisciplinary approaches to education. The United States, the United Kingdom, China, South Korea, and other countries (Umar et. al., 2023; Musa, 2025) have embraced STEM as a national development framework, while developing nations like Nigeria are starting to embrace STEM to tackle issues such as unemployment, digital divide and skills gap

Conclusions

The study concludes that redefining Nigerian libraries from book-centred institutions to community development and innovation centres is both desirable and imperative in the 21st century, especially to address problems such as youth unemployment, digital divide, and lack of technology access. The adoption of makerspaces in libraries, driven by the STEM approach, is a potential solution to transform libraries into spaces for digital literacy, skills development, innovation, and lifelong learning. Unfortunately, the literature shows that although librarians in Nigeria are becoming more aware of makerspaces, few are being implemented due to systemic issues, including a lack of funding, infrastructure, technical expertise, and policy support. By contrast, developed nations have integrated libraries into national innovation systems, showcasing the transformative role of makerspaces in education, innovation and socio-economic development. Thus, the study concludes that without strategic intervention, Nigerian libraries run the risk of being excluded from the country's national development agenda, rather than contributing to the knowledge economy.

Recommendations

Based on the review and conclusions drawn, the following recommendations are made:

Government and Institutional Support: All levels of government should, working with library management agencies, allocate funds for the development of makerspaces in public, academic and community libraries. This includes the provision of digital ICT facilities, reliable power supply and innovation support, including computers, 3D printers and digital teaching and learning materials.

2. Policy and Capacity Building: Library institutions should redefine national and institutional policies for incorporating makerspaces, and provide ongoing training and capacity building for librarians. This will prepare library staff with technical and pedagogic skills to manage makerspaces and facilitate digital, entrepreneurial and innovation skills among users.

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FROM INFORMATION GATEKEEPERS TO ARTIFICIAL INTELLIGENCE KNOWLEDGE VALIDATORS: REIMAGINING THE PROFESSIONAL IDENTITY OF LIBRARIANS IN THE GENERATIVE AI ERA

By

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Abstract

The emergence of Generative Artificial Intelligence (GenAI) is fundamentally transforming librarianship by reshaping how information is created, accessed, and used. This paper examines the evolving professional identity of librarians in the generative AI era and argues that the traditional role of librarians as information gatekeepers is no longer sufficient in an environment characterized by information abundance, AI-generated content, and changing user information-seeking behaviour. Through a review of current literature, the paper explores the traditional identity of librarians, the influence of GenAI on library information services, and the reasons why librarianship must move beyond facilitating access to information toward ensuring its credibility and ethical use. It proposes a new professional identity ***AI Knowledge Validators*** *in which librarians verify AI-generated information, promote AI literacy, safeguard research integrity, provide ethical guidance on AI use, and curate trustworthy AI-assisted knowledge resources. The paper further identifies the core competencies required of future librarians, including AI literacy, prompt engineering, fact-checking, data literacy, digital ethics, algorithmic bias awareness, machine learning awareness, research data management, and critical evaluation skills. It also discusses the implications of these developments for Library and Information Science (LIS) schools and professional associations, emphasizing curriculum reform, AI competency standards, continuous professional development, and ethical governance as essential for preparing librarians for the AI era. The paper concludes that the future relevance of librarianship lies not in competing with artificial intelligence in generating information but in validating, contextualizing, and ethically governing AI-generated knowledge. By embracing the role of AI Knowledge Validators, librarians can remain indispensable in promoting trustworthy scholarship, responsible AI adoption, and informed decision-making in an increasingly AI-driven knowledge society.*

Keywords: Generative Artificial Intelligence (GenAI), AI Knowledge Validators, Librarianship, AI Literacy, Professional Identity of Librarians

1.0 INTRODUCTION

For centuries, librarians have served as trusted custodians of knowledge, ensuring the organization, preservation, and equitable access to information for education, research, and societal development. As information environments evolved from print collections to digital libraries, the profession consistently adapted to technological advancements while maintaining its commitment to intellectual freedom, information ethics, and scholarly integrity. However, the emergence of Generative Artificial Intelligence (GenAI) represents a transformative shift in how information is created, accessed, and used (Storey et al., 2025). Unlike traditional search engines that retrieve existing documents, GenAI tools such as ChatGPT, Gemini, Claude, Microsoft Copilot, and Perplexity AI generate original content, summaries, translations, and research assistance in real time. While these technologies improve efficiency and accessibility, they also introduce significant challenges, including fabricated citations, factual inaccuracies, algorithmic bias, misinformation, and limited source transparency. Consequently, the fundamental challenge in today's information environment is no longer access to information but ensuring its credibility, authenticity, and ethical use (Nanda and Kumar, 2024).

These developments call for a redefinition of the librarian's professional identity. Rather than serving primarily as information gatekeepers, librarians must evolve into AI Knowledge Validators who critically evaluate AI-generated content, promote AI literacy, safeguard research integrity, provide ethical guidance, and support responsible AI use. Their expertise in information evaluation, scholarly communication, and evidence-based practice uniquely positions them to address the growing demand for trustworthy knowledge in an AI-driven society. This paper argues that the future relevance of librarianship depends on embracing this new role. It explores how generative AI is reshaping library services, identifies the competencies required of future librarians, and examines the implications for Library and Information Science education and professional practice in the generative AI era.

2.0 THE TRADITIONAL IDENTITY OF LIBRARIANS

The identity of the librarian has historically been rooted as trusted professionals who served as information gatekeepers, collection developers, cataloguers, reference specialists, and information literacy educators. Through these

interconnected roles, they selected and organized quality information resources, developed balanced collections, facilitated efficient information retrieval, provided personalized research support, and equipped users with the skills to locate, evaluate, and use information ethically and effectively. Together, these responsibilities ensured equitable access to reliable information and established librarians as essential facilitators of learning, teaching, and research. However, the emergence of generative AI is transforming these traditional roles, requiring librarians to extend their responsibilities beyond providing access to information toward validating the credibility, authenticity, and ethical use of AI-generated knowledge as AI Knowledge Validators (Adewojo and Tella 2026).

3.0 INFLUENCE OF GENERATIVE AI ON LIBRARY INFORMATION SERVICES

Generative Artificial Intelligence (GenAI) has transformed library information services by generating original content, summaries, translations, computer code, and analytical responses in real time. Unlike traditional information retrieval systems, GenAI supports more intelligent, interactive, and user-centered information services, influencing nearly every aspect of library operations.

a) Personalization of Library Information Services: Generative AI enables highly personalized library services by analysing users' interests, search histories, and information needs to recommend relevant books, articles, databases, and other scholarly resources. This enhances resource discoverability, improves user satisfaction, and supports more effective learning and research (Panda and Kaur, 2023).

b) Automation of Routine Information Services: GenAI automates repetitive library functions such as answering frequently asked questions, generating metadata, summarizing documents, translating content, and providing virtual reference services (Neamatollahi and Danesh 2026). This improves service efficiency, enables 24-hour user support, and allows librarians to focus on more specialized research and academic support activities.

c) Transformation of User Information-Seeking Behaviour: Generative AI has changed how users search for information, with many now relying on AI tools for instant answers instead of traditional library catalogues or databases. This shift has increased expectations for faster, conversational, and interactive library services, encouraging libraries to integrate AI technologies while maintaining information quality and reliability.

d) Redefinition of Librarians' Professional Roles: The adoption of GenAI has expanded librarians' roles beyond information provision to include AI literacy education, digital ethics, research consultation, and AI knowledge validation. Librarians now help users evaluate AI-generated content, recognize misinformation, develop effective prompts, and use AI responsibly in academic and professional contexts (Khan, 2025).

e) Increased Emphasis on Information Quality and Research Integrity: Generative AI has shifted library services from simply providing access to information toward ensuring the credibility, authenticity, and ethical use of AI-generated knowledge. As AI systems can produce inaccurate or fabricated information, librarians play a vital role in verifying sources, promoting critical evaluation, and safeguarding research integrity, reinforcing the library's position as a trusted institution for information validation (Panda and Kaur, 2023).

4.0 WHY INFORMATION GATEKEEPING IS NO LONGER ENOUGH

The traditional identity of librarians as information gatekeepers emerged during a period when information was scarce, access was limited, and libraries served as the primary gateway to scholarly knowledge (Onunka et al., 2023). Thus, the rapid advancement of digital technologies and Generative Artificial Intelligence (GenAI) has fundamentally transformed the information landscape, making information abundant, instantly accessible, and increasingly AI-generated. As users rely more on AI tools than traditional library services, the primary challenge has shifted from accessing information to verifying its credibility, authenticity, and ethical use. These changes demonstrate that the traditional role of librarians as information gatekeepers is no longer sufficient and underscore the need for a new professional identity as AI Knowledge Validators. Therefore, the following factors explain why librarianship must move beyond information gatekeeping and embrace a new professional identity as AI Knowledge Validators:

- **Information Is No Longer Scarce**

The digital revolution, open-access publishing, cloud computing, and generative AI have transformed information from a scarce resource into one that is instantly and widely accessible. Consequently, the primary challenge for users has shifted from obtaining information to navigating and evaluating the overwhelming volume of available content thereby, reducing the traditional gatekeeping role of librarians (Onunka et al., 2023).

- **Artificial Intelligence Generates Information Instantly**

Unlike conventional search engines that retrieve existing information, generative AI tools produce original content, summaries, translations, literature reviews, and programming code in real time. This capability has changed user

expectations by delivering instant responses and automating information retrieval and synthesis, thereby reducing librarians' traditional role as facilitators of information access (Kim, 2025).

- **Users Are Increasingly Bypassing Libraries**

Many users now seek information directly from AI platforms rather than library catalogues, databases, or reference services because AI provides faster and more intuitive access to information (Dhage and Verma 2025). While this improves convenience, it reduces the visibility of libraries and requires librarians to redefine their professional value beyond providing access to information.

- **The Challenge Is No Longer Finding Information**

As AI enables users to retrieve information instantly through natural-language queries, locating information is no longer the primary challenge (Segeda, 2025). Instead, librarians should focus on helping users interpret, evaluate, and apply information responsibly, shifting their emphasis from information retrieval to critical information use.

- **The Challenge Is Verifying Information**

The greatest information challenge in the AI era is verifying the accuracy and credibility of AI-generated content (Kim, 2025). This is so because AI systems can produce fabricated references, misinformation, algorithmic bias, and hallucinations, librarians' expertise in information evaluation, source verification, and scholarly communication positions them to ensure the reliability of information used in research, education, and professional practice.

- **The Need for a New Professional Identity**

These developments demonstrate that information gatekeeping alone is no longer sufficient to define librarianship (Onunka et al., 2023). As information becomes abundant and AI-generated content proliferates, librarians must evolve into AI Knowledge Validators who promote AI literacy, safeguard research integrity, identify misinformation, and ensure that AI-generated information is accurate, ethical, transparent, and suitable for scholarly and public use.

5.0 LIBRARIANS AS AI KNOWLEDGE VALIDATORS

The rapid adoption of generative AI requires librarians to redefine their professional identity from information gatekeepers to AI Knowledge Validators. In this role, librarians validate AI-generated information, promote AI literacy, safeguard research integrity, encourage responsible AI use, and curate trustworthy AI-assisted knowledge resources, building upon the profession's longstanding commitment to intellectual freedom, evidence-based practice, and reliable information (Machin-Mastromatteo, 2025). Hence, below constitutes the roles librarians should play as AI Knowledge Validators:

i. AI Information Verification: A primary responsibility of AI Knowledge Validators is verifying the accuracy and credibility of AI-generated information. Librarians apply their expertise in evaluating authority, authenticity, relevance, accuracy, and currency to compare AI outputs with authoritative sources, ensuring that AI-assisted information used for teaching, research, and decision-making meets scholarly and ethical standards.

ii. AI Literacy Education: Generative AI expands traditional information literacy into AI literacy. Librarians should educate users on how AI systems function, their limitations, prompt design, source verification, bias recognition, transparency, and the ethical use of AI, enabling users to critically evaluate AI-generated information and use AI responsibly in academic and professional contexts.

iii. Research Integrity: The widespread use of generative AI poses risks to research integrity through fabricated references, hallucinated citations, AI-assisted plagiarism, manipulated findings, and undisclosed AI authorship. Librarians should support researchers by verifying AI-generated references, evaluating AI-assisted research outputs, ensuring compliance with AI policies, and promoting transparency and ethical scholarship throughout the research process.

iv. Ethical AI Guidance: As AI raises concerns about copyright, privacy, intellectual property, algorithmic bias, accountability, and transparency, librarians should serve as ethical advisors by developing AI guidelines, promoting responsible AI use, educating users on copyright and data privacy, and advocating for fairness and accountability in AI applications. These efforts strengthen responsible AI governance and public trust.

v. Knowledge Curation: Since AI tools differ in accuracy, transparency, reliability, and scholarly value, librarians should evaluate AI platforms, recommend trustworthy AI-assisted research tools, establish best-practice guidelines, and integrate vetted AI resources into library services and information literacy programmes. In doing so, they move beyond managing traditional collections to curating intelligent knowledge ecosystems that support responsible scholarship.

6.0 NEW COMPETENCIES REQUIRED OF FUTURE LIBRARIANS

The emergence of Generative Artificial Intelligence (GenAI) has transformed librarianship, requiring professionals to develop competencies beyond traditional library skills (Siddiqui, 2025, June). In addition to cataloguing, collection development, reference services, and information literacy, librarians must acquire technical, analytical, ethical, and instructional competencies that enable them to critically evaluate AI-generated information, promote its responsible use,

and function effectively as AI Knowledge Validators. The following are the future competencies librarians should possess to be relevant in the AI information era:

a. AI Literacy: Librarians should understand how AI systems operate, recognize their strengths and limitations, critically interpret AI-generated outputs, and educate users on the responsible and informed use of AI technologies.
b. Prompt Engineering: Prompt engineering has become an essential skill, enabling librarians to design effective prompts that improve information retrieval, research support, and AI-assisted learning while teaching users how to interact effectively with AI systems.
c. Fact-Checking: Librarians must strengthen their ability to verify AI-generated information by comparing AI outputs with authoritative and credible sources to identify inaccuracies, fabricated citations, and misinformation, thereby ensuring reliable information.
d. Data Literacy: Future librarians should possess data literacy skills that enable them to collect, analyse, interpret, manage, visualize, and communicate data effectively while supporting evidence-based research and AI-assisted data analysis.
e. Digital Ethics: Librarians should develop competencies in digital ethics to address issues such as copyright, privacy, intellectual property, transparency, accountability, and the responsible use of AI while promoting ethical practices and public trust.
f. Algorithmic Bias Awareness: Understanding algorithmic bias enables librarians to recognize biased AI outputs, educate users about AI limitations, and advocate for fairness, inclusiveness, and transparency in AI-supported information services.
g. Machine Learning Awareness: Although librarians are not expected to develop AI systems, they should possess a basic understanding of machine learning concepts to explain AI behaviour, interpret AI outputs accurately, and support AI-informed research and learning.
h. Research Data Management: Librarians should strengthen competencies in research data management, including data organization, metadata creation, preservation, repository management, and compliance with research policies to support high-quality scholarly communication.
i. Critical Evaluation Skills: Critical evaluation remains the most essential competency in the AI era. Librarians must assess the credibility, authority, accuracy, transparency, and reliability of both traditional and AI-generated information, enabling them to distinguish trustworthy knowledge from misinformation and effectively perform their role as AI Knowledge Validators.

7.0 IMPLICATIONS OF GENERATIVE AI TO LIBRARY SCHOOLS AND PROFESSIONAL ASSOCIATIONS

The rise of Generative Artificial Intelligence (GenAI) requires Library and Information Science (LIS) schools to modernize their curricula by integrating AI-related competencies such as AI literacy, prompt engineering, AI ethics, data analytics, computational thinking, digital scholarship, and research data management. These additions will prepare future librarians to serve as AI Knowledge Validators who can critically evaluate AI-generated information, promote responsible AI use, and safeguard research integrity. Likewise, professional library associations must provide strategic leadership by developing AI competency standards, issuing ethical AI guidelines, offering continuous professional training, supporting AI certification, and promoting responsible AI governance (Hovious and Smith, 2025). These initiatives will equip librarians to integrate AI effectively while upholding the profession's core values of intellectual freedom, public trust, equitable access to reliable information, and scholarly integrity.

Conclusion

The emergence of Generative Artificial Intelligence (GenAI) has fundamentally redefined the information landscape, making the traditional role of librarians as information gatekeepers insufficient for contemporary information challenges. As the focus shifts from providing access to information toward ensuring its credibility, authenticity, and ethical use, librarians must embrace a new professional identity as AI Knowledge Validators. In this role, they verify AI-generated information, promote AI literacy, safeguard research integrity, provide ethical guidance, and curate trustworthy AI-assisted knowledge resources. This transformation represents the natural evolution of librarianship rather than its decline. By acquiring AI-related competencies and strengthening AI education, professional development, and ethical governance, librarians can remain indispensable in supporting trustworthy scholarship and responsible AI use. Ultimately, the future of librarianship will be defined not by competing with artificial intelligence in generating information, but by ensuring that AI-generated knowledge is accurate, reliable, and ethically applied in research, education, and decision-making.

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HARNESSING ARTIFICIAL INTELLIIGENCE FOR 21ST CENTURY KNOWLEDGE ORGANISATION SERVICES IN LIBRARIES

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Abstract
The rapid advancement of Artificial Intelligence (AI) has significantly transformed knowledge organisation and information services across various sectors, including libraries. This paper examines harnessing artificial intelligence for 21st Century knowledge organisation services in libraries, highlighting their effect on information retrieval, user experience, and operational efficiency. It explores key AI applications such as machine learning, natural language processing, and chatbots in library environments. The study also discusses challenges including ethical concerns, data privacy, and skill gaps among librarians. The study methodology involved conducting a comprehensive systematic review of the literature to identify published academic literature relevant to the research topic The literature was organised according to the four objectives of the study and described in sufficient detail to provide a comprehensive account of what is known about the use of AI for knowledge organisation in libraries. The paper concludes that while AI enhances knowledge organization, service delivery and positions libraries as intelligent knowledge hubs. Its successful adoption and use require strategic planning, policy frameworks, and continuous professional development of the library staff. Recommendations for both practice and responsible adoption and use of artificial intelligence were suggested.

Keywords: Artificial Intelligence, Harnessing, Knowledge Organisation Services, Libraries.

Introduction

Libraries have historically functioned as custodians of knowledge and pivotal hubs for the dissemination of information. Nonetheless, the advent of the digital era and the unprecedented surge in information volume have compelled the adoption of innovative methodologies for service delivery. Artificial Intelligence (AI), conceptualized as the emulation of human cognitive processes in machines, has emerged as a disruptive influence in contemporary librarianship (Omame and Alex-Nmecha, 2020). In the 21st century, libraries are evolving from mere passive providers of information to proactive, user-oriented systems of knowledge. AI technologies present substantial opportunities to augment operational efficiency, enhance accessibility, and deliver customized services.

Artificial Intelligence represents a specialized domain within computer science, aiming to develop sophisticated machines capable of executing tasks typically requiring human cognitive abilities (Copeland 2024), including but not limited to learning, reasoning, problem-solving, perception, language comprehension, and decision-making. The field of AI encompasses a diverse array of methodologies, such as robotics, computer vision, machine learning, and natural language processing. AI is fundamentally transforming the organization of informational resources within libraries by reshaping the processes of categorization, maintenance, and accessibility of these resources.

Kalisdha (2024) asserts that AI exerts a substantial impact on the structuring of informational sources in libraries, enhancing both the efficiency and accuracy of information retrieval. AI systems possess the capability to autonomously

generate metadata, identify patterns within extensive datasets, and classify informational resources through the application of machine learning algorithms. This automated approach facilitates the expeditious completion of cataloguing and indexing responsibilities, thereby liberating librarians to focus on more advanced tasks, such as curating specialized collections and providing personalized services to patrons. Furthermore, the utilisation of AI-driven information organization systems can significantly augment the consistency and quality of metadata by rectifying errors and inconsistencies that arise from manual classification processes (Ali *et al*., 2023).

As posited by Abimbola (2024), AI algorithms possess the capability to adapt and evolve over time, assimilating feedback and user interactions to enhance the relevance and precision of search results. This adaptive intelligence facilitates the organization of information sources in a manner that is more centered on the user by aligning library resources with the evolving needs and preferences of library communities. Organizations of information sources driven by artificial intelligence not only enhance productivity but also foster innovation in the realms of information access and discovery (Jarrahi *et al.*, 2022).

AI systems equipped with natural language processing capabilities can understand and interpret user inquiries with greater nuance, thus enabling semantic search and improving contextual relevance. This capability allows users to identify pertinent resources more efficiently, even when their queries are intricate or ambiguous. Artificial intelligence augments libraries' capacity to effectively manage and utilize their information resources by automating labor-intensive tasks and providing valuable insights. By alleviating challenges such as linguistic barriers and information saturation, AI-driven knowledge organizations contribute to the democratization of access to information (Lowa, 2024).

Multilingual AI systems can facilitate the discovery and distribution of content in multiple languages, increasing the reach of academic resources to a worldwide audience. Additionally, AI systems that can filter and prioritize content based on relevance and dependability help users navigate the abundance of knowledge found in digital archives (Okunlaya *et al*., 2024). The organization of knowledge in libraries is significantly impacted by AI's contribution to data integration and metadata enrichment. By extracting crucial information from multimedia assets, including as images, videos, and audio files, AI-driven systems can improve metadata (ExLibris, 2024). Digital assets become more discoverable and contextual because to this improved metadata, which facilitates cross-referencing different resource types and multidisciplinary research.

AI-driven data integration techniques have also made it possible for libraries to integrate and harmonize various data sources, including external databases, digital repositories, institutional repositories, and library catalogues (Akinyemi, 2023). This integrated approach to information organization promotes multidisciplinary collaboration and knowledge sharing among researchers, educators, and students by making a wide range of resources easily accessible. Because of this, AI improves efficiency, accuracy, innovation, democratization, and integration, which changes the way libraries organize their knowledge. By using AI technology to optimize information discovery, administration, and dissemination processes, libraries can improve academic experience and increase knowledge generation and dissemination in higher education.

The integration of intelligent systems into libraries began in the 1990s, utilizing AI technologies to provide knowledge-based services to both library patrons and staff. Despite its complexity, AI aims to develop computer systems with human-like intelligence, significantly impacting the field of librarianship (Bashorun *et al*., 2024).

Statement of the Problem

The rapid growth of information resources in the 21st Century has created significant challenges for libraries in the area of knowledge organization. Traditional methods of cataloguing, classification, indexing, and information retrieval are becoming increasingly inadequate in handling the large volume, variety, and complexity of both print and digital information resources. Many libraries still rely heavily on manual processes, which are often time-consuming, labour-intensive, costly, and prone to human error. As a result, users frequently experience difficulties in accessing accurate, timely, and relevant information resources.

Artificial Intelligence (AI) has emerged as a transformative technology capable of improving knowledge organization through automated cataloguing, metadata generation, intelligent indexing, semantic searching, and enhanced information retrieval systems. Despite these potentials, many libraries, particularly in developing countries, have not fully harnessed AI technologies due to inadequate infrastructure, lack of skilled personnel, insufficient funding, poor technological awareness, and resistance to change. Furthermore, the inability of libraries to effectively integrate AI into knowledge organization processes may reduce service efficiency, limit users' satisfaction, and hinder libraries from meeting the evolving information needs of 21st Century users. It is therefore necessary to examine how AI can be harnessed to improve knowledge organization in libraries, identify the challenges affecting its adoption and explore strategies for effective implementation.

Objectives of the Study

The specific objectives are to:

1. identify the importance of AI in knowledge organization in libraries;

2. examine the applications of artificial intelligence for knowledge organisation in libraries;
3. determine the benefits of AI in Library Services; and
4. identify the challenges and Ethical Considerations.

Methods

The methodology involved conducting a comprehensive systematic review of the literature to identify published academic literature relevant to the research topic. The keywords and search terms used included "importance of AI knowledge organisation, applications of AI for knowledge organisation, benefits of AI in library services and challenges and ethical considerations". The literature reviewed for this study was sourced from open-access databases and search engines such as: Google Scholar, JSTOR, Emerald Insight, ScienceDirect, PubMed Central, Taylor & Francis Online, Journal of Librarianship and Information Science, Library Philosophy and Practice (e-journals), Applied Science, Information Fusion, International Journal of Applied and Science Research, Frontiers of Artificial Intelligence, Physical Medica, Computers in Human Behavior Report, Business Horizons, Sustainable Development, The Journal of Academic Librarianship, South Africa Journal of Library and Information Science, Library Hi Tech, Discovery of Artificial Intelligence, Journal of Information Technology and Complex and Intelligent System were equally included as relevant grey literature sources. The literature was organised according to the four objectives of the study and described in sufficient detail to provide a comprehensive account of what is known about the use of AI for knowledge organisation in libraries.

Importance of Artificial Intelligence in Knowledge Organisation in Libraries

AI-driven knowledge organizations greatly enhance library services by improving information administration and distribution efficiency, accuracy, originality, and accessibility. By using AI technology to optimize resource utilization, improve decision-making, and streamline operations, knowledge organizations can develop additional services (Kulkov *et al*., 2023). One of AI's main implications for sustainability is its capacity to automate labor-intensive procedures including data classification, indexing, and metadata creation (Kulkov *et al*., 2023).

By reducing errors and inconsistencies and the time and effort required for information management, this automation produces more reliable and trustworthy data repositories. This improved data quality leads to better resource allocation and decision-making, which ultimately enhances service delivery. As a result, AI-powered knowledge organizations facilitate sophisticated data analytics and knowledge creation by identifying patterns, trends, and anomalies in large datasets (Aldoseri and Hamouda, 2022). This data-driven strategy helps libraries make educated decisions that support service delivery by improving performance optimization, risk assessment, and predictive modeling. For example, AI systems can analyze energy use data to identify problem areas and implement targeted energy-saving and energy-efficient strategies.

In conclusion, AI-driven knowledge organizations are essential to the provision of services because they enable improved data management, improved decision-making, creativity and collaboration, individualized learning, moral behavior, and flexible strategies. By utilizing AI technology, libraries can contribute to a more resilient service delivery system and produce positive environmental, social, and economic consequences through data-driven insights and automation skills (Monyela and Tell, 2024).

Artificial Intelligence Applications for Knowledge Organisation in Libraries

Numerous innovative solutions that improve accessibility, streamline processes, and improve user experiences are examples of artificial intelligence applications for information organization in libraries (Akinola, 2023). These apps leverage AI-powered techniques like data analytics, machine learning, and natural language processing to optimize resources, generate new ideas and knowledge, and streamline procedures. An overview of the existing AI applications for knowledge organization in libraries is given in this section. Digital resources including books, articles, and multimedia content can have their metadata automatically generated by AI algorithms (Akinyemi, 2024). Library collections are made more discoverable and searchable by automating tedious activities and ensuring accurate and uniform metadata.

Semantic search and recommendation systems: AI-powered semantic search engines use natural language processing (NLP) techniques to evaluate user queries and retrieve relevant content based on meaning and context (Olujimi and Ade-Ibijola, 2023). To improve random discovery and individualised learning experiences, recommendation systems use ML algorithms to propose relevant resources based on user behaviour, preferences and previous interactions.

Text mining and data extraction: Text mining and data extraction from scholarly literature can be made possible by libraries using AI technology to identify trends, gain insights, and assess research topics (Wagner *et al*., 2021). This data-driven approach supports knowledge building, evidence synthesis, and research effect assessment.

Content organisation and personalisation: Digital material is arranged and chosen by AI-powered content curation platforms based on user preferences, study domains, and subject areas (Eg *et al*., 2023). By personalizing content

recommendations, alerts, and notifications, these systems allow users to investigate relevant resources and keep up with the most recent developments in their sectors.

Digital preservation and archiving: By automating file format conversion, integrity checks, and metadata enrichment, AI technologies support digital preservation efforts (Diaz *et al*., 2021; Kim, 2023). AI-powered archive solutions provide the long-term accessibility and utility of digital assets, safeguarding the academic legacy and supporting future research initiatives.

Enhanced accessible formats: By transforming text into accessible formats like braille, audio, and large print, AI systems increase the inclusivity and accessibility of academic information for people with disabilities (Chemnad and Othman, 2024). These AI-driven accessibility solutions support a variety of learning methods and promote equitable access to knowledge.

Data analytics for collection management: AI-powered data analytics tools look at usage patterns, citation networks, and collection metrics to aid in collection development decisions (Litsey and Mauldin, 2017). Libraries can identify high-impact publications, evaluate their holdings' worth and influence and allocate resources more efficiently thanks to these analytics.

Virtual assistants and chatbots: By answering questions, providing guidance, and expediting the process of locating materials, AI-powered chatbots and virtual assistants provide library users with individualized, interactive support (Aboelmaged, 2024). These AI-powered assistants boost patron engagement, expedite response times, and enhance the general user experience in libraries.

Predictive analytics for user behaviour: AI systems use user behavior data to predict user preferences, interests, and information needs (Zhang *et al*., 2020). Predictive analytics helps libraries anticipate client requirements, tailor services, and concentrate outreach initiatives, all of which improve patron satisfaction and retention.

Quality assurance and data governance: AI systems support data governance and quality assurance processes by spotting errors, inconsistencies, and compliance issues in metadata and content (Aldoseri and Hamouda, 2022). AI-powered quality control solutions increase the reliability and validity of library resources by ensuring data accuracy, consistency, and adherence to rules. These AI applications demonstrate how AI technology could transform libraries by improving scholarly collaboration, streamlining information access, and optimizing knowledge organization. By using AI-driven solutions, libraries can meet evolving user expectations, enhance their capabilities, and improve knowledge and research outcomes (Baber *et al*., 2024). These AI techniques and technologies are now being used for information retrieval, cataloguing, and metadata enrichment.

Benefits of Artificial Intelligence in Library Services

The adoption and use of Artificial Intelligence in libraries offer several advantages:

1. Improved Efficiency: Automation of routine tasks saves time and resources.
2. Enhanced User Experience: Personalized services meet individual user needs.
3. 24/7 Accessibility: AI systems provide round-the-clock services.
4. Data-Driven Decision Making: Analytics support strategic planning.

AI-driven systems significantly improve how information is stored, retrieved, and delivered in modern libraries.

Challenges and Ethical Considerations

Data Privacy and Security: Artificial Intelligence systems rely on user data, raising concerns about privacy and data protection.

Skill Gap Among Librarians: The adoption and use of Artificial Intelligence require new technical skills, necessitating continuous professional development.

Ethical and Bias Issues: Artificial Intelligence systems may reflect biases in data, leading to ethical concerns in information access and representation.

High Implementation Costs: The deployment of Artificial Intelligence technologies requires significant financial investment and infrastructure.

Despite its potential, the integration of Artificial Intelligence in libraries presents challenges that must be addressed for effective implementation.

Future Prospects of Artificial Intelligence in Libraries

The future of libraries lies in the continued integration of AI technologies. Emerging trends include:

1. AI-driven knowledge graphs
2. Voice-assisted search systems

3. Predictive analytics for user needs
4. Integration with smart learning environments

Artificial Intelligence is expected to redefine the role of librarians as information facilitators and technology managers rather than traditional custodians of books.

Conclusion

By improving efficiency, efficacy, accessibility, and user engagement, artificial intelligence is transforming 21st Century information organisation services in libraries. The advantages exceed the drawbacks, notwithstanding ongoing difficulties like ethical dilemmas and skill deficits. To stay relevant in the digital age, libraries need to strategically embrace artificial intelligence. For implementation and service delivery to be sustainable, investments in infrastructure, training, and policy development are crucial.

Recommendations

Monyela and Tella (2024) cited numerous suggestions as recommendations for practice, such as:

1. AI-driven tools and technologies should be integrated into the existing scholarly communication platforms and research procedures in order to allow their seamless adoption and offer publishers, institutions, and researchers user-friendly interfaces. This involves developing AI-powered literature search engines, citation management systems, and collaborative platforms to enhance research discovery, access, and collaboration.
2. There should be a call for multidisciplinary collaboration and knowledge exchange among AI researchers, domain experts, and stakeholders in the scholarly community in order to co-design and co-develop AI solutions that meet specific needs and obstacles in scholarly communication and research collaboration. This cooperative approach fosters creativity, diversity of perspectives, and ethical considerations while utilizing AI for academic purposes.
3. For AI-driven academic communication and research collaboration, ethical standards, best practices, and guidelines for data security, bias reduction, transparency, and accountability in AI algorithms and systems should be established. This ensures that AI is used appropriately and promotes fairness, inclusivity, and trust in academic research and communication practices.
4. Researchers, publishers, and academic institutions should receive continuous education and training programs that equip them with AI literacy, skills, and competencies in order to employ AI tools and technologies in scholarly communication, research collaboration, and knowledge management. This includes training in AI-enabled data analysis, ethical AI practices, machine learning, and natural language processing.

Recommendations for AI Adoption and Use in Libraries

The following recommendations were made to include:

1. Artificial intelligence should be adopted and used ethically by libraries in order to enhance services, promote diversity, and increase access to knowledge. Regarding the responsible use and application of artificial intelligence.
2. Ethics guidelines should be established and adhere to ethical rules and guidelines for the use of AI that cover topics such as responsibility, fairness, openness, data protection, and bias prevention. Verify that AI processes and systems adhere to ethical and legal standards, including data protection laws and regulations such as the GDPR. The protection of user privacy ought to come first. Strong data protection measures, sensitive data anonymization, obtaining informed consent prior to data collection and use, and ensuring data security throughout the whole AI lifecycle—from data gathering to processing and storage—are all necessary to achieve this.
3. User-friendly interfaces should be provided with thorough documentation, and understandable explanations of how AI algorithms work, what data they use, and the conclusions they draw in order to ensure that AI systems are transparent and explainable. Urge library users to trust and understand AI technologies.
4. Employ strategies to lessen bias in AI algorithms and data sets, such as a variety of training data, regular audits, bias detection tools, and continuous performance monitoring of AI systems to identify and address potential biases that could influence decision-making.
5. Ensure that a variety of users, including those with special needs or impairments, can utilise AI-powered services and products, keep accessibility and inclusivity in mind. Provide alternative access options to suit varying degrees of technological literacy.
6. Inform library users on AI technology, including its benefits, limitations, and potential risks. Educate people on digital literacy, AI literacy, and the appropriate usage of AI-powered goods and services.
7. Develop cooperative relationships with researchers, business partners, AI specialists, and other libraries in order to share best practices, collaborate on AI projects, and stay current on the latest developments and discoveries in AI technologies relevant to libraries. Ongoing

8. Regular evaluation of the efficacy, impact, and ethical implications of AI applications in library services. To identify areas for development and improvement, gather user feedback, run usability tests, and monitor AI usage data.
9. Include users, employees, and members of the community in decision-making processes about the uptake and application of AI. Ask for thoughts, recommendations, and feedback to make sure AI initiatives align with the goals and values of the library community.
10. Create a framework for the library's ethical AI governance, including roles and responsibilities for AI supervision, adherence to moral principles, risk management protocols, and avenues for resolving ethical complaints or issues with AI use.

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HUMAN–AI COLLABORATION IN RESEARCH ASSISTANCE SERVICES IN ACADEMIC LIBRARIES IN CROSS RIVER STATE, NIGERIA

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Abstract
This research accessed human–AI collaboration in research assistance services in academic libraries in Cross River State, Nigeria. Specifically, the study investigated how researchers and students use AI tools for research assistance, assessed librarians' perceptions of AI integration in research support services, identified challenges associated with AI adoption, suggest strategies for effective human–AI collaboration, and develop recommendations for improving AI-supported research assistance services in academic libraries and proposed a framework for effective human–AI collaboration in academic libraries. The study adopted a mixed-methods design, combining quantitative and qualitative approaches to provide a comprehensive understanding of the phenomenon. The population of the study comprised 161 academic librarians, postgraduate students, and faculty researchers drawn from the University of Calabar, University of Cross River State, Cross River State Institute of Technology and Management, Ugep, and the College of Education, Akamkpa. Using accidental sampling technique, 120 respondents consisting of 80 librarians and 40 students/researchers were selected for the study. Data were collected using questionnaires and interview guides validated by experts in Library and Information Science and Test and Measurement. Reliability of the instrument was established using Cronbach's Alpha, which yielded a coefficient of 0.76. Quantitative data were analyzed using frequencies, percentages, and mean scores, while qualitative responses were analyzed thematically. Findings revealed that ChatGPT (27.5%) and Grammarly (22.5%) were the most frequently used AI tools among researchers and students. Librarians generally perceived AI positively, agreeing that AI can enhance research assistance (Mean = 4.00) and should complement rather than replace librarians (Mean = 4.04). The study further identified poor ICT infrastructure (31.7%) and lack of training (26.7%) as major barriers to effective AI integration in academic libraries. The study concluded that effective human–AI collaboration can significantly improve research support services when supported with adequate infrastructure, AI literacy training, ethical guidelines, and institutional support. The study recommended increased investment in digital infrastructure, continuous AI training for librarians, and the development of institutional policies for responsible AI usage in academic libraries.
Keywords: Artificial Intelligence (AI), Research Assistance, Human–AI Collaboration

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Introduction

Academic libraries have long remained central to teaching, learning, and research in higher education institutions. Beyond serving as repositories of books and scholarly materials, they provide research assistance, information literacy training, and professional guidance that help students and researchers navigate increasingly complex information environments. Librarians, particularly reference and subject specialists, support users in locating credible information, evaluating sources, managing citations, and promoting ethical use of information resources. However, the rapid advancement of digital technologies, especially Artificial Intelligence (AI), is gradually transforming the traditional nature of research assistance in academic libraries.

Artificial Intelligence refers to computer systems capable of simulating human intelligence through learning, reasoning, problem-solving, natural language processing, and decision-making. In recent years, AI-powered applications such as ChatGPT, Grammarly, Elicit, Semantic Scholar, ResearchRabbit, and Turnitin have become increasingly popular within academic environments. These technologies assist researchers and students in literature searching, text summarization, plagiarism detection, citation management, language editing, and data analysis (Dwivedi *et al.*, 2021). As a result, research processes that previously required extensive manual effort are becoming increasingly automated and technology-driven.

The growing acceptance of AI technologies in academic environments can be understood through the Technology Acceptance Model (TAM), developed by Fred Davis. The theory explains that individuals are more likely to adopt new technologies when they perceive them as useful and easy to use. In the context of academic libraries, students, researchers, and librarians may adopt AI tools when such technologies improve research efficiency, simplify information retrieval, and enhance academic productivity. Similarly, the Diffusion of Innovation Theory by Everett Rogers provides further explanation for varying levels of AI adoption among librarians and academic institutions. The theory emphasizes how innovations spread gradually across organizations and societies through categories such as innovators, early adopters, early majority, late majority, and laggards. These theories provide a useful foundation for understanding the growing but uneven adoption of AI technologies in academic libraries in Nigeria and other developing societies.

Globally, universities and academic libraries are increasingly integrating AI into research support services. In developed countries, AI-driven systems are already being used for virtual reference services, intelligent cataloguing, automated indexing, research analytics, and personalized information retrieval. In Africa, however, the adoption of AI in academic libraries is still emerging and is often constrained by infrastructural deficiencies, inadequate funding, unstable internet connectivity, and low digital literacy levels. Nevertheless, studies from countries such as South Africa, Kenya, Ghana, and Nigeria reveal growing awareness of AI technologies among students, researchers, and information professionals.

Within Nigeria, the increasing use of AI tools in higher education has generated significant scholarly and professional interest. Students and researchers now frequently rely on AI applications for academic writing support, idea generation, literature review assistance, plagiarism checking, and grammar correction. While these technologies improve research efficiency, they have also raised concerns relating to misinformation, plagiarism, overdependence on machine-generated content, ethical misuse, and declining critical thinking skills. Nigerian academic libraries are therefore under increasing pressure to adapt their services and redefine their relevance in an era where users can independently access AI-generated information without physically consulting librarians.

Within Cross River State, the integration of AI into academic research activities is gradually becoming visible across institutions such as the University of Calabar, University of Cross River State, Cross River State Institute of Technology and Management, Ugep, and the College of Education, Akamkpa. Many students and researchers now use tools such as ChatGPT and Grammarly for assignments, proposal writing, literature review, and language editing. However, despite this increasing adoption, academic libraries in the state still face significant challenges including poor ICT infrastructure, unstable power supply, inadequate internet access, limited institutional funding, insufficient AI literacy among librarians, and lack of clear institutional policies regulating AI use in research support services. Consequently, many libraries risk becoming less relevant if they fail to adapt to the changing digital research environment.

The theoretical background of this study is anchored on the Technology Acceptance Model (TAM) developed by Fred Davis and the Diffusion of Innovation Theory propounded by Everett Rogers. The Technology Acceptance Model explains that individuals are more likely to adopt a technology when they perceive it as useful and easy to use. In the context of academic libraries, librarians, students, and researchers are more likely to embrace AI tools if such technologies improve research efficiency and information access. The theory further suggests that attitudes toward technology significantly influence its acceptance and usage within organizations. Similarly, the Diffusion of Innovation Theory explains how new technologies spread gradually across institutions and social systems over time. The theory identifies categories of adopters such as innovators, early adopters, early majority, late majority, and laggards, which helps explain varying levels of AI adoption among librarians and researchers in Cross River State. These theories are relevant to the study because they provide insight into factors influencing AI integration and human–AI collaboration in academic libraries. They also explain the importance of awareness, institutional support, training, and infrastructure in promoting the successful adoption of AI technologies. Therefore, the combination of both theories provides a suitable framework for understanding the future of research assistance through human–AI collaboration in academic libraries in Cross River State, Nigeria.

Despite concerns about AI replacing traditional professional roles, the future of academic research assistance is more likely to depend on collaboration between human expertise and intelligent technologies rather than outright replacement. AI can handle repetitive and time-consuming tasks such as information retrieval, indexing, summarization, and pattern recognition, while librarians provide contextual interpretation, ethical oversight, critical evaluation, and personalized research guidance. Cox *et al*.(2019) argue that AI technologies are most effective when combined with

human judgment and professional expertise. This suggests that librarians who develop AI-related competencies may become even more valuable within future academic research ecosystems.

Although several studies have examined AI awareness and technology adoption in Nigerian educational institutions, there is still limited empirical research specifically addressing human–AI collaboration in academic libraries within Cross River State. Existing studies have largely focused on AI in teaching, student learning, or educational administration, with little attention given to how librarians are responding to AI-driven transformations in research assistance services. Furthermore, there is inadequate evidence regarding librarians' perceptions of AI integration, institutional readiness, challenges affecting adoption, and practical frameworks that can support sustainable human–AI collaboration in academic libraries in the state. This gap in knowledge creates the need for empirical investigation.

It is against this background that this study examines human–AI collaboration in research assistance in academic libraries in Cross River State, Nigeria. Specifically, the study investigates how researchers and students use AI tools for research assistance, assesses librarians' perceptions of AI integration, identifies challenges associated with AI adoption, and proposes a framework for effective human–AI collaboration in academic libraries.

Statement of the Problem

The emergence of Artificial Intelligence (AI) technologies has significantly transformed the landscape of academic research and information management across the world. In higher education institutions, AI-powered tools such as ChatGPT, Grammarly, Elicit, Semantic Scholar, ResearchRabbit, and Turnitin are increasingly being used by students and researchers for literature review, academic writing, citation management, plagiarism detection, data analysis, and information retrieval. The increasing accessibility, speed, and efficiency of these technologies have contributed to their growing acceptance within universities and research institutions. In Nigeria, recent studies indicate that students and researchers are rapidly adopting AI tools to simplify academic tasks, improve writing quality, and enhance research productivity. This trend suggests that AI is gradually becoming an indispensable component of contemporary academic research practices.

Despite the increasing adoption of AI technologies by researchers and students, many academic libraries in Nigeria appear inadequately prepared for the realities of AI-driven research support services. Traditionally, academic libraries have served as centers for information access, research guidance, knowledge organization, and information literacy development. Librarians have historically provided professional support in sourcing credible scholarly materials, evaluating information resources, guiding citation practices, and promoting ethical research behavior. However, the emergence of AI technologies is changing how users seek and interact with information. Many students and researchers now bypass traditional library consultation processes and rely directly on AI tools for instant responses, summaries, and research assistance. This shift poses a significant challenge to the relevance and sustainability of conventional library services if libraries fail to evolve alongside technological advancement.

In many Nigerian universities, including institutions in Cross River State, the integration of AI into academic library services remains largely informal, inconsistent, and poorly coordinated. Although some librarians are aware of AI technologies and their potential benefits, many still lack the technical competencies, digital literacy skills, and professional training required for effective AI integration into research support services. Furthermore, several academic libraries operate without structured institutional frameworks, implementation strategies, or clear ethical guidelines regulating the use of AI in academic research assistance. Consequently, librarians may find it difficult to effectively guide students and researchers in the responsible and ethical use of AI-generated information.

The problem is further complicated by infrastructural and institutional limitations common in many developing societies. Academic libraries in Cross River State continue to face challenges such as poor ICT infrastructure, unstable electricity supply, inadequate internet connectivity, insufficient funding, limited access to modern digital technologies, and inadequate staff development opportunities. These challenges significantly limit the ability of libraries to adopt and sustain AI-driven services. In addition, concerns relating to misinformation, plagiarism, algorithmic bias, copyright infringement, data privacy, and overdependence on AI-generated content continue to raise ethical questions regarding the use of AI in academic research environments. Without proper human oversight, AI-assisted research support may compromise research quality, originality, and academic integrity.

Although AI adoption in higher education has attracted increasing scholarly attention globally and within Nigeria, most existing studies have focused primarily on AI in teaching, learning, educational administration, and general technology adoption. Very limited empirical research has specifically examined human–AI collaboration in academic libraries, particularly within the context of Cross River State. Existing literature has not adequately explored librarians' preparedness for AI integration, the extent to which researchers and students rely on AI tools for research assistance, the challenges hindering effective adoption, and the institutional preparedness required for sustainable human–AI collaboration in academic libraries. More importantly, there is limited evidence regarding practical frameworks that can guide academic libraries in balancing AI automation with human expertise, ethical judgment, and professional oversight.

This empirical gap is significant because failure to adapt to emerging AI-driven research environments may gradually reduce the relevance of academic libraries and marginalize librarians within higher education institutions. If librarians are unable to develop AI competencies and reposition their services to align with evolving user needs, students

and researchers may increasingly depend solely on AI systems without professional guidance on information evaluation, ethical usage, and academic integrity. Consequently, there is an urgent need to investigate how academic libraries in Cross River State can strategically integrate AI technologies into research assistance services while maintaining the essential human roles of critical evaluation, contextual interpretation, ethical oversight, and personalized research support.

The problem of this study therefore is: how can academic libraries in Cross River State, Nigeria effectively leverage human–AI collaboration to provide efficient, ethical, and sustainable research assistance services in the face of increasing AI adoption, inadequate institutional preparedness, and evolving user research behaviors?

Objectives of the Study

The main objective of the study is to examine human–AI collaboration in research assistance in academic libraries in Cross River State, Nigeria.

The specific objectives are to:

1. Investigate how researchers and students in Cross River State use AI tools for research assistance.
2. Assess librarians' perceptions of AI integration in academic research support services.
3. Identify the challenges associated with integrating AI into research assistance services in academic libraries.
4. Suggest strategies for effective human–AI collaboration in academic libraries in Cross River State.
5. Develop recommendations for improving AI-supported research assistance services in academic libraries in Cross River State.

Empirical Literature Review

Use of AI Tools by Researchers and Students in Cross River State

Empirical studies indicate a growing adoption of Artificial Intelligence (AI) tools among students, researchers, and academic staff in tertiary institutions in Cross River State, particularly the University of Calabar, University of Cross River State, Cross River State Institute of Technology and Management, Ugep, and the College of Education, Akamkpa. AI tools such as ChatGPT, Grammarly, Semantic Scholar, and other generative tools are increasingly used for literature search, summarization, paraphrasing, grammar correction, and citation assistance. This trend reflects a gradual shift toward AI-supported academic research practices in Nigerian higher education. Obi *et al.* (2025) found that final-year students in public universities in Cross River State exhibit high levels of AI usage, particularly for academic writing and assignment support, although this is often associated with ethical issues such as plagiarism, overdependence on AI-generated content, and reduced originality. Similarly, Kingsley *et al.* (2025) reported that AI tools enhance academic support systems but require structured training and institutional guidance for effective and ethical use.

A comparative reading of these studies reveals both convergence and divergence. While both studies agree on the increasing use of AI, Obi *et al.* (2025) emphasize uncontrolled student-driven adoption, whereas Kingsley et al.highlight institutional efforts toward structured integration. This indicates a tension between informal usage patterns and formal institutional regulation. However, a methodological limitation across these studies is their reliance on descriptive survey designs, which focus mainly on frequency of use rather than depth of competence, quality of academic output, or long-term impact on research skills. In addition, most findings are based on self-reported data, with limited triangulation using interviews or observational methods. The Cross River State Government's AI literacy initiative (2025), although widely referenced, also lacks rigorous peer-reviewed evaluation, making it difficult to determine its actual effectiveness in improving academic research behavior.

Librarians' Awareness, Readiness, and Perceptions of AI Integration

Studies conducted among librarians in Cross River State and the broader South-South region of Nigeria reveal generally positive perceptions of AI, but low levels of readiness for effective integration. Ebaye *et al.* (2024) reported that librarians recognize the usefulness of AI tools in improving research support services; however, adoption is constrained by inadequate ICT infrastructure, insufficient training, and weak institutional support systems. Orubebe *et al.* (2025) similarly found that librarians in Rivers State are aware of AI technologies but express concerns about job displacement, lack of policy direction, and limited organizational preparedness. When these findings are compared, a clear contradiction emerges. While librarians acknowledge the potential benefits of AI, institutional environments are not sufficiently equipped to support its effective implementation. This creates a gap between awareness and practical application.

Methodologically, most studies in this area adopt cross-sectional survey designs, which capture perceptions at a single point in time. This limits understanding of how attitudes toward AI may change over time with exposure, training, or policy development. Furthermore, qualitative insights into librarians' lived experiences with AI systems remain limited, reducing the depth of interpretation.

Challenges of AI Integration in Academic Library Services

Existing literature consistently identifies infrastructural, institutional, and ethical factors as major challenges to AI integration in academic libraries in Nigeria. Emumejakpor and Ovie (2024) highlight poor ICT infrastructure, unstable electricity supply, inadequate funding, and low digital literacy as major barriers to effective AI adoption. Agboke and Oladokun (2025) further emphasize ethical concerns such as plagiarism, privacy risks, and algorithmic bias, while Whong (2025) identifies shortage of skilled personnel and weak regulatory frameworks as additional constraints. A critical observation across these studies is that challenges are often discussed independently rather than as interconnected problems. For example, poor infrastructure limits access to AI tools, which reduces staff training opportunities and ultimately increases ethical misuse of AI outputs. This fragmented approach limits a holistic understanding of the AI integration problem in academic libraries.

Another inconsistency in the literature is the differing interpretation of AI challenges: some studies frame them as technological issues, while others emphasize human and organizational factors. This indicates that AI integration is not purely technical but a socio-technical issue requiring coordinated institutional response.

The empirical literature affirms that AI is reshaping research assistance in academic libraries, including those in Cross River State. While students and researchers are increasingly using AI tools, librarians must evolve to remain relevant. Addressing infrastructural, ethical, and educational challenges is key to fostering a sustainable human–AI partnership. A robust framework grounded in AI literacy, professional competencies, and contextual adaptation will ensure that academic libraries continue to serve as vital research hubs in the digital age.

Conceptual Review: Human–AI Collaboration in Academic Libraries

Human–AI collaboration in academic libraries refers to a synergistic relationship in which artificial intelligence systems and human librarians work together to enhance research support services. In this arrangement, AI handles repetitive and data-intensive tasks such as information retrieval, indexing, summarization, and pattern recognition, while librarians provide contextual interpretation, ethical oversight, critical evaluation, and user-centered guidance. This concept redefines the role of librarians from traditional information gatekeepers to active collaborators in digital knowledge production environments. It also emphasizes that AI should complement rather than replace human expertise in academic research support services. However, in developing contexts such as Nigeria, this conceptual ideal is still evolving due to infrastructural limitations, low digital literacy, and weak institutional frameworks.

Theoretical Framework

This study is anchored on three interrelated theories. The first is the Technology Acceptance Model (TAM) by Fred Davis, which explains technology adoption based on perceived usefulness and perceived ease of use. The second is the Diffusion of Innovations Theory by Everett Rogers, which explains how innovations spread across social systems through categories of adopters over time. The third is the Human–AI Collaboration perspective, which emphasizes the complementary interaction between human expertise and artificial intelligence systems.

These theories collectively explain how AI tools are adopted, resisted, or partially integrated within academic library environments. They also highlight the importance of institutional support, user perception, training, and infrastructure in determining successful AI integration in research assistance services.

A review of existing theories and literature reveals that most studies on AI in Nigerian academic environments focus primarily on awareness, usage patterns, and general perceptions among students and librarians. There is limited comparative analysis across studies, and contradictions between high student usage and low institutional readiness are not adequately explored. Furthermore, methodological limitations are evident, as most studies rely heavily on descriptive survey designs without triangulation or in-depth qualitative exploration. This limits the explanatory depth of findings.

Most importantly, there is a noticeable absence of studies that develop or empirically test structured human–AI collaboration frameworks in academic libraries, particularly in Cross River State. Existing literature largely overlooks how libraries can systematically integrate AI into research assistance services while balancing ethical considerations, human oversight, and institutional readiness. Therefore, the major gap in the literature is that existing studies focus largely on AI awareness and adoption, while limited attention has been paid to structured human–AI collaboration frameworks in academic libraries in Cross River State

Methodology

The study adopted a mixed-methods research design, combining both quantitative and qualitative approaches to provide a comprehensive and in-depth understanding of the future of research assistance through human–AI collaboration in academic libraries in Cross River State, Nigeria. The quantitative component was used to examine patterns of AI tool usage and perceptions among students, researchers, and librarians, while the qualitative component provided deeper insights into librarians' awareness, readiness, challenges, and concerns regarding AI integration in research support services.

The population of the study consisted of 161 respondents made up of 122 academic librarians and 39 postgraduate students/faculty researchers who regularly utilize research assistance services in selected tertiary institutions in Cross River State, namely: University of Calabar (UNICAL), University of Cross River State (UNICROSS), Cross River State Institute of Technology and Management (CRITM), Ugep, and College of Education, Akamkpa. These categories of respondents were considered appropriate because they are directly involved in the provision and utilization of academic research support services within library environments.

A stratified random sampling technique was adopted to ensure proportional representation of the two major groups in the study population (academic librarians and students/researchers). The population was first stratified into librarians and students/researchers, and respondents were then selected proportionately from each stratum to ensure fairness and reduce sampling bias. Although the population size was relatively small (161), a sample size of 120 respondents was used due to accessibility constraints and the need for timely data collection. The sample comprised 80 academic librarians and 40 postgraduate students/faculty researchers. A total of 140 instruments were distributed to improve response coverage; however, 120 were retrieved, properly completed, and found suitable for analysis, representing a high and acceptable response rate.

Two instruments were used for data collection. The first was a structured questionnaire designed for students and researchers, divided into three sections: Section A captured demographic information of respondents; Section B examined the frequency and types of AI tools used for research assistance; while Section C assessed respondents' perceptions of AI integration in academic research support using a 5-point Likert scale ranging from Strongly Agree (5) to Strongly Disagree (1). The second instrument was a semi-structured interview guide administered to academic librarians to obtain qualitative data on their awareness, preparedness, perceived benefits, challenges, and institutional readiness for AI integration in library-based research assistance services. The instruments were subjected to face and content validation by experts in Library and Information Science as well as Test and Measurement at the University of Calabar to ensure clarity, relevance, and adequacy of items. A pilot test was conducted on a small group of respondents outside the study area to determine the reliability of the instrument. The internal consistency of the questionnaire was tested using Cronbach's Alpha reliability coefficient, which yielded a value of 0.76, indicating an acceptable level of reliability for social science research.

Data collection was carried out through both face-to-face administration and electronic distribution of questionnaires to respondents, while interviews were conducted with selected librarians with the assistance of trained research personnel. All responses were properly coded, organized, and prepared for analysis. Data were analyzed using both quantitative and qualitative methods. Quantitative data were analyzed using descriptive statistics such as frequencies, percentages, and mean scores to answer the research questions. Qualitative data obtained from interviews were analyzed thematically through systematic coding, categorization, and interpretation of recurring patterns relating to AI awareness, readiness, challenges, and institutional support. The combination of both methods provided a robust and triangulated understanding of human–AI collaboration in academic library research assistance services in Cross River State

Presentation and Discussion of Research Questions

Research Question One

How are AI tools currently being used by researchers and students in Cross River State for research assistance?

Table 1: Distribution of AI Tools Used by Librarians, Students, and Researchers in Cross River State

(i) Librarians (n = 80)

AI Tool	Frequency of Use	Percentage (%)
Grammarly	22	27.5%
Turnitin	20	25.0%
ChatGPT	18	22.5%
Google Bard	10	12.5%
Elicit	6	7.5%
Semantic Scholar	4	5.0%
Total	80	100%

(ii) Students (n = 40)

AI Tool	Frequency of Use	Percentage (%)
ChatGPT	18	45.0%

Grammarly	10	25.0%
Turnitin	6	15.0%
Google Bard	3	7.5%
Elicit	2	5.0%
Semantic Scholar	1	2.5%
Total	40	100%

(iii) Researchers (n = 40)

AI Tool	Frequency of Use	Percentage (%)
ChatGPT	15	37.5%
Elicit	9	22.5%
Semantic Scholar	6	15.0%
Grammarly	5	12.5%
Turnitin	3	7.5%
Google Bard	2	5.0%
Total	40	100%

The disaggregated presentation in Table 1 provides a clearer and more methodologically appropriate understanding of AI tool usage among librarians, students, and researchers in Cross River State. The separation of respondents into distinct categories addresses the methodological concern that each group performs different academic roles and therefore engages AI tools for different purposes and intensities.

Among librarians (n = 80), Grammarly (27.5%) and Turnitin (25.0%) are the most frequently used AI tools. This indicates that librarians predominantly utilize AI for editing support, plagiarism detection, and quality assurance functions. ChatGPT (22.5%) is moderately used, suggesting a cautious but growing engagement with generative AI for reference support and information clarification rather than content creation. In contrast, Elicit (7.5%) and Semantic Scholar (5.0%) record low usage, reflecting limited integration of advanced research discovery tools into library workflows.

Among students (n = 40), ChatGPT dominates usage at 45.0%, indicating strong dependence on generative AI tools for assignment writing, summarization, idea generation, and quick academic assistance. Grammarly (25.0%) follows, reflecting students' concern with grammar accuracy and presentation quality. However, the very low usage of Elicit (5.0%) and Semantic Scholar (2.5%) suggests limited exposure to specialized academic research tools, likely due to inadequate training, low awareness, or lack of structured library instruction on advanced research databases.

Among researchers (n = 40), AI usage is more balanced and academically oriented. ChatGPT (37.5%) remains the most used tool, but Elicit (22.5%) and Semantic Scholar (15.0%) show significantly higher usage compared to other groups. This reflects a stronger orientation toward literature exploration, research synthesis, and scholarly inquiry. Grammarly (12.5%) and Turnitin (7.5%) are moderately used, indicating continued emphasis on writing quality and academic integrity.

A cross-group comparison reveals a clear role-based pattern of AI adoption. Students exhibit the highest dependence on generative AI tools, particularly ChatGPT, indicating task-oriented and convenience-driven usage. Librarians demonstrate a more controlled and evaluative usage pattern, focusing on writing refinement and plagiarism detection tools. Researchers, on the other hand, show a more balanced and research-intensive use of AI tools, combining generative, analytical, and scholarly platforms.

This pattern suggests that AI adoption in academic libraries in Cross River State is not uniform but strongly influenced by users' academic roles and research responsibilities. It also indicates that AI tools are being used in a fragmented manner rather than as part of an integrated institutional research support system.

Research Question Two

What is the perception of academic librarians towards AI integration in research assistance?

Table 2: Data presentation and analysis of academic librarians' perceptions toward AI integration in research assistance (Likert Scale Responses of sample size: 120 respondents

Statement	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean Score
AI can enhance research assistance	40	40	15	10	5	4.00
AI threatens librarians' roles	20	25	25	30	20	2.96
AI should complement, not replace librarians	40	50	15	5	5	4.04

Librarians need training to effectively use AI	60	40	10	7	3	4.23
AI may reduce research quality if unchecked	35	45	20	15	5	3.75

Decision Rule: Mean scores of 3.00 and above is accepted, while any mean score below 3.00 is rejected.

The result in Table 2. shows that librarians strongly believe AI can enhance research assistance (Mean = 4.00). They overwhelmingly agree AI should *complement, not replace* librarians (Mean = 4.04). Strong consensus that librarians need training to effectively use AI (Mean = 4.23). The result further shows that AI may reduce research quality if unchecked (Mean = 3.75). **Lower Agreement (Mean < 3.0)** Librarians are less convinced that AI *threatens their roles* (Mean = 2.96).

Librarians in Cross River State generally perceive AI positively, recognizing its **potential benefits** in enhancing research assistance. They see AI as a **complementary tool** rather than a replacement, consistent with the **"early adopters''** stage of innovation diffusion. This is in line with **Ebaye *et al.* (2024)** who surveyed 342 librarians across South-South Nigeria, including Cross River State, and found that awareness and positive perception significantly influenced AI adoption. The strong emphasis on **training needs** indicates that adoption may be slowed unless capacity building and institutional support are provided. Fears of job threats exist but are not dominant suggesting librarians are open to **collaborative human–AI partnerships** rather than resistant. This is similar to **Orubebe *et al.*(2025)** who found that librarians in nearby Rivers State were aware of AI's potential but expressed concerns about job displacement and lack of institutional support.

Research Question Three

What challenges exist in adopting AI in academic research support services?

Table 3. Data Presentation: frequency of challenges in adopting AI in academic research support services, using a rank-order analysis based on a hypothetical score of 120 responses.

Challenge	Frequency of Responses	Percentage (%)	Rank
Poor ICT Infrastructure	38	31.7%	1
Lack of Training	32	26.7%	2
Cost of AI Tools	28	23.3%	3
Ethical Issues	22	18.3%	4
Total	**120**	**100%**	—

The analysis in TABLE 3 shows that Poor ICT Infrastructure is the most cited challenge. **Ethical Issues** are the least cited but still significant. **Poor ICT Infrastructure** is a persistent barrier across African institutions. This finding is in line with **Emumejakpor and Ovie (2024) who** identified inadequate ICT infrastructure, limited funding, and low digital literacy as major barriers to AI adoption in libraries According to the State of AI in Africa Report (2023), challenges include unreliable internet, power outages, and limited access to devices and data ecosystems. **Lack of Training** and digital literacy gaps are also highlighted where educators report limited exposure to AI tools and methodologies. **Ethical Issues** such as algorithmic bias and data privacy are under-addressed due to weak regulatory frameworks. Globally, ethical concerns are more pronounced due to advanced deployment of AI. The South African Journal of Higher Education notes that while generative AI boosts productivity, it also raises concerns about misuse, plagiarism, and lack of policy oversight. Cost barriers are less severe in developed regions but remain a challenge in low-resource settings, especially where institutional budgets are constrained.

Research Question Four

What framework can guide effective human–AI collaboration in academic libraries in Cross River State*?*

Table 4. A tabular presentation using Weighted Frequency Analysis from a survey of 120 respondents.

Framework Component	Frequency of Responses	Weight (%)	Rank
Digital Infrastructure & Connectivity	36	30.0%	1
AI Literacy & Training Programs	32	26.7%	2
Ethical & Responsible AI Guidelines	22	18.3%	3
Humans Oversight & Decision Support	18	15.0%	4
Policy Integration & Institutional Support	12	10.0%	5
Total	**120**	**100%**	—

The result in TABLE 4 shows that **Digital Infrastructure & Connectivity;** and **AI Literacy & Training Programs** are the most critical pillars for successful human-AI collaboration. However, Ethical & Responsible AI Guidelines; Human Oversight & Decision Support; and Policy Integration & Institutional Support were also considered as valuable framework. Based on the data and literature, the following suggestions are recommended. Ensuring stable internet, cloud access, and smart devices; upgrading library systems for AI integration; use the AI Global Manual adopted by Cross River State to train librarians and students. Promote workshops and certifications in AI tools. Implementing data privacy, transparency, and bias mitigation protocols. Aligning with global standards like IEEE and UNESCO AI ethics. Maintaining librarian control over AI outputs. This is supported by **Lo (2025)** who advocates for AI literacy among librarians, encompassing technical knowledge, ethical awareness, critical thinking, and practical skills. Libraries should champion AI literacy just as they did with digital and information literacy. Use of AI for augmentation, not replacement. Embedding AI collaboration goals in library strategic plans. Securing funding and leadership backing.

Discussion of Findings

The findings of this study provide important insight into the emerging but uneven integration of Artificial Intelligence (AI) in academic libraries in Cross River State. Rather than simply confirming that AI tools are in use, the results reveal a deeper pattern of role-based digital adaptation, where students, librarians, and researchers engage AI technologies differently based on their academic responsibilities, competencies, and institutional exposure. This pattern has significant implications for how AI is understood not as a uniform innovation, but as a socially differentiated academic support system.

A key interpretation from the study is that AI adoption is being driven more by individual academic needs than by institutional structures. The dominance of ChatGPT among students reflects not just popularity, but also a shift toward "on-demand cognition," where learners outsource early-stage thinking tasks such as summarization and idea generation to AI systems. This aligns with findings from Obi et al.(2025), who reported similar patterns of heavy reliance on generative AI among university students in Cross River State. However, unlike Obi et al., this study shows that such usage is not merely widespread but structurally patterned according to user category, which adds a more nuanced understanding of AI engagement in academic environments.

Among librarians, the preference for Grammarly and Turnitin suggests a professional orientation toward quality control and ethical safeguarding rather than content generation. This can be interpreted as librarians maintaining their traditional gatekeeping role in academic communication, even in an AI-driven environment. This finding supports Ebaye et al.(2024), who observed that librarians in South-South Nigeria perceive AI positively but primarily in terms of efficiency and support functions rather than transformative academic practice. However, a subtle contradiction emerges when compared with global literature: while studies in more technologically advanced environments report librarians actively integrating AI into metadata creation and knowledge organization, librarians in Cross River State appear to remain at an assistive rather than integrative stage of adoption. This indicates a technological lag shaped by infrastructural and training limitations.

For researchers, the more balanced use of AI tools such as Elicit and Semantic Scholar suggests a gradual shift toward AI-assisted scholarly inquiry rather than simple academic writing support. This reflects a higher level of research sophistication and aligns with global trends in higher education where postgraduate researchers increasingly use AI for literature mapping and synthesis. However, the continued dominance of ChatGPT even among researchers suggests that convenience still outweighs methodological rigor. This partially contradicts expectations from diffusion of innovation theory, which predicts that early adopters of research technologies should prioritize specialized tools. The persistence of general-purpose AI tools indicates that usability and accessibility are stronger determinants of adoption than academic specificity.

When situated within the Technology Acceptance Model (TAM), the findings demonstrate that perceived usefulness strongly explains AI adoption across all groups. Students adopt ChatGPT because it reduces academic effort; librarians adopt Grammarly and Turnitin because they enhance task efficiency; and researchers combine tools based on perceived research utility. However, perceived ease of use appears to override academic appropriateness, particularly among students, which explains the underutilization of more advanced academic tools like Semantic Scholar. This suggests that while TAM remains relevant, it must be extended to include "academic appropriateness" as a moderating factor in educational contexts.

From the perspective of the Diffusion of Innovations Theory, the findings suggest a fragmented diffusion process. Students represent early adopters of generative AI technologies, while librarians appear to be in the late majority stage, adopting cautiously due to ethical concerns and limited institutional support. Researchers occupy an intermediate position, selectively integrating innovations that directly enhance scholarly productivity. This uneven diffusion reflects institutional gaps in training and policy rather than resistance to innovation itself.

A particularly important contradiction emerges between high individual adoption of AI tools and the absence of strong institutional integration frameworks. While users actively engage AI technologies, library systems appear not to have fully formalized their integration into research support services. This disconnect has also been observed in broader African studies, where rapid technological uptake by students outpaces institutional readiness, resulting in

fragmented and unregulated usage patterns. The implication is that AI adoption in Cross River State academic libraries is largely user-driven rather than institutionally coordinated.

Another critical implication is the tension between productivity and academic integrity. While AI enhances efficiency in writing, summarization, and literature search, librarians' concerns about declining research quality reflect a valid global debate. Studies from UNESCO (2023) and other global higher education bodies caution that unregulated AI use may weaken critical thinking skills and increase academic dependency. However, the strong agreement among librarians that AI should complement rather than replace human expertise suggests an emerging consensus around a hybrid human–AI model, where AI supports tasks but humans retain interpretive and ethical authority. The findings demonstrate that AI integration in academic libraries in Cross River State is shaped by a combination of perceived usefulness, professional role identity, and institutional constraints. While adoption is increasing, it remains uneven and largely uncoordinated. This reinforces the need for structured human–AI collaboration frameworks that go beyond tool usage to include policy development, ethical regulation, and targeted AI literacy training. Without such structures, AI will continue to function as a parallel academic support system rather than a fully integrated component of library research services.

Conclusion

This study examined human–AI collaboration in academic libraries in Cross River State, focusing on how students, researchers, and librarians use AI tools for research assistance. The findings show that AI usage is highest for basic academic support functions such as grammar correction, writing assistance, and summarization, with ChatGPT and Grammarly being the most commonly used tools. However, advanced research tools like Semantic Scholar and Elicit are less frequently used, indicating limited awareness and engagement with specialized academic AI platforms.

The study also found that librarians generally have a positive but cautious perception of AI, recognizing its usefulness in improving research assistance services while emphasizing the need for training, infrastructure, and ethical guidelines. Key challenges to AI integration include poor ICT infrastructure, limited AI literacy, cost of access, and ethical concerns. Generally, the findings suggest that while AI adoption in academic libraries is growing, it remains uneven and largely focused on basic applications. There is a developing readiness among librarians to embrace AI-supported services, but this is not yet fully institutionalized. The study therefore highlights the need for stronger infrastructure, capacity building, and policy frameworks to support effective human–AI collaboration in academic libraries in Cross River State.

Recommendations

Based on the findings of the study, the following recommendations are made to enhance effective human–AI collaboration in academic libraries in Cross River State:

1. Institutions should invest in stable internet connectivity, cloud storage systems, and modern computing facilities to address infrastructural limitations and ensure reliable access to AI tools for research support services.
2. Continuous training programmes, workshops, certifications, and hands-on capacity-building sessions should be organized for librarians, students, and faculty to improve AI literacy, build confidence, and strengthen competence in AI-assisted research activities.
3. Academic institutions should develop and implement clear institutional AI policies aligned with international standards such as UNESCO and IEEE to guide ethical use, data privacy, bias reduction, and responsible application of AI-generated content.
4. Librarians should maintain oversight and control over AI-assisted outputs to ensure accuracy, academic integrity, and quality assurance, positioning AI strictly as a support tool that complements rather than replaces human expertise.
5. Library management should integrate AI adoption goals into strategic plans, secure dedicated funding for AI tools, and ensure strong leadership commitment to sustain long-term implementation and innovation in library services.
6. Awareness campaigns should be intensified to promote the use of underutilized academic AI tools such as Semantic Scholar and Elicit, while also integrating these resources into library portals for easier access and wider adoption.
7. Institutions should develop formal AI policies that clearly define acceptable use, ethical boundaries, and operational standards for AI integration in academic libraries.
8. AI literacy should be integrated into Library and Information Science (LIS) curricula to prepare future librarians with the required competencies for AI-driven research environments.
9. Academic libraries should establish dedicated AI support units or digital innovation desks responsible for guiding users, managing AI tools, and supporting research assistance services.
10. Inter-library collaboration should be encouraged among academic institutions in Cross River State to share AI resources, training programmes, best practices, and technical expertise for improved service delivery.

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Impact of librarians' digital competency on innovative service delivery in academic libraries in Delta State, Nigeria

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Abstract
There is an obvious increased demand for innovative library services, especially in this new information age. This has raised questions about the competency of librarians, especially in academic settings. Therefore, this study sought to critically assess the level of librarians' digital competencies, the types of innovative library services currently offered in academic libraries in Delta State and the relationship between librarians' digital competencies and innovative service delivery in academic libraries. The study was cross-sectional in design. The population comprised all librarians at selected academic libraries in Delta State (121 librarians), and the total enumeration sampling technique was used. A well-structured questionnaire was administered to the librarians. The questionnaire consisted of digital competencies, frequency of use of technology, and innovative services offered. The data collected were analysed using descriptive and inferential statistics, including frequency, mean and standard deviation and Pearson correlation analysis. The study's findings revealed that librarians' digital competence was moderate. Innovative services such as virtual workshops and mobile library service were moderately implemented, whereas AI-based services were scarcely offered. Nonetheless, the correlation analysis found no notable relationship between digital competencies and innovative service delivery. The findings also indicate no significant relationship between the digital competencies of the librarians and their innovative service delivery, meaning that digital skills alone do not guarantee adoption of innovations. The paper made workable recommendations, especially that the respective management of the academic libraries in Delta State should organise training for their academic staff to close the digital competency gaps that exist.
Keywords: *Digital competencies, innovative library services, academic libraries, librarians, Delta State*

Introduction

Academic libraries are being shaped by the expectations of a digitally mediated information environment, where users want seamless access, interactive services and real-time support. Library professionals have shifted from just custodial work to a technology-centred profession, performing like digital intermediaries, data enablers, and innovation drivers. This shift is not just technical, but also closely tied to the skills that librarians possess. The 21st-century libraries use digital competence as a central factor to design and deliver the services. Digital competence is the ability to use, modify, and create digital tools, content and knowledge. When these competencies are uneven across different contexts, the capacity for innovation will also be constrained.

Ideally, academic librarians should have a wide range of digital skills, including general ICT proficiency and more advanced ones such as data analytics, digital content creation, and application of emerging technologies. The skills would enable the implementation of such innovative services as a virtual reference platform, institutional repository, digital scholarship and user-centred information literacy programme. This ideal is nevertheless partially unrealised in many developing contexts. Proof from Nigeria's academic libraries indicates that even though librarians know the basic digital skills, these librarians are proficient in basic digital skills there's no doubt that advanced and emergent skills are not areas of much success owing to incompetence (Idubor & Ogunbodede, 2024; Uchenna & Anunobi, 2024). Uchenna and Anunobi found a strong association between digital skills and the provision of resource discovery services and access services. At the same time, a lot of libraries are still relying on service models that are outdated and don't meet the needs of current users. (Atanda et al., 2021).

Scholars have taken note of this disconnect; however, most of the existing work treats digital competence and service innovation as parallel rather than interdependent variables. Research on digital competence conducted in Nigerian academic libraries has focused on the levels, sources, and training requirements of skills without showing a linkage between these competencies and services (Idubor & Ogunbodede, 2024). Likewise, while studies concerning digital services have often noted infrastructural constraints and user engagement-related limitations, the human capacity

enabling these services has not been probed sufficiently (Dim & Mole, 2026). Although some relationship explorations were done, they were limited to the services related to a specific domain, digital reference or institutional repository management (Ahmed & Gama, 2025; Igbinovia & Popoola, 2016).

Not having sufficient digital competence at the operational level may result in a low level of use of electronic resources, a low level of use of other technologies, and low effectiveness of user support. On a larger scale, it alters the perception of libraries in the institution. When services don't keep up with user needs, libraries risk marginalisation in academic systems increasingly defined by digital scholarship and data-intensive research. There is evidence from Nigeria to show that digital competence is a key determinant of how potential librarians adopt advanced technologies like artificial intelligence and big data systems in Nigeria for service innovation (Okuonghae & Tunmibi, 2024; Kayode et al., 2024). This shows that not only are technical skills deficient, but this is also a structural barrier to innovation.

Even with this knowledge of the digital competency gaps and their consequences for library service delivery, there is still a lack of understanding of the way the gaps in digital competency impact the scope and quality of innovative service delivery, especially within a specific region like Delta State, Nigeria. The findings of existing studies being too broad or too narrow make them not context-sensitive. In addition, a small number of studies take a relational approach that quantifies the relationship of digital competency levels and service innovation. This research study contributes to the scarce literature investigating the relationship between digital competence and service innovation by examining both variables within one analytical framework. Utilising the Diffusion of Innovation Theory, which explains how innovations spread in an organisation, and the competency-based theory, which asserts that individual performance is tied to organisational performance, helps to provide a more holistic understanding of digital competence and service delivery in academic libraries.

Statement of the problem

In an ideal academic setting, the librarians should be technology-savvy professionals who can incorporate modern technologies into service delivery, understand the users' needs in advance, and proactively respond to changes in the information environment. Their skills should not only be ICT competent, but also include digital content creation, data literacy and supporting advanced research processes like data management and digital scholarship. In a system such as this, academic libraries emerge as vibrant knowledge traffic hubs, offering virtual reference services, managing institutional repositories and organising personalised user education programmes. Nevertheless, the situation in many Nigerian academic libraries is in disagreement with this.

Despite growing recognition of the importance of digital competencies in academic libraries, the extent to which these competency gaps affect the scope and quality of innovative service delivery remains poorly understood, particularly in Delta State, Nigeria. Librarians tend to have moderate capabilities in basic digital tools, but there are large gaps in more advanced capabilities, especially those related to emerging technologies and data-enabled services (Idubor & Ogunbodede, 2024; Okuonghae & Tunmibi, 2024). Many existing studies have sought to address issues related to digital skills acquisition, training needs, and attitudes to technology; however, such studies tend to examine either the competencies or the delivery of services and do not develop an empirical linkage between the two. Consequently, the practical implications of competency gaps for innovative service delivery are still not well understood.

The presence of such gaps often affects the libraries and their users materially. Organisationally, the limited digital competence of employees constrains the development and implementation of new innovative services. As a result, electronic resources are used inefficiently, and the institution is less competitive. For users, this means limited access to high-quality services with advanced technology that support modern learning and research. With time, such constraints might reduce the relevance of academic libraries in a digital academic ecosystem. There are yet to be more context-specific, all-embracing analyses that assess how the gaps in digital competencies affect innovative service delivery in Delta State, Nigeria. This study fills this gap by examining the level of digital competencies of librarians, the types of innovative library services currently offered, and the relationship between digital competencies and innovative service delivery within a single analytical framework to provide empirical evidence..

Objectives of the Study

The main objective of this study is to assess librarians' digital competency and its impact on innovative service delivery in academic libraries in Delta State, Nigeria. Specifically, the study aims to:

1. Examine the level of digital competencies of librarians in selected academic libraries in Delta State.
2. Identify the types of innovative library services currently offered in these libraries.
3. Examine the relationship between librarians' digital competencies and their capacity for innovative service delivery.

Literature review

Digital Competencies of Librarians

The phrase digital competence in librarianship broadly refers to the effective use of ICT tools and digital resources in library work. In an ideal situation, academic librarians would demonstrate high-level competence in a range of digital skills, from simple ICT literacy (e.g. use of email, Office software, Internet search) to more advanced ones (e.g. digital content creation, data analysis, emerging technologies), to develop innovative services. But research in Nigeria finds mixed evidence in practice. For instance, Idubor and Ogunbodede (2024) surveyed 109 librarians in South-South Nigeria and found that they generally had "a high level of basic digital competence skills" (e.g. information retrieval, digital library software use). In their own work, they note that librarians have infrastructural issues (such as unreliable power, poor ICT facilities and limited training) which hinder skill acquisition. Atanda et al. (2021) investigated the five university libraries in Ogun State and discovered that most staff "have requisite proficiency skills in basic computer operations", but infrastructural problems, mostly the power system failure, hampered digital services.

Other research studies suggest a more nuanced picture. An assessment of one hundred and nine (109) librarians across eleven (11) universities in Taraba State by Chukwueke and Idris (2023) revealed a generally low level of digital literacy. The librarians were competent in Internet searching and use of Boolean logic, but not in a larger envi-ronment. In that study, there was a very weak correlation between digital literacy and service provision ($r \approx 0.17$, $p=0.08$). This means that even librarians with modest digital skills were still providing a range of services. While the earlier study was limited in scope, Ahmed and Gama (2025) undertook a broader survey of 305 librarians in 20 federal universities in Northern Nigeria. They found a good number of respondents who could handle communication networks (LAN/WAN). Also, they could use digital communication tools (email, video chat) for reference. Notably, their regression analysis showed that digital skills account for 47% variance in the provision of digital reference services ($p<0.001$). This implies a strong relationship between skill levels and service innovation in that context.

Many similarities can be seen here. To start with, common ICT skills (e-mail, web search, office software) are very common among Nigerian academic librarians, but more advanced skills (data analysis, digital content creation, programming) tend to be scarce. Findings elsewhere in Africa (Subaveerapandiyan et al., 2022; Christy & Yusuf, 2021) support this view. Infrastructural and institutional barriers are a common second theme. Almost in every study, the lack of a steady power supply and inadequate ICT resources limits the application of the skills of the librarians. According to the study by Ahmed and Gama (2025), competence had a large effect on one particular service; namely, digital reference. However, this study contrasts with others (Chukwueke & Idris, 2023; Njoku & Anunobi, 2024) that report weak or insignificant ones. The differences in methodologies may reflect contextualization of Taraba, Southwest and Federal universities, choice of tests (self-report vs. performance), definition of 'competence' and 'services' among others. In south-east/south-south Nigeria, Njoku and Anunobi (2024) discovered that there is a low but significant correlation between digital skills and virtual access/resource discovery services – this suggests that while skills are important, other factors might take precedence.

All research has limitations. Atanda et al. (2021) and Chukwueke and Idris (2023) studies are state-specific (Ogun, Taraba), limiting generalizability. Ahmed and Gama (2025) focused only on digital reference services, so their work may not be applied to other services. The competence of apprentices in studies is usually based on self-report questionnaires, which may inflate the skill level being tested. Despite these weaknesses, the literature clearly shows the problem we have: this shows that while librarians often have some digital literacy, there are significant gaps and infrastructure issues. Libraries cannot be creative due to such gaps.

Innovative Service Delivery in Academic Libraries

Academic libraries are expected to use technologies to offer services beyond cataloguing and lending in theory. Library services now include examples like virtual reference/chat, digital repositories, personalised information services, mobile applications, online training workshops, social media outreach and data-driven user analytics. In Nigeria, measures of this kind are being recorded. As Etebu and Zaccheus (2020) note, many "innovative library services (ILS)" have been adopted in Nigeria, including but not limited to: online business support for entrepreneurs; library blogging/podcasting; e-publishing; SMS alerts; digital reference; database distribution; mobile apps; and much more. Numerous academic libraries are currently offering digital reference (chat/email), institutional repositories, and information literacy and e-resources access-related user education. According to Oduwole, Adekunmisi, and Oyedokun (2023), 73.7% of the libraries had adopted innovative products/services to some extent, while 60.5% did so "to a high extent" Only 7.9% of all internet users had not adopted any, as they did not apply or did not know how

Innovation in Nigerian libraries faces challenges despite the above adoption. According to Etebu and Zacchaeus (2020), inadequate funding, poor ICT infrastructure, and resistance to change are the main barriers. Oduwole et al. (2023) also reported that limited training and facilities, such as broadband internet, impeded deeper adoption in these libraries that offered such services. As noted by Atanda et al (2021), default internet access is very common in Ogun State libraries. However, apart from those basics (e-journals, online catalogues), they found more sophisticated services rarely offered or used. In Delta State, Eniekebi (2024) reports that the digitisation projects (scanning and uploading of collections)

promise improved access and more preservation. However, the librarians in that region still face power and technical struggles.

Nigerian literature, therefore, creates a mixed picture of creativity. Some libraries appear to be testing some new services like digital ref, online workshops and mobile apps. Others appear to be staying with their traditional models. Findings from various studies indicate that common innovative offerings are digital reference (chat/email), user training on electronic resources and delivery of online content, while rare are AI (artificial intelligence), analytics and IoT (internet of things) enabled services. In conclusion, though a variety of innovative service types are discerned from global literature (Canuel & Crichton, 2017; Koloniari et al., 2018), the Nigerian literature indicates some disparities in actualisation pending institutional capacity and only possible as far as institutions can.

On the one hand, literature on services is mainly about what is offered or should be offered, not so much about the quality of offered services or social impact. Etebu's (2020) comprehensive inventory of services is descriptive in nature. Oduwole's survey reports adoption rates but little about outcomes. There is an absence of empirical analysis on how well novel services function or benefit users. Additionally, most studies see innovation as a unitary end ("more is better") with no explicit link to librarians' skills. This creates a gap in knowledge about Nigerian libraries, as we understand what might be innovative, and that some claim to adopt these, but we don't have evidence of how librarian competencies enable or limit these.

Linking Digital Competencies and Innovation

A strand of research is growing that attempts to link the skills of librarians to the innovative capacity of their institutions. Librarians cannot deploy or manage new services without the required digital skills. The argument is simple. There is some evidence to support this. According to the findings of Ahmed and Gama (2025), higher digital competence raised the provision of digital reference services by librarians. They advocate for investment in training and infrastructure to help librarians adopt the services in practice. According to the opinion of Uchenna and Anunobi (2024), the librarians at the federal universities located in SE/SW Nigeria would also require skills, including web design, metadata creation, digitisation, etc., for the delivery of high-quality access and discovery services.

Not every study has a strong link, however. Chukwueke and Idris (2023) reported an insignificant relationship ($p=0.08$) between digital literacy and community service delivery in Taraba State. According to them, even the librarians with a very low range of formal digital skills were able to provide some services. This can perhaps be an indication that basic service can continue and not rely on tech use. Njoku and Anunobi (2024) discovered that digital skills and virtual access/resource discovery services have a weak positive correlation. They understand the implication as meaning digital skills do matter. They also acknowledge the low R means other factors (leadership, funding, user demand) drive services too.

The results of mixing the studies bring out the gaps and contradictions. On one hand, studies with a narrow focus (like digital reference or service lines) often display an obvious skill–service link. On the contrary, wider "all services" surveys may lessen this, especially if low-grade services exist regardless of the skills of workers involved. The measurements of "digital competence" and measured service were similarly varying, with self-assessments vs tests. Additionally, some studies (Kayode et al., 2024) note that the confidence (self-efficacy) or attitude of librarians may also affect their adoption of technologies. Thus, there are several factors, including skills and institutional support.

According to the literature, digital competency is a necessary, but not a sufficient, condition for innovation. While training and self-efficacy enhance the willingness to use new tools, the outcome is moderated by organisational factors like funding and culture (Okuonghae & Tunmibi, 2024; Kayode et al., 2024). This study corroborates a recognised worldwide trend: in an analysis of 42 studies, Ojobor et al. (2025) reveal that digital illiteracy and lack of awareness rank as two of the major barriers to technology use in Nigerian libraries. Likewise, a recent survey across zones highlighted a low awareness (mean ≈2.4/5) and use (mean ≈2.4/5) of innovative technology. There's a clear gap here. There is no model, grounded in research, that links the specific skills of librarians to the range and the quality of innovations in service. A lot of studies do not go this far.

Theoretical Framework

This study will be based on the Diffusion of Innovation Theory (Rogers, 2003) and notions derived from competency-based approaches. Rogers' theory explains how new ideas and technologies disseminate in social systems (Ajuwon, 2018; Koloniari et al., 2018), and has been used in library research. The adoption relies on a perceived advantage, compatibility and users' readiness. The digital competencies of the librarians can be thought of as "adopters" characteristics, which have effects on the rate and range of diffusion of innovative services. For instance, librarians who are more digitally literate may perceive less complexity and greater relative advantage of new services. The belief system of competency-based theory (Boyatzis, 2008) sees employee skills and knowledge as human capital that drives the organizational performances. Applying this statement, the digital skills of librarians are resources that enable the library to innovate and respond to the users' needs. Two distinct perspectives on innovation adoption have emerged in the literature, one focused on the individual level, while the other analyses the firm or organisational level. By combining

these perspectives, we can examine both individual and organisational dimensions of innovation adoption, which is necessary for understanding the complex ties between skills and services.

Method

This study adopted a quantitative cross-sectional survey design. This design was deemed suitable as it afforded the possibility of obtaining data from respondents at one point in time and studying the already existing conditions without the manipulation of variables. According to Creswell and Creswell (2018) and Saunders et al (2023), cross-sectional surveys are preferably used for those studies which describe characteristics of a population and examine relationships among variables as they occur naturally. For this study, the design was suitable to assess the digital competencies of librarians and their influence on innovative service delivery, providing a snapshot of current practices and skill levels in academic libraries in Delta State, Nigeria.

The research took place in purposively chosen academic libraries situated in Delta State, selected because they represented the two major categories of higher education institutions in the state, namely universities and polytechnics, thereby offering a broader and more representative view of academic library practice in Delta State. The selected institutions included one university and two polytechnic libraries. The institutions were purposely chosen because they are among the few academic libraries in Delta State with structured library units and professionally staffed library services, making them appropriate sites for assessing digital competency and innovative service delivery.

The targeted population comprised all professional librarians in the selected academic libraries in Delta State. For this study, librarians refer to professionally trained library personnel holding a minimum qualification of a Bachelor's degree in Library and Information Science or its equivalent for polytechnic institutions, and a postgraduate qualification in Library and Information Science for university institutions, in line with the differing qualification requirements across both institutional types. This yielded a total population of 121 librarians across the three selected institutions. Participants were selected because they were involved in library service delivery and were expected to have different abilities with respect to digital competencies relevant to the study. Due to the small population size of librarians at the selected institutions, total enumeration sampling was employed, meaning all 121 librarians were enlisted as participants. Professional librarians working in the selected academic libraries and who are actively involved in the library operations were included. To ensure a focus on professional capabilities, no administrative staff with direct library service responsibilities were included.

Data were collected using a structured questionnaire developed from the objectives of the study and adapted from the established framework on digital competency and library innovation. The questionnaire contained four major sections, which include demographic profile, digital competencies, importance of digital skills for innovation and innovative delivery service practices. The section on digital competency assessed the proficiencies of librarians in integrated library management systems, electronic databases, institutional repositories, collaboration tools, social media, data analysis, artificial intelligence, and other emerging technologies. This area concerns innovative services such as Online Reference Support, Webinars, Mobile Library Service, AI-based Services and more. A four-point Likert scale ranging from Very Low to Very High was used for competencies, and Strongly Disagree to Strongly Agree for service delivery items. Two experts in the area of Library and Information Science were approached to review the instrument for face and content validity. The reliability of Cronbach's alpha was conducted to test the internal consistency and a coefficient of 0.82 was achieved. The scale met an acceptable reliability criterion as per social science research standards ($\alpha > 0.70$), consistent with Bryman's (2016) methodological recommendations. The questionnaire was administered to all 121 librarians, and a total of 108 valid responses were retrieved and used for analysis, which is an acceptable response rate for statistical analysis.

Data collected were analysed using descriptive and inferential statistics with the aid of Statistical Package for the Social Sciences (SPSS), version 25. Descriptive analyses (frequencies, percentages, means and standard deviations) were performed on the demographic characteristics of the respondents, digital competency levels and innovative services offered. Pearson Product-Moment Correlation analysis was conducted to examine how digital competence relates to innovative service delivery. This test was chosen because it can measure the strength and direction of the linear relationship between continuous variables..

Results

Table 4.1: Demographic Characteristics of Respondents (N = 108)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Female	60	55.6
	Male	48	44.4
Age	18–25 years	24	22.2
	26–35 years	8	7.4
	36–45 years	76	70.4
Years of Professional Experience	0–5 years	24	22.2

	6–10 years	8	7.4
	11–20 years	76	70.4
Educational Level	B.A/B.Sc/B.Ed/HND or Equivalent	16	14.8
	M.Sc/M.Ed/M.A	56	51.9
	PhD	36	33.3
Prior ICT/Digital Training	Yes	88	81.5
	No	20	18.5

The respondents were mostly females (55·6%) compared to males (44·4%), portraying the gender composition as slightly biased in favour of females. Table 1 also shows that the majority of respondents (70.4%) fall under the 36-45 years category, indicating that most respondents are professionals who are actively working and are experienced. As for professional experience, most respondents have work experience between 11 and 20 years (70.4%). Thus, we can imply that librarians in academic libraries in Delta State are quite experienced. The 0–5 years and 6–10 years categories were filled by only 22.2% and 7.4% of the respondents, respectively. In terms of educational qualifications, the majority of the respondents are postgraduates, who have either M.Sc/M.Ed/M.A degrees (51.9%) and PhDs (33.3%). However, a bachelor 's-level or equivalent qualification was 14.8%. Interestingly, a vast majority (81.5%) reported that they have undergone training on ICT or digital exposure. These results indicate respondents' preliminary action towards building up the necessary digital competencies crucial for innovative library service delivery. It also suggests that data was collected from a professionally mature workforce rather than novice practitioners.

Table 2: Level of digital competencies of librarians

Digital competency indicators	Very Low n(%)	Low n (%)	High n (%)	Very High n (%)	Mean ($\bar{x}$)	Std. Deviation
Ability to use integrated library management systems (ILMS)	0 (0.0)	8 (7.4)	48 (44.4)	52 (48.1)	3.41	0.627
Ability to search, evaluate, and retrieve electronic databases	0 (0.0)	16 (14.8)	68 (63.0)	24 (22.2)	3.07	0.607
Ability to manage institutional repositories and digital collections	4 (3.7)	24 (22.2)	40 (37.0)	40 (37.0)	3.07	0.861
Ability to use productivity and collaboration tools	0 (0.0)	20 (18.5)	48 (44.4)	40 (37.0)	3.19	0.725
Ability to support users with online reference services	4 (3.7)	12 (11.1)	56 (51.9)	36 (33.3)	3.15	0.759
Ability to use social media platforms for library service delivery	4 (3.7)	28 (25.9)	52 (48.1)	24 (22.2)	2.89	0.789
Ability to use basic data analysis or reporting tools	8 (7.4)	20 (18.5)	48 (44.4)	32 (29.6)	2.96	0.885
Ability to use emerging technologies (AI tools, digital analytics)	4 (3.7)	0 (0.0)	36 (33.3)	68 (63.0)	3.56	0.688

Overall Mean Score: $\bar{x}$ = 3.16

Based on the overall mean score ($\bar{x}$ = 3.16), we can say that librarians have overall moderate-to-high levels of digital competence, which vary by skill domains. The competencies related to core and operational library systems like ILMS ($\bar{x}$ = 3.41) and emerging technologies like AI tools and digital analytics ($\bar{x}$ = 3.56) recorded a relatively higher mean score, which indicates that they are getting more comfortable with the structured institutional systems and newer technology-driven tools. The prevalence of high and very high responses across most indicators further indicates this pattern, with very high ILMS use (92.5%) and very high application of emerging technologies (96.3% when combining high and very high). However, a standard deviation of (0.607–0.885) indicates a difference in the proficiency levels of respondents. So, their skill level is not uniform but rather varied levels of skill.

Despite these strengths, areas that are more user-facing and analytical tend to perform poorly. The mean score for Social media use for service delivery is the lowest ($\bar{x}$=2.89), while the basic data analysis and reporting tools ($\bar{x}$= 2.96) mean score is the second on the list, which indicates a limitation in competence in providing communication-driven and data-informed library services. These gaps are significant as they emphasise problems with the modern innovative service delivery system, influenced by issues of user engagement, service analytics, and digital reach. The above pattern implies that the competence structure is more system-oriented than innovation-oriented: the technical interaction of librarians with library platforms is stronger than that with tools for the transformation of service development. This investigation

reveals that ICT usage in academic libraries is marked by an irregularity in behaviour. This suggests a collection that is only partially ready for digital innovation. This is because there are basic skills in place. However, advanced, user-centred, and analytic skills are lacking. This issue may become a barrier to extensive service delivery innovation in the academic libraries of Delta State.

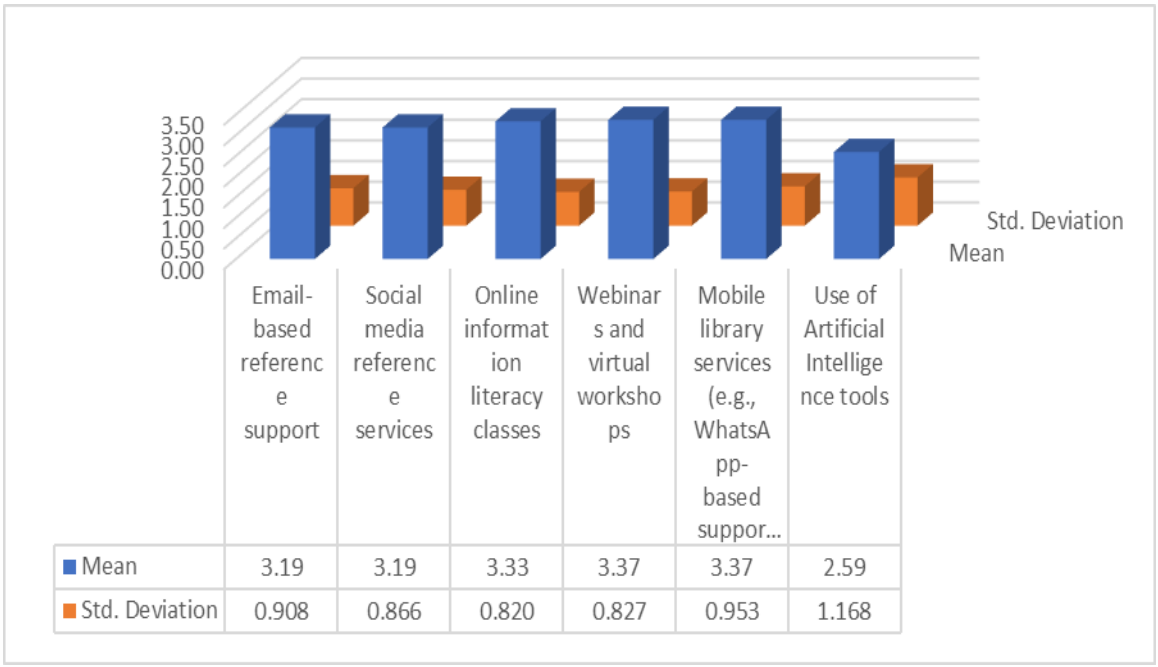


Fig 1: Bar chart showing Types of innovative library services currently offered in Academic libraries in Delta State

The findings suggest that the librarians of selected academic libraries are moderately involved in innovative digital service delivery, albeit with varying intensity across service types. Webinar and virtual workshop scored the highest mean ($\bar{x}$ = 3.37, SD = 0.827) and standard deviation (SD) of mobile library services ($\bar{x}$ = 3.37, SD = 0.953), and almost similarly scored for online information literacy classes ($\bar{x}$ = 3.33, SD = 0.820). Libraries are embracing more interactive and user-friendly digital services, with some focused on distance education and mobile services. The low standard deviations of these items also suggest that respondents are likely to adopt these services in a consistent manner, showing them to be mainstream and not innovations.

On the other hand, the usage of more traditional digital communication tools like email-based reference support ($\bar{x}$ = 3.19, SD = 0.908) and social media reference services ($\bar{x}$ = 3.19, SD = 0.866) is more moderate. The weakest area shows in the use of artificial intelligence tools ($\bar{x}$ = 2.59, SD = 1.168), with the lowest mean and highest variability. The findings reveal that there is a limitation and uneven deployment of AI-based library services, suggesting that such technologies are at an early stage in the academic libraries of Delta State. The high disparity among institutions or individuals can further be seen in the high standard deviation. The general trend indicates a shift towards digital and mobile service innovation, but with a significant lag in advanced, data-driven technologies, suggesting the presence of an innovation gap linked to underlying competency limitations evident in the study.

Table 3: Pearson Product-Moment Correlation (Pearson r) Testing the relationship between librarians' digital competencies and their capacity for innovative service delivery

Correlations			
		Digital Competencies	Innovative Services
Digital Competencies	Pearson Correlation	1	.075
	Sig. (2-tailed)		.443
	N	108	108

Innovative services	Pearson correlation	.075	1
	Sig. (2-tailed)	.443	
	N	108	108

The association results indicate that there is a very weak positive association between librarians' digital competencies and innovative service delivery (r = 0.075, N = 108). A p-value above 0.05 suggests no statistically significant relationship. This suggests that the changes in digital competency levels of the librarians do not significantly relate to changes in their innovative service delivery capacity in the sampled academic libraries in Delta State. The finding implies that even though librarians have varying digital skills, these skills do not necessarily reflect in innovative service delivery. This suggests that other factors besides personal digital competencies, such as institutional infrastructure, management support, policy environment, or workload conditions, could be shaping the relationship between librarians' digital competencies and innovative service delivery. As a result, there is a significant relationship between the possession of skills and service innovation in practice.

Discussion

The study reveals a complex and, at times, surprising relationship between the digital competencies of librarians and the innovative service delivery in academic libraries in Delta State, Nigeria. The findings indicate that the librarians have a medium to high level of digital competency. The digital competencies include core library systems, integrated library management systems (ILMS) and emerging technologies such as artificial intelligence tools and digital analytics. This confirms that the finding of Idubor and Ogunbodede (2024) noted that Nigerian academic librarians, in general, have good basic digital skills in the area of information searching and daily computer-related tasks. Likewise, Atanda et al. (2021) report that librarians in universities in Ogun State possess adequate proficiency in basic ICT procedures. This assertion underscores that minimum digital literacy is relatively common among academic libraries in Nigeria. From the perspective of the Diffusion of Innovation Theory (Rogers, 2003), this moderate-to-high level of digital competency suggests that librarians in Delta State have largely passed through the knowledge stage of the innovation adoption process, where individuals become aware of an innovation and seek to understand its function. The competency-based theory further supports this, as the possession of digital skills represents the human capital base from which innovative service delivery is expected to emerge.

The research reveals a differentiated set of competencies, in contrast to earlier studies that found a more homogeneous set. Previous research tends to report moderate or high levels of digital competence, while the present evidence revealed a clear imbalance between system-oriented competencies and innovation-oriented competencies. To illustrate, librarians exhibited better performance in the use of ILMS (M = 3.41) and emerging technologies (M = 3.56), while a lack of competency was discovered in social media services delivery (M = 2.89) and basic data analysis (M = 2.96). These findings were confirmed by Chukwueke and Idris (2023) as they reported low digital literacy and weak associations between digital skills and service delivery in Taraba State. In a similar study, Njoku and Anunobi (2024) showed a weak but significant relationship between digital competencies and virtual access services. The present study bolsters these earlier mixed results by showing that even when levels of competency appear fairly high, translation into innovative service delivery is weak and statistically insignificant. Within the Diffusion of Innovation Theory, this imbalance reflects the persuasion stage, where librarians may hold favourable attitudes towards certain digital tools, particularly structured institutional systems, but have not yet fully formed the intent to adopt more innovation-oriented competencies such as data analysis and social media engagement. Competency-based theory equally suggests that while human capital exists in some skill domains, its uneven distribution across skill types limits the overall organisational capacity for innovation.

One of the significant contributions of the study has established that there is no significant relationship between digital competencies and innovative service delivery. This finding is inconsistent with Ahmed and Gama (2025), who found a strong positive association between the level of digital skills and the delivery of digital reference services, with the relationship explaining 47% of the variance. Differences in scope and measurement may account for the discrepancy. Ahmed and Gama concentrated on digital reference services of federal universities. However, the current study uses a broader conception of innovative service delivery with respect to the various dimensions of service design. From the standpoint of competency-based theory, this finding suggests that possessing digital skills alone is insufficient to drive organisational innovation; rather, institutional structures, leadership support, and policy environments must also be in place to convert individual competencies into innovative service outcomes.

The results can be further analysed with the help of Rogers' Diffusion of Innovation Theory (2003). According to this, the moderate to high digital competencies displayed by librarians can be seen as being in the knowledge and persuasion stages, but not yet the implementation or confirmation stages of adoption of the innovation in service delivery. A differentiated competency pattern for advisory service personnel in a group reflects Rogers' conception of diffusion, where awareness, complexity, and the compatibility of the innovation with existing practice systems shape the pace and

direction of diffusion. The lack of a significant link between digital competencies and innovative service delivery suggests that, within Rogers' model, possessing adopter characteristics alone does not guarantee diffusion. This implies that institutional constraints derail the process from adoption intention to implementation of innovations. Together, both theories converge on a shared conclusion: digital competence is a necessary but not sufficient condition for innovative service delivery. The process of translating individual skills into organisational innovation requires enabling institutional conditions, sustained investment in training, and a culture that supports the diffusion and implementation of new ideas.

Conclusion

The purpose of this study was to assess the digital competencies of librarians and their impact on innovative service delivery in academic libraries in Delta state. The findings reveal that librarians' digital competencies are moderate to high, most notably in ILMS use and emerging technologies (e.g., AI tools). On the other side, it is revealed that the social media engagement and data analysis skills are weaker among the librarians. Innovative services such as virtual workshops and mobile library service were moderately implemented, whereas AI-based services were scarcely offered. Nonetheless, the correlation analysis found no notable relationship between digital competencies and innovative service delivery. These findings demonstrate that digital skills alone do not guarantee adoption of innovations. On the one hand, these findings validate the Diffusion of Innovation Theory (Rogers 2003) by showing that the adoption of relevant digital technologies is constrained by various organisational and contextual barriers. These findings address the identified problem by establishing that while librarians possess foundational digital competence, a structural disconnect between individual skills and organisational capacity constrains innovative service delivery. Closing competency gaps alone is insufficient; institutional support, infrastructure, and a culture of innovation are equally required.

Recommendations

1. Academic libraries should not depend only on staff training but rather on institutional infrastructure, leadership backing, and policy innovation.
2. Library management must see capacity building supported with ongoing investment in digital infrastructure and organisational support systems.
3. Libraries ought to enhance their advanced digital skills training, ICT infrastructure and accessibility.
4. There is need for academic libraries to develop and implement AI and Data-Driven Policies.
5. Librarians should acquire social media engagement skills for library services.

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INFLUENCE OF COMPUTER LITERACY SKILLS ON THE USE OF LIBRARY DATABASES BY UNDERGRADUATES STUDENTS IN UNIVERSITY LIBRARIES IN KATSINA STATE, NIGERIA

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Abstract

This study examines the Influence of Computer Literacy skills on the use of Library Databases by Undergraduate Students in University Libraries in Katsina State. Three objectives of the study were guided the study To determine the frequency of use of database by undergraduate students in universities libraries in Katsina State, Identify the Computer literacy required for the use of databases by undergraduate students in universities libraries in Katsina State, Find out the influence of computer literacy skills for effective use of databases by undergraduate students in universities libraries in Katsina State. The methodology used is Quantitative research method and Descriptive survey research design were used, the population of the study is 2561 who were duly registered with university libraries under study the sample size of the study is 256 undergraduate students which represent 10%. proportionate random sampling and purposive random sampling were used to select the responded. The instrument for data collection is Questionnaire the Questionnaire were validated by two expect one from the Department of Library and Information Science and one from the Guidance and Cancelling Department in Measurement and Evaluation Unit all are from Federal University Dutsinma Faculty of Education . To establish the reliability of the instrument the cronbach coefficient was deployed to test the internal consistency of the items which yielded on overall reliability coefficient of 0.86. Data was analyzed using frequency and percentages mean and standard deviation. The findings of the study revealed that the Influence of computer literacy skills for the use of Library databases by undergraduate students in universities libraries in Katsina State are Contributed a lot in their research. The study recommended that The university administration should pay more attention to students' computer literacy skills by making some computer education compulsory for all students and incorporated into students' curriculum with emphasis on practical aspects. NUC which is the umbrella of all Nigerian universities should provide academic libraries with funds, ICT infrastructure and training opportunities for both staff and students so as to enhance their ability in database utilization in Conclusion was realized that the patronage of the library's online academic databases was very low. This was largely because students were either not aware of the existence of these databases or were not aware that the library subscribes to the database

Keywords: Computer Literacy Skills. Databases, Katsina State, Undergraduate students, University Libraries.

Introduction

The ability to make effective use of information has been a very important factor in the development of individual and society at large. This is because information plays a vital role in people ability to make decision affecting their lives and lives of others. This ability is embedded in the concept of computer literacy. University libraries are found in the universities to serve a wide range of purpose including, providing faculty and students with information resources for research and consultation (Tukur, and Lawal 2015). According to Watt and Ibegblulum (2019) noted that today university libraries encourage intellectual inquiry and discovery providing areas for research and study, and serving broad educational need of various users communities. University libraries are essential contributors to knowledge generation and serve a wide spectrum of knowledge seekers. University libraries connect student and scholars to the world of information and ideas. Wuman, (2021) described the university library as the "Heart" and "life wire" of the university, because it provides a place for student and faculty to do their research and advance the frontiers of their knowledge. Mudansuru, (2019) state that there are various categories of library users in the university libraries, they are undergraduates, post graduates, lecturers, library staff, nonacademic staff, researchers, alumni members external users from all waves of life and many programs designed to serve users.

Computer literacy refers to knowledge and understanding of computer combined with the ability to use them effectively. Tukur, and Lawal (2015) opined that computer literacy involves knowing how to turn on a computer, start and stop simple application programs, and save and print information. Computer literacy is the ability to operate a computer system for performing personal and job related tasks like using web browsers and search engines on the internet or retrieve needed information and communicate with the others (Udeson, 2019). Computer literacy is the ability and knowledge to use the computer effectively. Therefore, computer literacy is a necessity in the modern education in

the 21st century. However, computer literacy is defined as technical skills and levels of proficiency in the general computer knowledge; documentation, online searching (databases and search engines) and communications.

According to Warschaver, (2018), computer literacy is the abilities that will enable information resources users to meet personal, educational and labour market. Tyagi, (2019), pointed out that for undergraduate to be successful in their course work they need a certain level of expertise in computer and they stated that undergraduates need computer skills such as word processing skills, programming skills and data management skills to enable to use databases and other online information resources. Uwaito, (2020) opined that computer literacy are needed by the undergraduate students to be able to retrieve information from online resources. Niman, (2022) reiterated that students acquire adequate computer literacy skills to be able to use online information resources effectively.

Undergraduate student refers to as a university student who have not yet complete a fist degree. According to Nura (2014) undergraduate is someone who is going for the bachelor's degree usually three years and above or who does not have an equivalent to bachelor's degree.

Statement of the problem

With the drift from the traditional print materials to networked information resources, the dawn of a new era in library and information services and access to resources has risen in harmony with the world wide web (www) information revolution. Databases have broken through the time and place barriers of print materials. Libraries that provide database resources are increasingly being implemented by several agencies because they make research easier for scholars and may ease budgetary constraints associated with the acquisition of print resources. Digital journals can be linked from and to indexing and abstracting databases. Access can be from the user's classroom, workshop, library home, office or dormitory whether or not the physical library is open. However, shift from print resources to databases require computer literacy skills for undergraduate to access and utilize the available database for their academic pursue, skills such as search engine skills, Meta search engine skills, Web navigation skills, Boolean operators, searching and down loading skills.

Unfortunately, it was observed by the researcher that many undergraduate students in universities in Katsina State cannot search databases independently; they have to resort to the use of café's attendants for most of their searches and online transactions. Despite the fact that there are many benefits attached to the information on the databases, undergraduate students have not been able to benefit maximally with this great opportunity due to either lack of awareness, poor implementation of the programmes or lack of searching skills. With all these statements above, it could be deduced that there exists a problems on the accessibility and use of databases among undergraduate students.

This state of the art really affect the undergraduate students because the expensive resources often remain unutilized, resulting in wastage of money, time, energy and space compounded to the problem of lack of adequate computer literacy skills required to identify, select, synthesis, retrieve and use information from diverse sources. If this problem is not tackled there will be lack of knowledge of computer usage by the undergraduate student's which will lead to inadequate use of information resources available in the databases. Therefore this study seeks to investigate the Influence of Computer Literacy Skills on the Use of Library Databases by Undergraduate Students in University Libraries in Katsina State, Nigeria

Research Questions

The following research questions guided the study:

1. How frequent do undergraduate students use database in universities libraries in Katsina State?
2. What are the computer literacy required for the use of databases by undergraduate students in universities libraries in Katsina State?
3. What are the influence of computer literacy skills on effective use of databases by undergraduate students in universities libraries in Katsina State?

Literature review

Computer Literacy Skills

The geometrical growth of information resources on the internet in 21st century have necessitate the need of computer literacy skills and online searching skills to enhance easy access and use of databases among undergraduate students. Nzewi, (2015) classified computer literacy skills as word processing skill. This involve the ability to load word processing software, creating, formatting, editing and saving document copying and moving text adjusting margins, indents and the spacing, adjusting fronts and style, importation of table and graphs from spreadsheet application using spell checking and using available help screen when needed. Rebecca, (2019), computer literacy needed for effective use of databases by the undergraduate students include operational skills which include the use of mouse and keyboard, copying information into storage devices such as flash drive or diskette and scanning of image, access of online

databases, strategies literacy skills involve use of search engine skills such as how to search information by Author, ISBN, ISSN publishers, place of publication, Borcode.

According to Nura, (2021) classified computer literacy-skills which are prerequisite for the usage of online information resources into the following categories, basic micro computing skills this includes understanding personal computer and its components, using command orientation window base, and land operation environments to accomplish basis task such as formatting floppy disk, creating and navigating through directory and sub directing structure, creating and deleting files, copying and renaming files using available help screens, when needed. Basic micro computing spread sheet skills: this involve the ability to create, organize and navigate through spread sheet or a specific block of cells entering and editing formulas values and text copying, moving and protecting cells, inserting and deleting columns and row, saving and retrieving files, and printing relevant materials.

Databases available in the University Libraries

The AGORA (Access to Global Online Research in Agriculture) program, set up by the Food and Agriculture Organization of the UN (FAO) together with major publishers, enables developing countries to gain access to an outstanding digital library collection in the fields of food, agriculture, animal's health, crop production, forestry environmental science (Kinnaman, 2013).

According to Rajib (2021) BIOLINE International is a pioneer in the provision of open access to peer reviewed bioscience journals published in developing countries. These journals contain timely research on public health, international development, tropical medicine, food and nutritional security, and biodiversity.

HINARI Programme set up by World Health Organization WHO together with major publishers, enables low- and middle- income countries to gain access to one of the world's largest collections of biomedical and health literature. Up to 12,700 journals (in 30 different languages), up to 24,900 e-books, up to 70 other information resources are now available to health institutions in more than 100 countries, areas and territories benefiting many thousands of health workers and researchers, and in turn, contributing to improve world health. HINARI Access to Research in Health Programme provides free or very low cost online access to the major journals in biomedical and related social sciences to local, not-for-profit institutions in developing countries WHO (2021).

According to OASPA (2010) open access scholarly publishers association Hindawi Publishing Corporation is a commercial publisher of peer-reviewed journals covering a wide range of academic disciplines. Founded in 1997, Hindawi currently employs more than 1,000 employees and publishes 500+ open accesses, peer-reviewed journals. Hindawi's journals maintain the highest standards of peer review, with more than 60,000 internationally-recognized Editors serving on the Editorial Boards of Hindawi's journals. Many of the journals that Hindawi publishes are included in the leading abstracting and indexing databases, including the Science Citation Index, Scopus, PubMed, INSPEC, Mathematical Reviews, and Chemical Abstracts (Kuhn, 2010),

Rajiv, (2021) opined that OARE provides access to major international search engines and databases. Leading scientific and professional communities around the world use these tools to search for articles and information on specific topics in thousands of prestigious scholarly journals, books and scientific papers from around the world. Using these powerful search tools, you can search through most of the publications in Oare, and find the articles that are most relevant to your research, in only minutes. Even more, Oare provides new links in your list of search results that you can use not only to check if you have access to a full-text-article

PLOS (originally PLOS ONE): is an online database access peer-reviewed scientific journal published by the Public Library of Science since 2006. It covers primary research from any discipline within science and medicine. All submissions go through an internal and external pre-publication peer review, but are not excluded on the basis of lack of perceived importance or adherence to a scientific field. The Plos on line platform employs publish first, judge later" methodology, with post-publication user discussion and rating features (Sam, 2026).

Methodology

This study employed a Quantitative research method and descriptive survey research design. The population of the study is two thousand five hundred and sixty one (2561) registered undergraduate students who were duly registered with university Libraries under study. The sample size of this study is 256 library users, the sample represents 10% of the population and this was based on the recommendation of (Suleiman, 2012). The multi-stage sampling technique was adopted in selecting the sample. Firstly, 10% each for FUDMA, UMYUK and AUK students were proportionately selected, secondly purposive random sampling technique was used to select the respondents from two thousand five hundred and sixty one (2,561) undergraduate students who are registered user in the libraries under study. The instrument for data collection for the study is questionnaire. The questionnaire was administered personally by the researcher with the help of two research assistant after it was validated. Data collected was analyzed using descriptive statistics of mean and standard deviation.

Data Presentation and Analysis

Research Question One: How frequent do undergraduate students use database in universities libraries in Katsina State?

Table 1: determine the frequency level of use of database by undergraduate students in universities libraries in katsina state

S/No	Items	Yes		No	
		F	%	F	%
1	Daily	137	57.8	100	42.2
2	Two times a week	95	40.1	142	59.9
3	Once a week	67	28.3	170	71.7
4	Once in a month	44	18.6	193	81.4
5	Quarterly	56	23.6	181	76.4
6	Occasionally	93	39.2	144	60.8
7	Non use	34	14.3	203	85.7
8	Used database one hour daily	115	48.5	122	51.5
9	Used database 2-5 hours in a week	95	40.1	142	59.9

Table 1 shows the percentage distribution of respondent on the frequency level of utilization of the database. The table indicates that 137 (57.8%), 95 (40.1%), 67 (28.3%), 44 (18.6%), 56 (23.6%) 93 (39.2%), 34 (14.2%) 115 (48.5%) and 95 (40.1%) of the respondent agree that the used online database daily, two times a week, once a week, once in a month, quarterly, occasionally, non-use, one hour daily, 2-5 hours in a week respectively. Using 50% as a benchmark, it was deduced that undergraduate students in Universities libraries in Katsina State in uses online database daily.

Research Question two: What are the computer literacy required for the use of databases by undergraduate students in universities libraries in Katsina State?

Table 2: Mean and standard deviation scores of the computer literacy skills required for use of the databases by the undergraduate students

S/No	Items	FUDMA		UMYUK		AUK		Total		Rank	Decision
		$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD		
1	Use of mouse and keyboard	3.67	0.58	3.71	0.47	3.75	0.44	3.73	0.48	1st	Accepted
2	Access of online databases	3.45	0.55	3.64	0.63	3.65	0.66	3.59	0.58	2nd	Accepted
3	Understanding personal computer and it components	3.36	0.53	3.71	0.47	3.70	0.56	3.57	0.60	3rd	Accepted
4	Search engine skill	3.28	0.81	3.57	0.51	3.70	0.56	3.54	0.67	4th	Accepted
5	How to search information	3.32	0.66	3.79	0.43	3.45	0.85	3.49	0.67	5th	Accepted
6	Copying information into storage device	3.33	0.70	3.64	0.63	3.40	0.63	3.45	0.68	6th	Accepted
7	Search information resources by Author	3.38	0.83	3.29	0.61	3.43	0.78	3.41	0.81	7th	Accepted
8	Copying and renaming files	3.24	0.75	3.64	0.50	3.20	0.91	3.37	0.75	8th	Accepted
9	Ability to create, organize and navigate through spread sheet	3.26	0.92	3.50	0.65	3.00	0.96	3.34	0.83	9th	Accepted
10	Flash drive, diskette and scanning	3.22	0.83	3.50	0.76	3.25	0.81	3.33	0.78	10th	Accepted
11	Ability to formatting floppy disk	3.21	0.91	3.14	0.95	3.43	0.64	3.30	0.86	11th	Accepted
12	Creating and navigating through directory and sub director structure	3.21	0.81	3.29	0.73	3.05	0.96	3.26	0.82	12th	Accepted
13	Ability to create, organize and navigate through spread sheet	3.01	0.76	3.71	0.61	3.45	0.85	3.19	0.84	13th	Accepted
14	Creating and deleting files	3.03	0.80	3.57	0.76	2.90	1.11	3.18	0.88	14th	Accepted
15	Using command oriented window base	3.00	0.71	3.21	0.89	3.22	0.92	3.13	0.82	15th	Accepted
16	Creating and navigating through directory and sub director structure	3.05	0.73	3.29	0.61	3.13	0.97	3.13	0.82	16th	Accepted
17	Ability to formatting floppy disk	2.97	0.85	3.21	0.89	2.95	0.99	3.03	0.94	17th	Accepted
	Overall	**3.18**	**0.77**	**3.47**	**0.67**	**3.30**	**0.82**	**3.31**	**0.78**		**Accepted**

Table 2 shows the mean and standard deviation scores of the computer literacy skills required for use of the databases by the undergraduate as agreed by the respondents as follows: use of mouse and keyboard ($\bar{x}$ = 3.73 and SD = 0.48), access of online databases ($\bar{x}$ = 3.59and SD = 0.58), understanding personal computer and it components ($\bar{x}$ = 3.57and SD = 0.60), search engine skill ($\bar{x}$ = 3.54and SD = 0.67), how to search information by ($\bar{x}$ = 3.49 and SD = 0.67), copying information into storage device ($\bar{x}$ = 3.45 and SD = 0.68), author ($\bar{x}$ = 3.41 and SD = 0.81), copying and renaming files ($\bar{x}$ = 3.37and SD = 0.75), subject ($\bar{x}$ = 3.34 and SD = 0.83), Flash drive, diskette and scanning ($\bar{x}$ = 3.33 and SD = 0.78), title ($\bar{x}$ = 3.30 and SD = 0.86), ISBN/ISSN ($\bar{x}$ = 3.26 and SD = 0.82), ability to create, organize and navigate through spread sheet ($\bar{x}$ = 3.19and SD = 0.84), creating and deleting files ($\bar{x}$ = 3.18 and SD = 0.88), using command oriented window base ($\bar{x}$ = 3.13 and SD = 0.82), Creating and navigating through directory and sub director structure ($\bar{x}$ = 3.13 and SD = 0.82), ability to formatting floppy disk ($\bar{x}$ = 3.03 and SD = 0.94), barcode ($\bar{x}$ = 2.97 and SD = 0.97), publisher ($\bar{x}$ = 2.95 and SD = 0.98).

The mean used is 2.50 based on a Likert- type scale of 4-point score. The overall mean average of 3.31 is greater than 2.50 agreeing that the items listed are the computer literacy skills required for use of the databases by the undergraduate in Universities Libraries in Katsina State, Nigeria**.** The overall standard deviation is 0.78.

Research Question three: What are the influence of computer literacy skills on effective use of databases by undergraduate students in universities libraries in Katsina State?

Table: Influence of computer literacy skills possessed for effective use of databases

S/No	Items	FUDMA		UMYUK		AUK		Total		Rank	Decision
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD		
1	Knowledge of how to identify relevant electronic resources (books, encyclopedia, journals, newspaper and magazine).	3.62	0.49	3.64	0.50	3.85	0.36	3.69	0.46	1st	Accepted
2	Knowledge of how to get information in a database	3.41	0.59	3.57	0.51	3.70	0.46	3.57	0.53	2nd	Accepted
3	Knowledge of how to get information on a topic from different databases	3.24	0.76	3.79	0.43	3.57	0.81	3.51	0.72	3rd	Accepted
4	Knowledge of how to identify relevant audio visual materials (pictures, chart, maps, videos).	3.21	0.77	3.43	0.51	3.57	0.55	3.44	0.66	4th	Accepted
5	To recognize when information is needed and have the ability to locate, evaluate, and use effectively the information needed	3.43	0.72	3.43	0.85	3.12	1.02	3.42	0.80	5th	Accepted
6	Implement a variety of informative search strategies	3.24	0.89	3.57	0.65	3.35	0.77	3.42	0.78	6th	Accepted
7	To identify key concepts and terms required to locate information	3.30	0.80	3.71	0.47	3.25	0.71	3.40	0.70	7th	Accepted
8	Understand intellectual property copyright, and fair use of information	3.34	0.68	3.64	0.63	3.32	0.69	3.40	0.69	8th	Accepted
9	Knowledge of how to organize and effectively create, use of communicate information to address issues or problem	3.16	0.73	3.43	0.65	3.52	0.68	3.39	0.73	9th	Accepted
10	Knowledge of how to cite author whose idea are used while used databases	3.28	0.70	3.50	0.86	3.32	1.02	3.39	0.81	10th	Accepted
11	Knowledge of how to get information by using different search engine	3.21	0.90	3.43	0.76	3.50	0.64	3.38	0.75	11th	Accepted
12	Use full array of library services to retrieve information	3.12	0.80	3.71	0.61	3.23	0.77	3.26	0.80	12th	Accepted
13	To differentiate between primary and secondary source of information	3.36	0.95	3.14	0.77	2.85	1.00	3.20	0.90	13th	Accepted
14	Knowledge to use online public access catalogue (OPAC)	3.03	0.86	3.71	0.47	3.05	0.99	3.19	0.85	14th	Accepted
15	Knowledge of how to navigate a website	3.20	0.75	3.57	0.51	3.20	0.72	3.17	0.76	15th	Accepted

16	Knowledge of how to retrieve and manipulate information across contexts and in multiple format	3.09	0.75	3.21	0.58	3.08	0.80	3.15	0.74	16th	Accepted
	Overall	**3.27**	**0.76**	**3.53**	**0.61**	**3.34**	**0.75**	**3.37**	**0.73**		**Accepted**

Key: $\overline{X}$ = Means, SD = Standard Deviation

Table 3 shows the means and standard deviation rating of the influence of computer literacy skills possessed for effective use of databases as follows: knowledge of how to identify relevant electronic resources (books, encyclopedia, journals, newspaper and magazine) ($\bar{x}$ = 3.69 and SD = 0.46), knowledge of how to get information in a database ($\bar{x}$ = 3.57and SD = 0.53), knowledge of how to get information on a topic from different databases ($\bar{x}$ =3.51and SD = 0.72), knowledge of how to identify relevant audio visual materials (pictures, chart, maps, videos) ($\bar{x}$ =3.44 and SD = 0.66), recognizing when information is needed and have the ability to locate, evaluate, and use effectively the information needed ($\bar{x}$ =3.42 and SD = 0.80), implementing a variety of informative search strategies ($\bar{x}$ = 3.42and SD = 0.78), identifying key concepts and terms required to locate information ($\bar{x}$ =3.40 and SD = 0.70), understanding intellectual property copyright, and fair use of information ($\bar{x}$ =3.40 and SD = 0.69), knowledge of how to organize and effectively create, use of communicate information to address issues or problem ($\bar{x}$ = 3.39 and SD = 0.73), knowledge of how to cite author whose idea are used while used databases ($\bar{x}$ =3.39 and SD = 0.81), Knowledge of how to get information by using different search engine ($\bar{x}$ = 3.38 and SD = 0.75), using full array of library services to retrieve information ($\bar{x}$ = 3.26and SD = 0.80), differentiating between primary and secondary source of information ($\bar{x}$ = 3.20 and SD = 0.90), Knowledge to use online public access catalogue (OPAC) ($\bar{x}$ = 3.19and SD = 0.85), knowledge of how to navigate a website ($\bar{x}$ =3.17and SD = 0.76), knowledge of how to retrieve and manipulate information across contexts and in multiple forma ($\bar{x}$ =3.15and SD = 0.74).

The overall means score of 3.37 shows that the respondents agree to the items listed in table 3 as the influence of computer literacy skills possessed for effective use of databases in University Libraries in Katsina State, Nigeria. The standard deviation is 0.73.

Summary of the Findings

1. All the computer literacy skills required for use of the databases by the undergraduate students in university libraries in Katsina State Nigeri were accepted, they include: ability to identify relevant electronic resources (books, journals, encyclopaedia, newspapers, magazine etc), ability to get information on a topic using different databases, ability to organize and effectively create, use and communicate information to address issues or problem at hand, ability to navigate a website, ability to search databases and retrieve, and download the information, ability to identify relevant electronic learning materials (audio-visual materials, pictures, charts, maps, videos), ability to use database when doing my assignment, ability to use database to find out exactly what you are looking for, ability to use online public access
2. The strategies suggested for enhancing Influence of Computer Literacy Skills on the Use of Library Databases by Undergraduate Students in University Libraries in Katsina State, Nigeria are provision of suitable network in the library, provision of relevant databases to their universities programmes, provision of adequate power supply, orientation to undergraduate for the use of computer literacy, collaboration with lecturers and the librarians to teach computer literacy course, regular subscription, provision provide sufficient databases, integrating computer literacy instruction with the research course in the universities and provision computer literacy skills in the university

Conclusion

It was realized that the patronage of the library's online academic databases was very low. This was largely because students were either not aware of the existence of these databases or were not aware that the library subscribes to the databases. Also shows clearly that undergraduate students sought for access to online electronic databases through other means other than the library. In their ever increasing demand for subscriptions to more databases with journal titles of international repute students experienced some constraints, prominent among these were the slow nature of the internet and the lack of proper guidance on how to access these online databases. In the light of the above revelations, there is the need for the library to heighten awareness creation among the students on the existence and usage of these important resources. Also, there is the need for a conscious effort by the university authorities to improve on the University's ICT infrastructure in order to facilitate access to the online dat

Recommendations

Based on the findings of this study, the following recommendations are made for developing Influence of Computer Literacy Skills on the Use of Library Databases by Undergraduate Students in University Libraries in Katsina State, Nigeria

1. Undergraduate students should be sensitized on the availability of databases and be encouraged to use them for their personal and library services.
2. The university administration should pay more attention to students' computer literacy skills by making some computer education compulsory for all students and incorporated into students' curriculum with emphasis on practical aspects.
3. Undergraduate Students should be trained in basic Information Communication Technology skills such as Internet navigation, keyword searching, downloading and saving documents, use of search operators and evaluation of online information resources.

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Influence of Resources Availability and Infrastructural Facilities on Service Delivery in Government-Owned Colleges of Education Libraries in Kwara State

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Abstract

This paper investigated the influence of resource availability and infrastructural facilities on service delivery in government-owned Colleges of Education libraries in Kwara State, Nigeria. The objectives of the study were to identify the levels of availability and adequacy of information resources and infrastructural facilities in government-owned Colleges of Education libraries in Kwara State, and to establish the influence of resource availability on service delivery in these libraries. The study employed a descriptive research design with a correlational approach. The population of the study consisted of 388 lecturers in government-owned Colleges of Education. A sample size of ninety (90) respondents was selected for the study, with thirty (30) lecturers drawn from each institution through a simple random sampling technique to ensure equal representation. Data were collected using a researcher-modified rating scale. The data collected were analyzed using Pearson Product Moment Correlation (PPMC), while the null hypotheses were tested using a t-test of simple linear correlation at a 0.05 level of significance. The findings of the study revealed that the availability of information resources and infrastructural facilities has a significant influence on service delivery in government-owned Colleges of Education libraries in Kwara State. The study therefore recommends improved investment in information resources and infrastructural facilities, including increased internet bandwidth, to enhance efficiency and service delivery in these libraries and to ensure sustainable academic support services for teaching, learning, and research activities in the institutions, while also strengthening policy implementation, staff capacity development, and periodic evaluation of library infrastructure to improve service quality across the colleges and align library services with global best practices in information management and digital access for improved learning outcomes overall.

Keyword: Resource Availability, Infrastructural Facilities, Service Delivery, Academic Libraries, Library Services, Information Resources.

1.1 Introduction

Libraries play a pivotal role in supporting teaching, learning, and research activities in higher institutions. The major concern of every library today is to be self-sufficient in resources and to provide an optimal level of service to reach more potential users. Colleges of Education libraries are established to provide information resources that support the education and research activities of students aspiring to become teachers. Government-owned Colleges of Education libraries in Kwara State were established by statutory legislative provisions to serve the interest of the general public in the state who wish to engage in the teaching profession. Public institutions, like government-owned Colleges of Education in Kwara State, are concerned with the provision of teaching, research, and community services (Ogunode, 2020).In Colleges of Education, the library serves as an academic support system that provides access to relevant information resources needed for effective teacher education and academic development. Libraries are central to the academic reputation of institutions as they support teaching, learning, and research (Dada et al., 2025). The effectiveness of library services in Colleges of Education largely depends on the availability of adequate information resources and appropriate infrastructural facilities.

The main aim of Colleges of Education libraries is to acquire information resources in different formats and various fields of human knowledge and to process, organize, disseminate, and provide access to them. For Colleges of Education libraries to achieve their goal of providing information and access to users, information resources and infrastructure play significant roles. In the context of this study, information resources in libraries include textbooks, journals, reference materials, electronic resources, and other learning materials that support the academic programmes of the institution. According to Tondo (2022) information resources in the library range from print to non-print resources, print resources comprising textbooks, hard-copy journals, and other instructional materials in print, while non-print resources include electronic formats. Similarly, library infrastructure is a crucial factor that must be taken into consideration in every type of library. The broad concept of library infrastructure comprises numerous components, including the library building, seating facilities, shelving units, lighting systems, ventilation and air conditioning systems, restrooms, and security systems. Ogbuagu et al (2014) identified library infrastructure as power supply (generating sets, electrical installations), information and communication technology facilities, furniture, fittings, information materials, and library buildings that contribute to library services and the development of staff and students in tertiary institutions.

The availability of library resources and infrastructural facilities will enable library staff to perform their duties effectively and encourage users to utilize library resources. The management of Colleges of Education must ensure the continuous upgrade of available infrastructure. Library infrastructure in most Colleges of Education libraries in Nigeria has deteriorated, affecting the professional development of librarians and service delivery to library patrons (Omeluzor et al., 2017). This deterioration can affect the usage of library resources by both students and staff. Therefore, the availability of resources can enhance the quality of library services and promote effective learning among staff and students. However, the availability of information resources is not enough; proper infrastructure such as library buildings, furniture, information and communication technology (ICT) facilities, internet connectivity, electricity supply, and conducive reading spaces are also essential for efficient service delivery (Hundo, 2019).

In many Colleges of Education, libraries face dual challenges of inadequate library resources and infrastructural facilities due to inadequate funding, poor maintenance culture, obsolete library materials, poor ICT facilities, erratic power supply, inadequate physical infrastructure, shortage of skilled personnel, poor maintenance of facilities, limited access to electronic resources, security issues, inadequate facilities for special users, increasing user population, and poor policy and planning. Okwu and Opurum (2021) opined that most libraries in Nigeria lack the required facilities and resources to satisfy users' needs. These problems may hinder librarians from providing efficient services to users and may also limit students' ability to access relevant academic information. Consequently, the quality of service delivery in such libraries may be affected. Service delivery in libraries encompasses circulation, reference, serial, and reserve sections. The quality of services in these sections often depends on the level of resources and infrastructural support available within the library system. Therefore, the availability of adequate resources and infrastructural facilities is crucial for improving library service delivery in Colleges of Education. This study, therefore, seeks to examine the influence of resource availability and infrastructural facilities on service delivery in Colleges of Education libraries.

1.2 Statement of the Problem

Libraries in Colleges of Education are expected to provide adequate information resources and services that support teaching, learning, and research activities. However, many of these libraries face numerous challenges that affect their ability to deliver effective services to users. A major challenge is the inadequate availability of relevant and up-to-date information resources such as books, journals, and electronic materials. In addition, many college libraries suffer from poor infrastructural facilities, including inadequate library buildings, insufficient reading spaces, lack of modern ICT equipment, poor internet connectivity, and unstable power supply. These challenges may negatively affect the quality of services provided by librarians and limit users' access to information resources. As a result, students and lecturers may not fully benefit from the services provided by the library. Despite the important role that library resources and infrastructure play in enhancing service delivery, there is still concern about whether Colleges of Education libraries possess adequate resources and infrastructural facilities to effectively serve their users. Therefore, this study sought to investigate the influence of resource availability and infrastructural facilities on service delivery in Colleges of Education libraries.

1.3 Research Questions

1. What is the relationship between the availability of information resources and service delivery in government-owned Colleges of Education libraries in Kwara State?
2. What is the relationship between the availability of infrastructural facilities and service delivery in government-owned Colleges of Education libraries in Kwara State?

1.4 Research Hypotheses

The following hypotheses were tested at 0.05 level of significance:

Ho_1: There is no significant influence between the availability of library resources and service delivery in government-owned Colleges of Education libraries in Kwara State.

Ho_2: There is no significant influence between the availability of infrastructural facilities and service delivery in government-owned Colleges of Education libraries in Kwara State.

2.1 Literature Review

The primary objective of establishing Colleges of Education in Nigeria is to produce skilled teachers who can teach effectively at the primary and secondary school levels with high-quality education that fosters intellectual growth, critical thinking, and innovation, ultimately contributing to an improved education system and national progress. These institutions aim to produce well-trained teachers with the knowledge and skills necessary to meet the demands of building an educated population. Teachers are key human resources needed for the smooth functioning of any educational enterprise (Edut & Etete, 2019). Thus, their commitment to service delivery is crucial for the attainment of the goals of the school system. Likewise, attaining the goals of Colleges of Education is intricately linked to service delivery to users, as they play a crucial role in shaping the academic and professional development of students. This is corroborated by Ogunode et al. (2022), who stated that the students and staff of tertiary institutions are strong members of the institutional community and their roles are irreplaceable. Therefore, there is a need for Colleges of Education to

acquire adequate information resources and infrastructural facilities that can enhance service delivery to satisfy the aim of establishing the Colleges of Education.

The availability of information resources and infrastructural facilities in college libraries serves different purposes that are in line with the objectives of establishing the College of Education. Availability of information resources and infrastructural facilities refers to their presence and adequacy in the library for use by users (Ayaowei et al., 2024). It is necessary for any standard college library to provide information resources to its users in large quantity. The availability of library resources and infrastructural facilities can enhance service delivery in Colleges of Education in Kwara State. Therefore, information resources in libraries include both printed and non-printed materials. According to Ugba et al. (2019), the concept of information resources is used to mean anything that can provide intellectual stimulation to the reader/learner, and it includes books, periodicals, newspapers, pamphlets, ephemeral materials, audio materials, films, graphics, computers, etc., as well as individuals and objects in the community. Information resources include textbooks, magazines, newspapers, journal publications, encyclopedias, dictionaries, periodicals, monographs, articles, dissertations, documents, CD-ROMs, DVDs, audio-visual tapes, projectors, cassettes, radio, television, cable satellite, and the Internet, among others. Obona et al. (2024) opined that the availability and effective use of resources are vital for improving the quality and efficiency of teaching, research, and community engagement in tertiary institutions. Information resources in Colleges of Education are better utilized when relevant infrastructural facilities such as reading tables, chairs, bookshelves, and ICTs, among others, are available.

Infrastructural facilities are essential facilities and tools that enhance the library's ability to deliver quality service to its patrons (Edom & Douglas, 2024). College of Education libraries need infrastructure ranging from power-generating sets to furniture and fittings, among others, to keep pace with developments in the information profession and advancements in technology for delivering information services. According to the World Education Summit (2021) report, a well-equipped library housing a wealth of useful books or informative multimedia resources, coupled with a motivating ambiance, not only attracts students to use the library but also develops a liking for study. Infrastructural facilities in college libraries should provide the necessary foundation on which self-sustaining growth is not only possible but also assured. Meanwhile, the availability of information resources and infrastructural facilities enhances the ability of college libraries to render necessary services to users.

Therefore, the provision of adequate resources and infrastructure has a significant influence on users' readiness to access the various collections in the library to complete coursework, widen their knowledge, and prepare for lectures. Despite the importance of college libraries in information dissemination, the regular usage of library resources depends on the availability of information resources and infrastructural facilities. Inadequate infrastructural facilities in Colleges of Education libraries could result in a shift from using library resources to self-help means of study (Solanke & Nwalo, 2016). Several factors could be attributed to the non-use of library resources in Colleges of Education, including inconvenient library location, unpleasant library ambiance, inadequate information resources, unqualified library personnel, and lack of basic social amenities such as electricity, chairs/tables, modern computers, and internet facilities, among others. Studies also show that infrastructural facilities aid effective service delivery and ensure the comfort of both library staff and users (Omeluzor et al., 2017).Infrastructural facilities are essential for enhancing the use of college libraries by both students and staff. Akuegwu and Nwi-ue (2016) explained that service delivery in an academic environment involves methods that enhance academic activities. Good library services and facilities are important to support user satisfaction, as there is a significant relationship between the value of library facilities, resources, services, and library user satisfaction. Good service delivery means lecturers are proficient in their teaching methods, communicate effectively with students, and offer support and guidance when necessary (Obona et al., 2024). Adequate availability of information resources and infrastructure will create a positive and productive learning environment and enhance service delivery in college libraries.

Therefore, the availability of resources and infrastructure in college libraries will enhance the quality of academic staff service delivery and can significantly influence and enhance students' academic performance, school effectiveness, and improved educational goal attainment (Tamunokonbia&Nwaogu, 2021).In Colleges of Education, infrastructural facilities and information resources are fundamental to the effective functioning of the library and the delivery of quality services. These facilities include both physical structures and supportive tools such as power supply systems, furniture, fittings, and modern technological equipment. Together with diverse information resources such as books, journals, digital databases, and multimedia materials, they enable libraries to meet the evolving demands of the information profession and support teaching, learning, and research activities. According to the World Education Summit (2021) report, a well-equipped library housing a wealth of useful books or informative multimedia resources, coupled with a motivating ambiance, not only attracts users to the library but also develops dedication toward academic activities. Information resources and infrastructural facilities can be said to be the physical expression of academic activities, as they represent a consciously designed and controlled environment with the sole aim of promoting the usage of college libraries by students and staff, which is part of teaching and learning activities within the institutions.

Researchers such as Dahunsi, Alegbeleye, and Madukoma (2020) conducted a study on the influence of library infrastructural facilities on library patronage among academics in South-West Nigeria. The study found that there was a low level of library patronage among academic staff in university libraries and that most resources in the libraries were sparingly used by academic staff. The study also found that although infrastructural facilities are available in academic libraries, they are inadequate. Further analysis revealed a significant influence of the availability of resources and infrastructural facilities on library usage by academics in universities in South-West Nigeria. The term "library usage" has been conceptualized in various ways by different scholars and researchers depending on their view, perception, and focus. Some scholars conceptualized library usage as library patronage; to others, library usage is the consumption of library resources, while a few described it as visiting a library to consume its resources. The common ground is that literature agrees that library resources are meant for usage by users. Hence, it should be understood that users cannot make use of resources without visiting the library either personally or electronically (Dahunsi, Alegbeleye, and Madukoma, 2020). Library usage refers to the extent to which students visit the library to explore its infrastructural facilities for teaching, learning, and relaxation (Edom & Douglas, 2024). Library usage is the purposive visit to the library by users to use library resources and infrastructural facilities, enhanced by service delivery.

The services delivered in Colleges of Education are numerous. Through the effective provision of information resources and infrastructural facilities by college libraries, lecturers and students have access to information resources that can enhance their academic activities. The success of libraries in Colleges of Education in this information age relies greatly on the nature of available information resources, how readily available these resources are to users, and how comfortable users are while making use of library resources. It is, however, regrettable that college libraries are still lagging behind in terms of the availability of information resources and infrastructural facilities that could facilitate effective service delivery to the user community (Okhakhu&Ogbe, 2022). Without adequate information resources and infrastructural facilities, libraries cannot carry out their primary function of service delivery, and users cannot feel satisfied. Unfortunately, most college libraries in Nigeria today cannot boast of adequate information resources and infrastructural facilities that can serve the needs of the user community. In most cases, the available information resources are not current, are insufficient, and are grossly inadequate compared to the user population of the institution. It is also observed that the resources of these libraries are largely print-based, with little or no provision for electronic resources like e-journals, e-books, and electronic databases such as JSTOR, AGORA, ERIC, and EBRARY. Many academic libraries, including those in colleges, are gradually losing their users to Google and online-based electronic resources, which users now rely on for current information resources anywhere and anytime with little or no access restrictions. This can be attributed to insufficient information resources and infrastructural facilities, which have a significant effect on service delivery.

3.1 Methodology

The study employed a descriptive research design to examine the influence of resource availability and infrastructural facilities on service delivery in Colleges of Education libraries. A correlation research design was adopted for this study. Correlation research design investigates relationships between variables without controlling or manipulating any of them. A total of 388 lecturers in government-owned Colleges of Education were selected for the study. Participants covered in this study were lecturers in government-owned Colleges of Education. A sample size of ninety (90) respondents was selected for the study, with thirty (30) lecturers drawn from each institution through a simple random sampling technique to ensure equal representation. Data were collected using a researcher-modified rating scale. All the data collected were analyzed using Pearson Product Moment Correlation (PPMC) statistics. The null hypotheses were tested using a t-test of simple linear correlation statistics at a 0.05 level of significance.

4.1 Results and Discussion

Response Rate: Out of the ninety (90) questionnaires administered to lecturers in government-owned Colleges of Education in Kwara State, eighty-three (83) were duly completed and returned. This represents a response rate of 92.2%, which was considered adequate for the study. Consequently, the analysis of data for this research was based on the 83 valid responses retrieved from the respondents.

Table 1: Summary of Pearson Product Moment Correlation on the Relationship between Information Resources, Infrastructural Facilities, and Service Delivery in Government-Owned Colleges of Education Libraries in Kwara State.

		Availability of Information Resources	Availability of Infrastructural Facilities	Service Delivery
	Pearson Correlation	1	.989**	.994**
	Sig. (2-tailed)		.000	.000

Availability of Information Resources (AIR)	N	83	83	83
Availability of Infrastructural Facilities (AIF)	Pearson Correlation	.989**	1	.979**
	Sig. (2-tailed)	.000		.000
	N	83	83	83
Service Delivery (SD)	Pearson Correlation	.994**	.979**	1
	Sig. (2-tailed)	.000	.000	
	N	83	83	83

Correlation is significant at the 0.01 level (2-tailed).

Table1 reveals that the availability of information resources and the availability of infrastructural facilities have a very strong positive relationship (r = 0.989). Availability of information resources and service delivery also show a very strong positive relationship (r = 0.994). Similarly, availability of infrastructural facilities and service delivery are very strongly positively related (r = 0.979).Since all p-values are less than 0.05 and significant at the 0.01 level (2-tailed), the relationships observed are statistically significant. The finding of the study implies that improvements in information resources and infrastructural facilities are strongly associated with better service delivery in government-owned Colleges of Education libraries in Kwara State.

Table 2: Model Summary of the Multiple Regression Analysis on the Influence of Availability of Information Resources and Infrastructural Facilities on Service Delivery in Government-Owned Colleges of Education Libraries in Kwara State.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.994[a]	.989	.988	.10519

a. Predictors: (Constant), Availability of Infrastructural Facilities, Availability of Information Resources.

Table 2 shows the model summary shows that the regression model demonstrates a very high level of explanatory power, with an R^2 value of 0.989. This suggests that about 98.9% of the variation in service delivery in government-owned Colleges of Education libraries in Kwara State can be accounted for by the combined influence of the availability of infrastructural facilities and the availability of information resources. This remarkably high R^2 value indicates that the model fits the data extremely well, implying that these predictor variables jointly provide a strong and reliable basis for explaining and forecasting service delivery in the libraries under study.

Table 3: Analysis of Variance (ANOVA) for the Regression Model on the Influence of Availability of Information Resources and Infrastructural Facilities on Service Delivery in Government-Owned Colleges of Education Libraries in Kwara State.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77.551	2	38.775	3504.601	.000[b]
	Residual	.885	80	.011		
	Total	78.436	82			

a. Dependent Variable: Service Delivery (SD)

b. Predictors: (Constant), Availability of Infrastructural Facilities (AIF), Availability of Information Resources (AIR)

Table 3 indicated the ANOVA results indicate that the regression model used to predict service delivery in government-owned Colleges of Education libraries in Kwara State is highly statistically significant. The model produces an F-statistic of 3504.601 with a p-value less than 0.001, showing that the independent variables availability of infrastructural facilities and availability of information resources jointly offer a significantly better prediction than a model without predictors. Furthermore, the regression sum of squares (77.551) is much higher than the residual sum of squares (0.885), which implies that the model accounts for the greater proportion of variation in service delivery, leaving only a very small amount unexplained. The mean square values (38.775 for regression and 0.011 for residual) further highlight this wide gap, leading to the very high F-value observed. Overall, these results confirm that the availability of information resources and infrastructural facilities collectively exerts a strong and statistically significant influence on service delivery in government-owned Colleges of Education libraries in Kwara State.

Table 4: Multiple Regression Coefficients Showing the Relative Influence of Availability of Information Resources and Infrastructural Facilities on Service Delivery in Government-Owned Colleges of Education Libraries in Kwara State.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.137	.036		3.786	.000
	Availability of Information Resources (AIR)	1.125	.077	1.148	14.529	.000
	Availability of Infrastructural Facilities (AIF)	-.153	.078	-.156	-1.969	.052

a. Dependent Variable: Service Delivery (SD)

Table 4 revealed the regression analysis assessed the extent to which the availability of information resources and the availability of infrastructural facilities influence service delivery in government-owned Colleges of Education libraries in Kwara State. The findings reveal that the availability of information resources exerts a strong and statistically significant positive effect on service delivery ($B = 1.125$, $\beta = 1.148$, $t = 14.529$, $p < 0.001$), indicating that improvements in information resources lead to substantial enhancement in service delivery outcomes. On the other hand, the availability of infrastructural facilities shows a negative but weak effect ($B = -0.153$, $\beta = -0.156$, $t = -1.969$, $p = 0.052$), which is not statistically significant at the 0.05 level. This suggests that infrastructural facilities do not make a meaningful contribution to service delivery within the context of this model. The constant term ($B = 0.137$, $p < 0.001$) reflects the baseline level of service delivery when the independent variables are held constant. Overall, the results underscore that the availability of information resources is a major determinant of service delivery, whereas infrastructural facilities appear to have a less significant impact in government-owned Colleges of Education libraries in Kwara State.

Discussion

The findings of the study revealed that there is a strong relationship between resource availability and service delivery in government-owned Colleges of Education libraries in Kwara State. Both the availability of information resources and the availability of infrastructural facilities show significant positive correlations with service delivery, suggesting that improved access to information and infrastructure is generally associated with better service outcomes in these libraries. However, while correlation points to the existence of relationships, the regression analysis provides a clearer understanding of the relative contributions of each variable. The results reveal an exceptionally high model fit ($R^2 = 0.989$), indicating that the combined predictors account for a substantial proportion of the variation in service delivery. Within this model, the availability of information resources stands out as the most influential factor, exerting a strong, positive, and statistically significant effect on service delivery. This highlights the crucial role of information resources such as access to relevant materials, digital resources, and effective communication systems in enhancing library services. This is corroborated by Emeahara, Ajakaye, (2022) that librarians must communicate with library users, faculties, departments, and lecturers in order to support efficient teaching, learning, and research in the higher institutions.

In contrast, the availability of infrastructural facilities does not exhibit a statistically significant independent effect and is associated with a negative coefficient when both variables are considered together. This suggests that its role may be indirect or dependent on the presence of adequate information resources rather than having a direct impact on service delivery. The ANOVA results further validate the overall significance of the model, confirming that the predictors jointly explain variations in service delivery beyond what could occur by chance. Nevertheless, the very high R^2 value raises the likelihood of multicollinearity or overlap between the predictors, which may explain why infrastructural facilities appear less significant in the regression despite their strong correlation with service delivery. This is in line with the study of Adeniran, Nwalo and Ajani (2022) that availability and use of information resources significantly enhanced service delivery. Overall, the study concludes that although both infrastructural facilities and information resources contribute to the effectiveness of government-owned Colleges of Education libraries in Kwara State, information resources are the primary drivers of service delivery. This implies that investments in infrastructure alone may not yield optimal results unless they are complemented by adequate and accessible information resources. Consequently, policymakers, school management, and library management should prioritize strengthening information resource availability while ensuring that infrastructural development supports efficient access to and use of these resources for improved service delivery.

Conclusion and Recommendations

The study, Influence of Resources Availability and Infrastructural Facilities on Service Delivery in Government-Owned Colleges of Education Libraries in Kwara State**,** concludes that the availability of resources is a key factor in improving service delivery, with the analytical model showing very strong explanatory capacity. Although both information resources and infrastructural facilities are positively linked to service delivery in these institutions, the

findings clearly indicate that information resources are the most influential and consistent determinant. Their strong and statistically significant impact suggests that access to relevant academic and administrative information, efficient communication systems, and adequate knowledge resources are essential for enhancing service outcomes in the colleges. On the other hand, infrastructural facilities such as buildings and physical equipment do not show a significant independent effect when assessed alongside information resources. This implies that their contribution to service delivery may be indirect, largely depending on how effectively they support access to and use of information.

.Based on these findings, it is recommended that college administrators and policymakers in Kwara State place greater emphasis on investing in information resources, including digital learning platforms, data management systems, and communication technologies, as these have the greatest impact on service delivery. There should also be a strong focus on capacity building, particularly through training staff and educators to effectively use these information systems. While infrastructural development remains important, it should be carefully aligned with information resource systems to ensure they complement each other rather than overlap inefficiently.

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INFLUENCE OF SCHOOL LIBRARY STAFFING LEVELS ON STUDENTS' ACADEMIC ACHIEVEMENT IN PUBLIC SENIOR SECONDARY SCHOOLS IN OBIO/AKPOR LOCAL GOVERNMENT AREA OF RIVERS STATE

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ABSTRACT

The study examined influence of school library staffing levels on students' academic achievement in public secondary schools in Obio/Akpor Local Government Area of Rivers State. The study was guided by three objectives and three research questions. The study employed a descriptive survey design and sampled 522 students and 170 library personnel across 20 registered senior secondary schools. Data were collected using structured questionnaires titled The instruments used for data collection was a structured questionnaire titled "Influence of School Library Staffing Levels on Students' Academic Achievement in Registered Public Senior Secondary schools Questionnaire. The instrument underwent face and content validity test which was conducted by two experts in Library and information Science Department, as well as one expert in Measurement and Evaluation in the Faculty of Education at Rivers State University, Port Harcourt. Cronbach's Alpha statistics was used to establish the reliability coefficients of the instrument. A reliability coefficient of 0.78, 0.70 and 0.75. was obtained showing the instrument is reliable. The instrument was analyzed using mean and standard deviation. The findings show that the availability of professional school librarians, para-professional library staff, and support staff in school libraries has a positive influence on students' academic achievement. Based on the findings, the following recommendations were made among others Education authorities should strengthen the professional training of school librarians and promote their active collaboration with teachers to enhance their impact on students' academic achievement. Based on the findings of the study, it was concluded that school library staffing levels influence students' academic achievement, particularly regarding the availability of professional school librarians, para-professional library staff, and support staff in school libraries in Obio/Akpor Local Government Area of Rivers State

Keywords: Keywords: School Library, Library Staffing, Staffing Levels, Students' Academic Achievement, Public Senior Secondary Schools

Introduction

School libraries are widely acknowledged as critical components of effective educational systems, serving as hubs for information access, literacy development, and academic support. Globally, research has consistently demonstrated a positive relationship between well-resourced school libraries and students' academic achievement, particularly when such libraries are adequately staffed by qualified professionals (Chigbundu & Ezenagbo, 2025). International bodies such as the International Federation of Library Associations and Institutions (IFLA) and UNESCO emphasize that the effectiveness of school libraries depends not only on collections and infrastructure but also, crucially, on the availability of competent library personnel who can integrate information services into teaching and learning processes (Idiegbeyan-ose, Ilo, & Isiakpona, 2019). In contemporary knowledge-driven societies, school libraries staffed by trained librarians play a strategic role in fostering information literacy, critical thinking, and independent learning skills that are essential for students' academic success and lifelong learning.

From a global perspective, empirical studies conducted in North America, Europe, and parts of Asia provide robust evidence that students in schools with professionally staffed libraries tend to perform better in standardized tests, reading comprehension, and overall academic outcomes than those in schools with poorly staffed or non-existent library services (Merga & Mat Roni, 2025). These studies attribute such outcomes to librarians' instructional collaboration with teachers, targeted reader advisory services, and systematic support for curriculum delivery. However, scholars also caution that staffing levels, encompassing professional librarians, para-professionals, and support staff are often unevenly distributed, particularly in developing countries, thereby limiting the potential impact of school libraries on learning outcomes (Ocheje, 2022)This disparity underscores the need for context-specific investigations that examine how staffing structures within school libraries influence student achievement in diverse educational systems.

In Nigeria, the role of school libraries has long been recognized in national education policies, including the National Policy on Education, which advocates for functional libraries in all schools as a means of supporting curriculum implementation and improving educational quality (Federal Republic of Nigeria [FRN], 2014). Despite this policy

recognition, the practical reality in many public secondary schools is characterized by inadequate library facilities, insufficient staffing, and limited professional oversight (Eguono & Usiada, 2025). In many cases, school libraries are managed by untrained personnel or teachers without formal education in librarianship, while para-professional and support staff are either absent or poorly utilized. This situation raises critical concerns about the capacity of school libraries to contribute meaningfully to students' academic achievement within the Nigerian secondary school system.

Existing Nigerian studies on school libraries have largely focused on issues of availability, utilization, and infrastructural adequacy, with comparatively less empirical attention devoted to staffing levels and their direct influence on students' academic performance (Chigbundu & Ezenagbo, 2025). While some studies suggest that professionally managed school libraries enhance students' reading habits and academic engagement, few have employed rigorous quantitative designs to examine the relationship between different categories of library staff and measurable academic outcomes at the secondary school level. Moreover, much of the available literature tends to generalize findings across broad geographical contexts, thereby obscuring local variations in educational administration, funding, and policy implementation. This gap is particularly evident in Rivers State, where rapid urbanization, population growth, and uneven educational resource distribution have placed additional pressure on public secondary schools.

Obio/Akpor Local Government Area, as a major urban center in Rivers State, presents a compelling context for examining the influence of school library staffing levels on students' academic achievement. Public secondary schools in the area operate within a complex educational environment marked by increasing enrolment, diverse student needs, and heightened expectations for academic performance. Yet anecdotal evidence and preliminary observations suggest that many of these schools lack adequately staffed libraries, relying instead on minimal personnel who are often overstretched and insufficiently trained. This situation raises a critical research problem: despite policy recognition of school libraries as essential educational support services, there remains limited empirical evidence on how variations in library staffing levels affect students' academic achievement in public secondary schools within this local context.

The significance of examining school library staffing lies in the multifaceted roles that library personnel play in supporting teaching and learning. Professional school librarians possess specialized training in information organization, instructional design, and literacy education, enabling them to collaborate effectively with teachers, guide students in research activities, and support curriculum-aligned learning (IFLA, 2015). Para-professionals and support staff, when appropriately deployed, contribute to the efficient operation of library services by managing routine tasks, maintaining collections, and ensuring sustained access to learning resources. The absence or inadequacy of these categories of staff can undermine library effectiveness, limit student access to information resources, and reduce opportunities for meaningful academic support. Consequently, staffing levels are not merely administrative variables but pedagogical factors with potential implications for students' academic achievement.

Understanding the influence of school library staffing levels is particularly significant for educational policy and school administration in Nigeria. Empirical evidence from this study can inform policy decisions regarding staff recruitment, deployment, and professional development, thereby strengthening the role of school libraries in achieving national educational goals. For school administrators, insights into the relationship between staffing and academic achievement can guide resource allocation and strategic planning aimed at improving student outcomes. From a library development perspective, the study contributes to advocacy efforts by providing data-driven justification for investing in qualified library personnel as a means of enhancing educational quality and equity.

Situating this study within the Nigerian educational system, and specifically within public secondary schools in Rivers State, addresses an important contextual gap in the literature. By focusing on Obio/Akpor Local Government Area, the study responds to calls for localized, evidence-based research that reflects the realities of school library practice in Nigeria's diverse educational landscapes. In doing so, it aligns with broader international discourses on the role of school libraries in academic achievement while offering contextually grounded insights that can inform both local practice and comparative research. Ultimately, examining the influence of school library staffing levels on students' academic achievement contributes to a deeper understanding of how human resources within school libraries shape educational outcomes in developing-country contexts, thereby enriching the global literature on school librarianship and information science.

The provision of functional school libraries is a recognized component of effective secondary education, yet the reality of library staffing in many public secondary schools in Nigeria remains largely inadequate. In numerous schools, library units either operate without professionally trained school librarians or are managed by teachers reassigned without formal education in librarianship and information science. Where library personnel exist, staffing levels are often insufficient to meet the demands of growing student populations, and the presence of para-professionals and support staff is minimal or entirely absent. This situation has resulted in school libraries functioning more as static book repositories than as dynamic learning centers capable of supporting curriculum delivery, independent learning, and

academic enrichment. In public secondary schools within Rivers State, including Obio/Akpor Local Government Area, these staffing limitations persist despite policy prescriptions that advocate for well-staffed school libraries as part of quality education provision.

Inadequate or inappropriate school library staffing has generated a range of operational and instructional challenges that undermine the effectiveness of library services. The absence of professionally trained librarians limits instructional collaboration with teachers, reduces systematic information literacy instruction, and constrains students' ability to develop critical research and reading skills essential for academic success. Overburdened or unqualified library personnel often struggle with collection development, resource organization, and user services, leading to underutilization of library resources by students and teachers. Empirical and observational studies within the Nigerian context have documented low levels of library use, poor integration of library services into teaching and learning, and limited student engagement with information resources conditions frequently associated with inadequate staffing and lack of professional expertise. These challenges raise concerns about the extent to which school libraries, as currently staffed, can contribute meaningfully to students' academic achievement at the secondary school level.

Despite the recognized importance of school library personnel, there is a notable gap in empirical research that quantitatively examines the relationship between school library staffing levels and students' academic achievement in Nigeria. Existing studies have largely emphasized library availability, infrastructure, or resource adequacy, with limited attention to staffing as a critical determinant of educational outcomes. Furthermore, few studies have disaggregated staffing into professional librarians, para-professionals, and support staff, or examined how variations in staffing levels influence measurable academic performance. This gap is particularly evident in Rivers State, where public secondary schools in Obio/Akpor Local Government Area operate under conditions of rapid enrolment growth and uneven resource allocation. Consequently, there is a pressing need for a context-specific empirical investigation that establishes the extent to which school library staffing levels influence students' academic achievement in public secondary schools in Obio/Akpor, thereby providing evidence to inform educational policy, school administration, and library development practices.

Chigbundu and Ezenagbo's (2025) study examined the influence of school library resources and the professional qualities of school librarians on senior secondary students' academic success across ten Nigerian secondary schools. This quantitative survey involved 200 students and ten school librarians and used regression analysis to assess the independent and joint effects of library resources and staff qualities on academic performance. The authors found that both the quality of librarians and the availability of library resources were significantly associated with students' academic success ($F(2,197) = 200.582$, $p < .05$), indicating that schools with more competent library personnel tended to report higher levels of student achievement. This study was included for its explicit incorporation of librarian quality as an independent variable and for its use of inferential statistics to link staffing characteristics to measurable student outcomes. However, the study's limitations include a relatively small, non-representative sample and the conflation of staff quality with resource availability, which complicates attributing effects solely to professional librarianship rather than to material resources more broadly.

Suleiman, Hanafi, and Tanslikhan's (2018) qualitative investigation in Kwara State, Nigeria, explored the perceived influence of library services on students' academic achievement, including perceptions of personnel adequacy within secondary school libraries. Using interviews and observational checklists across 20 schools, the researchers reported that library services positively influenced students' academic outcomes but noted that many schools lacked adequately trained library personnel. Although the study did not isolate professional librarians as the sole independent variable, its contextual findings underscore the perceived importance of trained library staff to the effective delivery of library services that support academic performance. The qualitative design allowed for rich contextual insights into staffing challenges and their educational implications, but reliance on principal perceptions rather than direct measures of staffing levels or academic achievement limits the study's generalisability and empirical precision.

Across these studies, there is convergence on the notion that trained and competent library personnel contribute positively to students' academic outcomes, either directly through instructional support or indirectly by enabling better utilization of library services. However, divergence exists in how staffing is operationalized some studies treat librarian quality as part of a broader package with resources, while others rely on perceptions of adequacy rather than measured staffing levels. Contextual factors such as resource scarcity, uneven professional staffing, and institutional constraints within Nigerian public schools further complicate interpretation and suggest that staffing effects may be moderated by material, administrative, and socio-cultural conditions.

Methodologically, the reviewed research demonstrates strengths in situating investigations within real Nigerian school contexts and in the use of mixed data sources. Yet, weaknesses include limited sample sizes, conflation of variables (e.g., resources and staffing), and a lack of longitudinal or experimental designs that could better establish causal

influence. Notably, there is an empirical gap in studies that quantitatively isolate professional school librarian availability as an independent variable and directly relate it to standardized measures of student academic achievement within Nigerian secondary schools.

This gap, particularly the absence of rigorous, context-specific research in settings like Obio/Akpor Local Government Area, constitutes the problem gap hook that the present study aims to address: existing literature suggests a relationship between library staffing and achievement, but lacks conclusive, locally grounded empirical evidence linking professional librarianship directly to measurable academic outcomes in Nigerian public secondary schools. The proposed study seeks to fill this void by employing robust quantitative methods to clarify the influence of professional school librarians on student achievement in Obio/Akpor.

This study examined the perceived influence of library services on students' academic achievement in secondary schools in Kwara State, Nigeria, and highlighted staffing issues, including non-/inadequate trained library personnel (Suleiman et al., 2018). This qualitative study employed interviews and observational checklists with principals from 20 schools and analysed data using NVivo software. Although it did not isolate para-professional staff as a distinct variable, it documented that inadequate training of library staff, implicitly including para-professionals inhibited effective delivery of library services that were perceived to support students' academic success. Findings showed that schools lacked adequately trained personnel and that improved staffing was recommended to enhance library effectiveness and thereby student outcomes. The study was included for its contextual relevance to Nigerian public secondary schools and its identification of staff training as a barrier to academic support, though its reliance on perceptions and lack of quantitative measures limit generalisability and direct attribution of academic achievement to para-professional staff roles.

Another study reported a statistically significant relationship between school library staff qualities (which would include para-professionals) and student academic success in Nigerian secondary schools (Chigbundu & Ezenagbo, 2025). This survey of 200 students and ten librarians across ten schools used regression analysis to assess how library staff qualities predicted student outcomes. Although the study focused on library staff qualities broadly and combined them with resource availability, it nonetheless found that staff characteristics significantly contributed to students' academic success, implying that competent library staff, including para-professional roles, matter for academic achievement. The inclusion of this study is justified by its quantitative design and inferential analysis linking staffing characteristics with student outcomes, offering empirical grounding for the staffing–achievement relationship. A key limitation is the lack of disaggregation between professional and para-professional roles, which constrains clear attribution of effects to para-professionals specifically.

This study examined the effect of librarians' and supportive staff behaviour on students' use of library (Abu, Agada & Shalom, 2022). Although the context was a university rather than a secondary school, the findings are informative: using structured questionnaires with a sample of 378 library users, the study found that both professional and supportive (para-professional) library staff behaviours influenced student engagement with the library. This behavioural influence, in turn, can affect students' use of learning resources and time spent on academic work factors tied to academic achievement in the school library literature. The study was selected because it explicitly recognises supportive (para-professional) staff behaviour as meaningful to student engagement, even though it is situated in higher education and does not directly measure achievement outcomes. Its limitations include contextual divergence from secondary schools and the absence of direct academic performance measures tied to staffing.

Across these studies, a convergent theme emerges that the presence, training, and behaviour of all categories of library staff, including para-professionals, influence students' engagement with library services, which in turn relates to academic outcomes. Suleiman et al. (2018) noted that inadequate training of library personnel constrained the effectiveness of library services that were *perceived* to support academic achievement. Chigbundu and Ezenagbo (2025) provided empirical evidence that staff qualities, broadly defined, were associated with student success. Abu et al. (2022) showed that supportive staff behaviour influenced student library use. These studies collectively suggest that staffing beyond just professional librarians plays a role in shaping the utility of library services for learning.

However, divergences and gaps are evident. None of the reviewed studies isolates the influence of para-professional library staff as a distinct independent variable measured against quantified student achievement outcomes in secondary schools. Most research combines staff characteristics with other factors (e.g., resources, professional staff) or relies on qualitative perceptions rather than objective performance indicators. Methodologically, existing work is limited by lack of longitudinal data, insufficient disaggregation of staff roles, and weak operationalisation of academic achievement when staffing variables are considered. Contextually, research specific to public secondary schools in Nigeria and within West Africa more broadly is sparse, particularly investigations that distinctively examine para-professional staffing levels.

This review highlights a clear empirical and contextual gap: the absence of rigorous, quantitative research that isolates para-professional library staffing levels and directly assesses their influence on students' academic achievement in Nigerian public secondary schools. The proposed study in Obio/Akpor Local Government Area of Rivers State will address this gap by employing robust measurement of para-professional staffing (independent variable), standardized academic performance data (dependent variable), and appropriate analytic techniques, thereby generating contextually grounded evidence to inform policy and practice.

Another empirical research that isolates the influence of school library support staff (such as library assistants, clerical staff, and attendants) on students' academic achievement remains limited, particularly within the Nigerian secondary school context. Nonetheless, a small body of peer-reviewed literature provides useful evidence by examining support staff as part of broader library staffing structures. The studies reviewed here were selected because they are verifiable, peer-reviewed, published from 2015 onward, and empirically examine how non-professional library staff contribute to the effectiveness of school libraries and student learning outcomes.

Another study by Fasola (2015) investigated the relationship between school library personnel adequacy and students' academic performance in public secondary schools in Oyo State. The study employed a descriptive survey design and sampled 360 students and 30 library personnel across selected schools. Data were collected using structured questionnaires and analysed using Pearson correlation and multiple regression techniques. Findings indicated that the availability of library assistants and clerical support staff significantly influenced the utilization of library resources, which in turn was associated with improved student academic performance. Schools with adequate support staff reported better organization of materials and longer library opening hours, facilitating greater student access. The study was included due to its Nigerian context and explicit recognition of support staff roles. However, its reliance on self-reported academic performance and its cross-sectional design limited causal inference and generalizability.

In a large-scale quantitative study conducted in the United States, McGuire (2024) examined how different categories of school library staffing, including clerical and technical support staff, related to academic achievement in secondary schools. Using statewide data from over 300 secondary schools, the researchers employed correlational and regression analyses linking staffing variables with standardized test scores in reading and writing. The findings showed that schools with adequate clerical and technical support staff enabled professional librarians to focus more on instructional collaboration, which was associated with higher student achievement. This study was included for its strong methodological rigor and clear operationalisation of support staff roles. Its primary limitation lies in contextual transferability, as differences in funding structures and educational systems may constrain direct application to Nigerian public secondary schools.

A third relevant study by Small, Pasquini and Schultz-Jones (2019) explored the impact of school library staffing patterns on student achievement in secondary schools using a mixed-methods design. Survey data from librarians and support staff were combined with student achievement records and analysed using descriptive statistics and multivariate analysis. The study found that the presence of trained library aides and support staff positively influenced students' academic outcomes by improving library accessibility, resource circulation efficiency, and instructional support logistics. The inclusion of this study is justified by its explicit treatment of support staff as a measurable staffing variable. However, the study did not fully disaggregate the independent effects of support staff from those of professional librarians, limiting precision in attribution.

Across the reviewed studies, there is convergence in the finding that adequate availability of school library support staff indirectly but meaningfully influences students' academic achievement by enhancing library access, efficiency, and instructional support. Where support staff are available, libraries tend to function more consistently, allowing professional librarians to engage in pedagogical roles that support learning. Divergence arises primarily from contextual differences between developed and developing educational systems, particularly regarding funding levels, staffing norms, and digital infrastructure. Methodologically, strengths include the use of inferential statistics and large datasets in international studies, while weaknesses are evident in Nigerian research that relies heavily on self-reported data and indirect measures of achievement.

Despite these contributions, a clear empirical gap remains. Existing studies rarely isolate support staff availability as an independent variable linked directly to measured academic achievement, and Nigerian-based evidence remains sparse and contextually uneven. No known study has examined this relationship within public secondary schools in Obio/Akpor Local Government Area of Rivers State. This gap underscores the need for a focused, context-specific investigation that quantitatively examines how variations in school library support staff availability influence students' academic achievement, thereby providing evidence to guide staffing policies and library development practices in Rivers State.

Purpose of the Study

The purpose of this study is to examine the influence of school library staffing levels on students' academic achievement in public secondary schools in Obio/Akpor Local Government Area of Rivers State. Specifically, the study seeks to:

1. determine the influence of the availability of professional school librarians on students' academic achievement in public secondary schools in Obio/Akpor Local Government Area;
2. examine the influence of para-professional library staff on students' academic achievement in public secondary schools in Obio/Akpor Local Government Area;
3. assess the influence of support staff availability in school libraries on students' academic achievement in public secondary schools in Obio/Akpor Local Government Area;

Research Questions

The following research questions are formulated to guide the study:

1. How does availability of professional school librarians influence students' academic achievement in public secondary schools in Obio/Akpor Local Government Area?
2. To what extent do the presence of para-professional library staff influence students' academic achievement in public secondary schools in Obio/Akpor Local Government Area?
3. How does the availability of library support staff influence students' academic achievement in public secondary schools in Obio/Akpor Local Government Area?

Methodology

The study adopted a descriptive research design. The study adopted a descriptive design. This design was considered appropriate because the study sought to examine the influence of school library staffing levels on students' academic achievement. The population of the study comprised all registered public senior secondary schools in Obio/Akpor Local Government Area. The target population is 1384, which comprise 316 Library Staff (professional school librarians, para-professional library staff and library support staff) of registered senior secondary schools in Obio/Akpor LGA and 1,068 students in registered public senior secondary schools in Obio/Akpor Local Government Area of Rivers State. These groups were considered relevant because library staff provide information on staffing levels and library operations, while students' academic records provide objective measures of academic achievement. The sample size of 692 respondents which represent 50% of the population was used for this study. This consists of 170 Library Staff and 522 students in registered public secondary schools in Obio/Akpor Local Government Area of Rivers State.

A multi-stage sampling technique was employed for the study. First, a simple random sampling technique was used to select 20 registered senior secondary schools from Obio/Akpor LGA. Second, purposive sampling was used to select 170 library staff (professional librarians, para-professionals, and support staff) in the 20 sampled schools due to their relatively small numbers. Third, proportionate stratified random sampling was used to select 59% of students from each of the sampled registered senior secondary school to ensure fair representation across schools. The sample size was determined using percentage to ensure adequacy for statistical analysis and generalisability of findings.

The instruments used for data collection was a structured questionnaire titled "Influence of School Library Staffing Levels on Students' Academic Achievement in Registered Public Senior Secondary schools Questionnaire" (ISLSLSAARPSSSQ). The instrument underwent face and content validity test which was conducted by two experts in Library and information Science Department, as well as one expert in Measurement and Evaluation in the Faculty of Education at Rivers State University, Port Harcourt. Cronbach's Alpha statistics was used to establish the reliability coefficients of the instrument. First, copies of each instrument were administered to 10 Library staff and 20 students of registered senior secondary school in Port Harcourt City LGA, which were not part of the study sample. Split-half method was employed by the researcher to divide responses into two groups (Group A and Group B). All even numbers were grouped under Group A, while all odd numbers were grouped under Group B. The responses were analysed using Cronbach's Alpha statistics. A reliability coefficient of 0.78 was obtained showing the instrument is reliable. The researcher, with the assistance of four trained research assistants, distributed 692 copies of the instrument to the respondents. Before administering the instrument, the researcher provided clear instructions on how to respond to it. Copies of the questionnaire were retrieved from the respondents by the researcher and the research assistants after the completion of the research instrument. Out of the 692 copies of the instrument administered, 638 (160 for library staff and 478 for students) copies were successfully retrieved and valid. This represented 93% of the total copies administered that were used for data analysis. 54 copies of the instrument were destroyed by rain. The data collected from the research questions were analysed using mean statistics and Standard Deviation. A range of 2.50 was used to determine if a mean score indicates "High Extent" or "Low Extent". Any item in the research instrument with a mean score less than 2.50 indicates "Low Extent" while a mean scores of 2.50 and above indicate "High Extent".

Results

Research Question 1: What influence does the availability of professional school librarians have on students' academic achievement in public secondary schools in Obio/Akpor Local Government Area?

Table 1: Mean Response of Influence of the Availability of Professional School Librarians On Students' Academic Achievement in Registered Public Senior Secondary Schools in Obio/Akpor Local Government Area of Rivers State.

S/N	Items	Library Staff n=160			Students n=478		
		Mean	**SD**	**RKS**	**Mean**	**SD**	**RKS**
1	My school has at least one professionally trained school librarian.	3.31	0.92	**Agreed**	3.10	0.96	**Agreed**
2	The school librarian possesses formal qualifications in Library and Information Science.	1.90	0.99	**Disagreed**	1.91	0.97	**Disagreed**
3	The school librarian collaborates with teachers to support teaching and learning.	1.80	1.07	**Disagreed**	1.81	0.83	**Disagreed**
4	The school librarian provides guidance to students on academic research and assignments.	3.13	1.00	**Agreed**	3.10	0.93	**Agreed**
5	The presence of a professional school librarian contributes to improved student academic performance.	2.85	0.76	**Agreed**	2.98	0.99	**Agreed**
6	School library services support students' academic performance.	2.91	0.97	**Agreed**	2.96	1.07	**Agreed**
	Grand Mean	**2.65**		**Agreed**	**2.64**		**Agreed**

Source: Field Data, 2025

Table 1 presents the mean responses of library staff and students on the influence of the availability of professional school librarians on students' academic achievement in registered public senior secondary schools in Obio/Akpor Local Government Area.

The results indicate that both library staff (grand mean = 2.65) and students (grand mean = 2.64) agreed, overall, that the availability of professional school librarians influences students' academic achievement. This suggests a general recognition among respondents that professionally trained librarians play an important role in supporting students' learning outcomes.

Item 1 shows strong agreement from both library staff (mean = 3.31) and students (mean = 3.10) that their schools have at least one professionally trained school librarian. This implies that the presence of librarians is fairly common in the sampled schools. However, Item 2 reveals disagreement from both groups regarding whether the school librarian possesses formal qualifications in Library and Information Science (library staff mean = 1.90; students mean = 1.91). This finding suggests that although librarians are present in many schools, a significant number may lack appropriate professional qualifications.

Similarly, both library staff and students disagreed that school librarians collaborate with teachers to support teaching and learning (Item 3), with mean scores of 1.80 and 1.81 respectively. This indicates limited instructional collaboration between librarians and teachers, which may reduce the potential impact of the library on classroom teaching and learning.

Despite these challenges, respondents agreed that school librarians provide guidance to students on academic research and assignments (Item 4). The mean scores of 3.13 for library staff and 3.10 for students indicate that librarians actively support students in information seeking and assignment completion. In addition, both groups agreed that the presence of a professional school librarian contributes to improved student academic performance (Item 5) and that school library services support students' academic achievement (Item 6). These findings suggest that even where collaboration and formal qualifications may be limited, librarians still make meaningful contributions to students' learning.

In summary, the findings show that the availability of professional school librarians has a positive influence on students' academic achievement in public secondary schools in Obio/Akpor Local Government Area. However, the influence is constrained by gaps in professional qualifications and limited collaboration with teachers. Strengthening librarians' professional training and encouraging closer integration of librarians into instructional activities may further enhance their impact on students' academic achievement.

Research Question 2: To what extent do the presence of para-professional library staff influence students' academic achievement in public secondary schools in Obio/Akpor Local Government Area?

Table 2: Mean Response of Influence of Para-Professional Library Staff on Students' Academic Achievement in Registered Public Senior Secondary Schools In Obio/Akpor Local Government Area.

S/N	Items	Library Staff n=160			Students n=478		
		Mean	SD	RKS	Mean	SD	RKS
7	My school library has para-professional staff such as library assistants or aides.	2.21	0.89	**Disagreed**	2.04	0.92	**Disagreed**
8	Para-professional library staff assist in organising and maintaining library resources.	2.74	0.99	**Agreed**	2.72	0.96	**Agreed**
9	Para-professional staff support students in locating learning materials.	2.53	0.91	**Agreed**	2.50	0.88	**Agreed**
10	The presence of para-professional staff enhances the efficiency of library services.	2.76	0.98	**Agreed**	2.89	0.99	**Agreed**
11	Adequate para-professional staffing positively influences students' academic achievement.	2.85	0.90	**Agreed**	2.98	0.81	**Agreed**
12	Students who frequently use the library perform better academically.	2.06	0.98	**Disagreed**	2.20	0.98	**Disagreed**
13	Library staffing levels influence students' ability to complete academic tasks effectively	3.14	0.97	**Agreed**	2.80	0.90	**Agreed**
	Grand Mean	**2.61**		**Agreed**	**2.59**		**Agreed**

Source: Field Data, 2025

Table 2 shows the item-by-item analyses of the mean scores and standard deviations of the respondents' on the influence of para-professional library staff on students' academic achievement in registered public senior secondary schools in Obio/Akpor Local Government Area of Rivers State. The results show that the mean scores and standard deviations of the library staff and students on items 8-11, and 13 are all above the decision mean of 2.50. This indicates that the respondents agreed that para-professional library staff has a positive influence on students' academic achievement.

Items 7 and 12, on the other hand, have mean scores below 2.50. This suggests that the respondents disagreed that para-professional library staff has a positive influence on students' academic achievement on these items.

The grand mean of 2.61 for the library staff and 2.59 for the students are both higher than the acceptable mean score of 2.50.

Table 3: Mean Response of Influence of Assess the Influence of Support Staff Availability in School Libraries on Students' Academic Achievement in Registered Public Senior Secondary Schools in Obio/Akpor Local Government Area.

Research Question 3: To what extent does the availability of library support staff influence students' academic achievement in public secondary schools in Obio/Akpor Local Government Area?

S/N	Items	Library Staff n=160			Students n=478		
		Mean	SD	RKS	Mean	SD	RKS
14	My school library has support staff such as clerks, attendants, or cleaners	3.11	1.01	**Agreed**	2.87	0.96	**Agreed**
15	Library support staff ensure that the library is open and accessible during school hours.	3.00	0.95	**Agreed**	3.03	1.20	**Agreed**
16	Support staff help maintain a conducive library environment for learning.	2.56	0.91	**Agreed**	2.51	0.88	**Agreed**

17	Adequate support staff reduce the workload of librarians and para-professionals	2.76	0.98	**Agreed**	2.89	0.99	**Agreed**
18	The availability of library support staff contributes indirectly to students' academic achievement.	2.85	0.90	**Agreed**	2.98	0.81	**Agreed**
19	Adequate library staffing improves students' reading and study habits.	3.10	0.92	**Agreed**	2.82	0.81	**Agreed**
20	Overall, school library staffing levels contribute to students' academic achievement	3.14	0.97	**Agreed**	2.80	0.90	**Agreed**
	Grand Mean	**2.93**		**Agreed**	**2.84**		**Agreed**

Table 3 presents the mean responses of library staff and students on the influence of support staff availability in school libraries on students' academic achievement in registered public senior secondary schools in Obio/Akpor Local Government Area.

The results show that both library staff (grand mean = 2.93) and students (grand mean = 2.84) agreed that the availability of library support staff influences students' academic achievement to a considerable extent. This indicates a shared perception across the two respondent groups that support staff play an important, though largely indirect, role in enhancing learning outcomes.

Specifically, respondents agreed that school libraries have support staff such as clerks, attendants, or cleaners (Item 14), with mean scores of 3.11 for library staff and 2.87 for students. This suggests that most schools have some level of support staffing. Both groups also agreed that support staff ensure the library is open and accessible during school hours (Item 15), highlighting their role in sustaining regular library operations, which is essential for consistent student use. Furthermore, Items 16 and 17 reveal agreement that support staff help maintain a conducive library environment and reduce the workload of librarians and para-professionals. Although the mean scores for maintaining a conducive environment (2.56 for staff and 2.51 for students) are relatively lower than others, they still fall within the agreed range, suggesting that while support staff contribute positively, their effectiveness may be limited by their number or level of training.

Both library staff and students also agreed that the availability of support staff contributes indirectly to students' academic achievement (Item 18) and improves students' reading and study habits (Item 19). This supports the view that support staff enhance academic achievement not through direct instructional roles, but by ensuring cleanliness, orderliness, accessibility, and efficient library functioning, which collectively create an environment conducive to learning.

Finally, the overall assessment (Item 20) shows agreement that school library staffing levels contribute to students' academic achievement, reinforcing the importance of adequate staffing structures that include support staff. In summary, the findings suggest that while support staff may not directly teach or guide students academically, their availability is essential for effective library service delivery, which in turn supports students' academic achievement in public secondary schools in Obio/Akpor Local Government Area.

Discussion of Findings

The results of the study show that the availability of professional school librarians has a positive influence on students' academic achievement in public secondary schools in Obio/Akpor Local Government Area. However, the influence is constrained by gaps in professional qualifications and limited collaboration with teachers. Strengthening librarians' professional training and encouraging closer integration of librarians into instructional activities may further enhance their impact on students' academic achievement. The finding of this study is in line with the findings of Chigbundu and Ezenagbo (2025) and Suleiman, that both the quality of librarians and the availability of library resources were

significantly associated with students' academic success, indicating that schools with more competent library personnel tended to report higher levels of student achievement.

According to the findings of this study, para-professional library staff has a positive influence on students' academic achievement in registered public senior secondary schools in Obio/Akpor Local Government Area. This is in line with findings of Suleiman et al., (2018), Chigbundu and Ezenagbo (2025) and Abu et al. (2022). Across these studies, a convergent theme emerges that the presence, training, and behaviour of all categories of library staff, including para-professionals, influence students' engagement with library services, which in turn relates to academic outcomes. Suleiman et al. (2018) noted that inadequate training of library personnel constrained the effectiveness of library services that were *perceived* to support academic achievement. Chigbundu and Ezenagbo (2025) provided empirical evidence that staff qualities, broadly defined, were associated with student success. Abu et al. (2022) showed that supportive staff behaviour influenced student library use. These studies collectively suggest that staffing beyond just professional librarians plays a role in shaping the utility of library services for learning.

The findings also reveals that while support staff may not directly teach or guide students academically, their availability is essential for effective library service delivery, which in turn supports students' academic achievement in public secondary schools in Obio/Akpor Local Government Area. This is in line with the findings of Fasola (2015) that availability of library assistants and clerical support staff significantly influenced the utilization of library resources, which in turn was associated with improved student academic performance. Schools with adequate support staff reported better organization of materials and longer library opening hours, facilitating greater student access. Findings of McGuire (2024) also aligns with this study as it showed that schools with adequate clerical and technical support staff enabled professional librarians to focus more on instructional collaboration, which was associated with higher student achievement.

Findings of Pasquini and Schultz-Jones (2019) is also in line findings of this study as it found that the presence of trained library aides and support staff positively influenced students' academic outcomes by improving library accessibility, resource circulation efficiency, and instructional support logistics.

Conclusion

Based on the findings of the study, it was concluded that school library staffing levels influence students' academic achievement, particularly regarding the availability of professional school librarians, para-professional library staff, and support staff in school libraries in Obio/Akpor Local Government Area of Rivers State.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Education authorities should strengthen the professional training of school librarians and promote their active collaboration with teachers to enhance their impact on students' academic achievement.
2. Para-professional library staff should be adequately trained and assigned clearly defined roles to improve library service delivery and students' engagement with learning resources.
3. School administrators should ensure the availability of sufficient library support staff to improve library organization, accessibility, and efficiency, thereby indirectly supporting students' academic achievement.

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INFLUENCE OF THE NIGERIAN LIBRARY ASSOCIATION ON NATIONAL INFORMATION POLICY DEVELOPMENT IN NIGERIA

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Abstract

This study evaluates the impact of the Nigerian Library Association (NLA) on the development of National Information and Communication Technology (ICT) policies, addressing a critical participation deficit in Nigeria's digital governance. Using a descriptive survey research design, data were collected from 150 registered information professionals across Nigeria's six geopolitical zones using the NLA and National Information Policy Development Questionnaire (NNIPDQ). The instrument was pilot tested with 15 participants and obtained a Cronbach Alpha Coefficient of 0.84. Quantitative data were analyzed using Mean and Standard Deviation with a 2.50 benchmark for agreement. Findings reveal a profound participation gap, with a cluster mean of 1.89, indicating the NLA's role in the policy lifecycle is peripheral and lacks legislative leverage through the Librarians' Registration Council of Nigeria (LRCN). Furthermore, a "priority mismatch" was identified (cluster mean: 1.94), as national frameworks heavily favor hardware procurement over Library and Information Science (LIS) technical standards like metadata and digital curation. Implementation is severely stymied by systemic bottlenecks (cluster mean: 3.34), primarily inadequate federal funding (x=3.40), infrastructure deficits (x=3.38), and obsolete professional perceptions among policymakers (x=3.23). The study concludes that the exclusion of LIS expertise prevents the attainment of a holistic National Information Policy (NIP), resulting in a widening policy-practice gap. It recommends the enactment of a standalone NIP, statutory NLA seats in drafting committees, and specialized funding for library automation to realign Nigeria's digital strategy with professional standards.

Keywords: Nigerian Library Association, National Information Policy, ICT Policy, LIS Priorities, Digital Transformation, Information Governance.

Introduction

In the contemporary global landscape, information is recognized as a strategic resource essential for national development and democratic stability. For Nigeria, the transition into an information-based society necessitates a cohesive National Information Policy (NIP) to guide the acquisition and dissemination of knowledge. National Information Policy (NIP) refers to the framework representing the strategic foundation required to govern a nation's information lifecycle. Unegbu (2022) defines NIP as a set of laws and regulations designed to oversee the acquisition, processing, and distribution of information to meet national developmental goals. In a broader sense, Abubakar (2021) describes it as a roadmap for achieving an information-literate society by harmonizing the activities of various information providers. Scholars emphasize that the NLA is not merely a social union but a technical body designed to provide the expertise required for managing a nation's knowledge economy. Saleh and Tsagem (2020) highlight its strategic function in professionalizing librarianship, while Idogbe and Philip (2022) view it as a critical engine for sustainable social and economic engineering in a developing economy. The Nigerian Library Association (NLA), as the apex professional body for information specialists, occupies a central position in advocating for these frameworks.

Saleh and Tsagem (2020) define the NLA as the umbrella body tasked with the professionalization of librarianship and the promotion of library services across Nigeria. Emezie and Nwaohiri (2021) describe the association as a pressure group essential for advocating the legislative rights of information practitioners. According to Amaechi, Osuigwe, & Uzuegbu (2018), the NLA is a regulatory catalyst aimed at maintaining international best practices in local information centers, while Abubakar (2021) characterizes it as a mandatory technical consultant that should bridge the gap between government intent and professional information delivery. Unegbu (2022) and Abubakar (2021) both agree that a functional NIP must go beyond technological containers (hardware) and address content (information organization and literacy). In Nigeria, this policy is currently fragmented. Instead of a standalone, holistic policy, information governance is scattered across various ICT and Education documents. This fragmentation is the root cause of the priority mismatch, as none of the frameworks designed without library and information science specific input tend to prioritize telecommunications infrastructure over the information services that actually make that infrastructure useful to the public.

Statement of the Problem

The interface between these distinct policy spaces is currently characterized by a significant problem, where the NLA's expertise is systematically undervalued in the national policy arena. Despite the definitions of policy provided by scholars, there is an inadequate involvement of the NLA in high-level ICT and information architecture formulation. This has resulted in a "zero inclusion" culture where LIS-specific priorities, such as digital curation, metadata standardization, and information ethics, are absent from wider national frameworks (Abubakar, 2021).

This systematic exclusion manifests in persistent priority mismatches, inadequate sectoral funding, and a critical lack of institutional consultation (Unegbu, 2022; Saleh & Tsagem, 2020). Should this culture continue, the nation will fail to achieve a holistic information ecosystem, resulting in expensive infrastructure that lacks the professional content management required to make it functional for the citizenry. As Idogbe and Philip (2022) contend, no nation can achieve true digital inclusion without the active participation of librarians who understand the human element of information access. In light of the problems discussed above, this study is structured to address specific inquiries regarding the current state of information governance in Nigeria. These inquiries are encapsulated in the following Research Questions:

1. What is the level of Nigerian Library Association (NLA) participation in the formulation of National Information Policies?
2. To what extent are LIS-specific priorities integrated into Nigeria's National ICT and Information Policy frameworks?
3. What are the challenges hindering the NLA from effectively driving the implementation of national information policies?

Conceptual Framework

To contextualize the advocacy space of the NLA, it is critical to untangle the distinct yet intersecting concepts within contemporary information governance. The frequent structural collapse of these paradigms by Nigerian policymakers creates the exact systemic vulnerabilities evaluated in this paper:

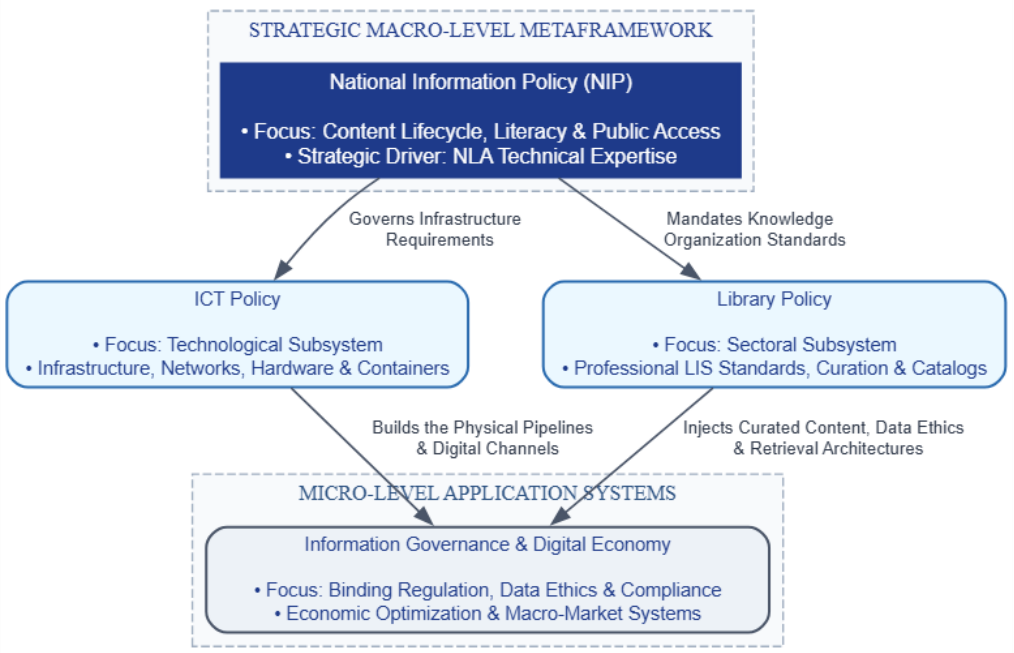


Fig. 1: Conceptual Framework

The conceptual framework illustrated in Fig 1. depicts an integrated, three-tiered information governance ecosystem where the National Information Policy (NIP) operates at the apex macro-level to dictate strategic content requirements and knowledge organization standards. This overarching framework guides the mid-level execution paradigms, which split into parallel subsystems: ICT Policy, managing the physical telecommunications infrastructure and technological containers, and Library Policy, managing professional LIS curation standards and retrieval systems. Ultimately, these parallel streams must converge at the micro-level application layer to drive a functional Digital Economy and Information Governance system, demonstrating that high-tech physical pipelines built by ICT policies remain structurally empty and ineffective unless populated and organized by the curated content, data ethics, and metadata architectures supplied through systematic library policies.

National Information Policy (NIP)

The discourse on National Information Policy (NIP) in Nigeria is defined by a fundamental tension between technological infrastructure and information content. Unegbu (2022) conceptualizes NIP as a comprehensive regulatory

framework governing the entire lifecycle of information to achieve strategic national objectives. This view is expanded by Abubakar (2021), who posits that a functional policy must prioritize information proficiency, user literacy, and knowledge curation over mere raw internet connectivity.

Scholars agree that Nigeria historically lacks a unified, standalone NIP, resulting in a fragmented landscape where information services and regulatory mandates are scattered across disconnected sectoral guidelines. This structural void creates a policy environment where state resources are duplicated and strategic knowledge-management goals remain uncoordinated. In contrast to the view that policy fragmentation is solely a systemic failure, some empirical studies suggest that sectoral micro-policies can sometimes be more agile than a monolithic NIP. For instance, Idogbe and Philip (2022) argue that in the absence of an overarching federal NIP, state-level library boards have occasionally succeeded in integrating LIS priorities into local educational frameworks. However, this localized approach is largely viewed as a temporary stop-gap measure. Saleh and Tsagem (2020) demonstrate empirically that without a centralized national mandate, these localized successes fail to scale, leaving the NLA to contend with highly asymmetric versions of professional implementation across the 36 states of the federation.

Role of Professional Associations in Policy Development

Professional associations serve as key drivers for institutionalizing standards and anchoring professional identities within national frameworks. The Nigerian Library Association (NLA) is historically recognized as the primary engine for professionalizing the domestic information sector and advocating for cohesive national information guidelines. Saleh and Tsagem (2020) document the association's long-term strategies, noting that its most significant statutory achievement was the establishment of the Librarians' Registration Council of Nigeria (LRCN).

While the LRCN successfully established a legal identity and regulatory mechanism for librarians, Emezie and Nwaohiri (2021) argue that the NLA still functions primarily as an external pressure group with limited executive power in national planning. Consequently, while the NLA possesses the explicit technical mandate to drive information policy, it remains structurally isolated from the high-level legislative decision-making bodies controlled by ministries of communication, education, and science.

The NLA and Information Governance: Analysis of Current Frameworks

The most significant evidence of NLA exclusion is uncovered when evaluating Nigeria's current ICT and education frameworks. Unegbu (2022) highlights a critical priority mismatch within the National ICT Policies of 2012 and 2020, demonstrating that these documents focus heavily on physical telecom infrastructure while omitting core library and information science priorities, such as metadata standards, digital preservation protocols, and systematic curation architectures.

Saleh and Tsagem (2020) further contend that this technological bias ignores the sophisticated content management expertise of librarians, treating them as passive operators of physical spaces rather than active information architects. This mismatch ensures that while hardware is deployed, the professional metadata systems required to organize, secure, and retrieve public data are missing. Empirical evidence from Abubakar (2021) supports this gap, showing that approximately 70% of digital repositories established under national ICT initiatives lack standardized cataloging protocols, which severely impedes retrieval for non-expert citizens. Conversely, some policy drafters argue that the global open access movement effectively addresses LIS concerns natively, without requiring NLA-specific legislation.

The financial implications of this lack of structural integration are severe, as LIS priorities are routinely omitted from national ICT and digital economy budgets. Emezie and Nwaohiri (2021) highlight that when libraries are not recognized as primary ICT stakeholders, they are denied the specialized funding required for institutional automation and digital subscription services. In the same vein, Saleh and Tsagem (2020) note that the NLA's efforts to lobby for a dedicated Library Development Fund have been repeatedly sidelined because ICT-centric ministries prioritize short-term, highly visible hardware procurement over sustainable digital content systems. This creates a lopsided development model where sophisticated technology exists without the professional strategies to make it useful to the public.

Challenges of ICT Policy Implementation

Often, when strategic policy recommendations are formally put forward by the NLA, their implementation remains stymied by deep-seated systemic bottlenecks. Emezie and Nwaohiri (2021) identify grossly inadequate federal funding and the absence of a uniform statutory library policy as the primary hurdles preventing the NLA from driving execution. These financial constraints are exacerbated by what Amaechi et al. (2018) describe as a severe policy-practice gap, where local practitioners lack basic modern tools and stable electricity to execute digital mandates. This operational fatigue ensures that many NLA-driven initiatives never move beyond the drafting phase.

While the funding gap is widely cited, Abubakar (2021) offers a contrasting empirical perspective, suggesting that misallocation is as significant an implementation barrier as absolute underfunding. His study reveals that funds targeted for institutional e-libraries are often diverted to general IT maintenance and administrative expenses, completely bypassing professional library staff. This is further compounded by a negative professional perception among policymakers. Unegbu (2022) notes that many institutional leaders view the library as a traditional book-based

repository rather than a strategic digital asset, while Idogbe and Philip (2022) demonstrate that this archaic perception results in the NLA being entirely excluded from high-level national security and data governance committees where their data management expertise is most critically needed.

Empirical Review and Literature Gap

The combination of existing literature confirms that the NLA's institutional impact is heavily marginalized by a cyclical loop of underfunding, negative professional stereotyping, and a persistent technological infrastructure bias. While previous studies have broadly identified these systemic challenges, there remains a critical lack of empirical data linking the omission of LIS priorities in the National Digital Economy Policy and Strategy (2020-2030) to the broader stagnation of national digital literacy goals.

Most literature remains descriptive to individual state chapters. This study fills the empirical gap by providing a multi-stage, cross-zonal analysis explicitly linking the NLA's exclusion from the agenda-setting stages of national policy formulation to the structural deficiencies found in current Nigerian digital frameworks. It serves as a timely empirical intervention for realigning national information strategies with international LIS standards.

Methodology

The study utilized a descriptive survey research design, which is uniquely suited for systematically investigating the current status of the Nigerian Library Association's (NLA) influence without manipulating ongoing variables. The target population for this study encompassed all registered, financially up-to-date information professionals across the 36 state chapters of the NLA. Based on the official national membership registry maintained by the Librarians' Registration Council of Nigeria (LRCN) and the NLA National Secretariat, the total accessible sampling frame comprised 240 registered information professionals actively engaged in policy frameworks or institutional management. To ensure strict eligibility, the inclusion criteria required participants to:

1. Hold a minimum of a bachelor's degree or equivalent in Library and Information Science (LIS) or a closely related information-management discipline.
2. Maintain active, certified registration status with the LRCN.
3. Possess at least three years of professional post-qualification experience within an academic, public, or specialized information repository.

To achieve a representative and credible dataset from the total population (N = 240), the sample size was statistically determined using the Krejcie and Morgan (1970) sampling formula:

$$s = \frac{\chi^2 NP(1-P)}{d^2(N-1) + \chi^2 P(1-P)}$$

Where:

- s = required sample size.
- X = the table value of Chi-Square for 1 degree of freedom at the desired confidence level (3.841 for a 95 confidence interval).
- N = the total target population size (240).
- P = the population proportion (assumed to be .50 to achieve maximum sample size).
- d = the degree of accuracy or margin of error expressed as a proportion (.05).

Applying these parameters to the target population yielded a mathematically justified sample size of approximately 148 respondents, which was rounded up to 150 respondents to cushion against potential non-response rates. A multi-stage sampling procedure was then employed to select these participants. First, purposive sampling was used to target national and state executive members who possess direct policy advocacy experience. Second, stratified random sampling was applied across Nigeria's six geopolitical zones to account for regional infrastructure disparities, as noted by Emezie and Nwaohiri (2021).

The primary research instrument was the NLA and National Information Policy Development Questionnaire (NNIPDQ), a structured questionnaire designed around a 4-point Likert Scale to quantify professional perceptions. Face and content validity were established through expert vetting by senior LIS academics, who evaluated the items for clarity, relevance, and alignment with the research questions.

To establish the reliability of the instrument, a pilot test was conducted using 15 information professionals from the NLA Niger State Chapter, who were part of the target population but excluded from the final sample. The field data obtained from the pilot study were subjected to an internal consistency analysis using SPSS (Version 26.0). The instrument yielded an overall Cronbach's Alpha (alpha) reliability coefficient of 0.84.

Data collection was executed through digital survey tools (Google Forms), leveraging the NLA's national professional networks and regional listservs to ensure wide geographic coverage. Once gathered, the quantitative data

were processed using SPSS (Version 26.0), where Mean (x) and Standard Deviation (SD) were utilized to answer the research questions. A benchmark mean of 2.50 served as the decision criterion to determine the level of agreement regarding NLA participation, priority integration, and implementation challenges

Result

This section presents the empirical findings derived from the field survey conducted to evaluate the impact of the Nigerian Library Association (NLA) on the development of National Information and Communication Technology (ICT) policies. The primary objective was to determine the extent of professional participation in policy formulation and the subsequent integration of Library and Information Science (LIS) priorities into Nigeria's digital frameworks.

Research Question 1: What is the level of Nigerian Library Association (NLA) participation in the formulation of National Information Policies?

Table 1: Mean and Standard Deviation of NLA Participation in National Policy Formulation

S/N	Item Statement	Mean ($\bar{x}$)	Std. Dev (σ)	Remark
1	Consistency in Agenda-Setting stage invitation	1.98	0.89	Disagree
2	Executive seats in technical drafting committees	1.92	0.83	Disagree
3	Viewed as a primary consultant by government	1.85	0.74	Disagree
4	Utilization of LRCN as legislative leverage	1.81	0.81	Disagree
Sectional Cluster Mean		**1.89**	**0.82**	**Low Participation**

The data in Table 1 indicates a notable participation deficit within the professional body, as perceived by the respondents. The cluster means of 1.89 suggests that the NLA's role in the policy lifecycle is widely viewed as peripheral. Item 4 recorded the lowest mean (x = 1.81), implying a critical professional sentiment: the establishment of the Librarians' Registration Council of Nigeria (LRCN) may not yet have translated into significant legislative influence at the federal level, according to the sampled professionals. Furthermore, the mean of 1.98 for agenda-setting implies that when the NLA is involved, it is likely during the late-stage review phases rather than the formative conceptualization of policy, which potentially bars LIS professionals from shaping the foundational direction of national ICT strategies.

Research Question 2: To what extent are LIS-specific priorities integrated into Nigeria's National ICT and Information Policy frameworks?

Table 2: Mean and Standard Deviation of Integration of LIS Priorities

S/N	Item Statement	Mean ($\bar{x}$)	Std. Dev (σ)	Remark
5	Explicit library roles in digital economy	2.07	0.94	Disagree
6	Integration of professional LIS standards	1.91	0.82	Disagree
7	Priority of library services over hardware labs	1.85	0.84	Disagree
8	Alignment of NLA and Ministry ICT goals	1.94	0.85	Disagree
	Sectional Cluster Mean	**1.94**	**0.86**	**Low Integration**

Table 2 highlights what respondents perceive as a significant content-infrastructure mismatch. With a cluster mean of 1.94, the findings suggest that current frameworks are widely viewed as prioritizing hardware procurement over professional information management. Specifically, Item 7 (x = 1.85) reflects a shared frustration that national education policies often tend to equate ICT with the physical installation of computer laboratories while apparently neglecting the digital library services and curation expertise required to make those tools effective. Furthermore, the mean of 1.91 for Item 6 indicates that technical LIS standards such as metadata protocols and digital preservation may be missing from national data repository projects, which respondents suggest could lead to silos of unorganized information.

Research Question 3: What are the challenges hindering the NLA from effectively driving the implementation of national information policies?

Table 3: Mean and Standard Deviation of Challenges to Policy Implementation

S/N	Item Statement	Mean ($\bar{x}$)	Std. Dev (σ)	Remark
9	Inadequate federal funding	3.40	0.77	Agree
10	Lack of standalone National Information Policy	3.33	0.81	Agree
11	Negative or obsolete perception of profession	3.23	0.78	Agree
12	Systemic infrastructure deficits (power/web)	3.38	0.75	Agree
	Sectional Cluster Mean	**3.34**	**0.78**	**High Impact**

Table 3 indicates that the implementation landscape is perceived as being characterized by severe systemic bottlenecks, as demonstrated by the high cluster mean of 3.34. Inadequate federal funding (x = 3.40) is reported as the most dominant obstacle, followed closely by infrastructure deficits (x = 3.38), such as erratic power and poor internet

connectivity, which respondents imply may render even well-designed digital policies difficult to execute at the state level. Importantly, Item 11 (x = 3.23) suggests that the professional perception gap is a lived reality for practitioners; respondents agree that policymakers' obsolete views of librarianship as a purely physical, book-based profession may actively hinder the NLA's ability to be recognized as a digital-age stakeholder.

Discussion of Findings

The empirical evidence from this study validates the scholarly concerns regarding the marginalization of the LIS profession in Nigeria's digital transformation. The low participation score x=1.89 aligns strictly with the views of Abubakar (2021), who argued that the exclusion of librarians from agenda-setting stages results in top-down policies that fail to address the human element of information proficiency. This exclusion creates a vacuum where professional standards are omitted, a finding that supports Unegbu (2022) and his assertion that the National ICT Policy updates exhibit zero inclusion of LIS-specific priorities like metadata and digital curation.

The study also provides a critical lens on the priority mismatch mentioned by Saleh and Tsagem (2020). The high disagreement on Item 7 x=1.85 proves that the federal focus remains heavily biased toward hardware, contradicting the professional need for content management strategies. This finding is in line with Udo Nwokocha (1997/2021), who warned that a library (digital or physical) without a supporting policy framework is merely a collection of resources without utility. Furthermore, while the data on implementation challenges x=3.34 reinforces the grossly inadequate funding cited by Emezie and Nwaohiri (2021), it adds a psychological dimension: the agreement on the negative perception of the profession (x=3.23) indicates that the NLA faces a battle of professional identity. This finding contradicts any assumption that the creation of the LRCN solved the profession's status issues; instead, it suggests that the NLA remains a pressure group with limited executive influence, as previously posited by Emezie and Nwaohiri (2021). Ultimately, the results demonstrate that without a unified National Information Policy to bridge these sectors, the policy-practice gap identified by Amaechi *et al*. (2018) will continue to widen.

Conclusion

This study evaluates the institutional role and perceived influence of the Nigerian Library Association (NLA) within the formulation and execution of Nigeria's national information and digital frameworks. The empirical evidence demonstrates a persistent structural gap, revealing a profound participation deficit where LIS professionals are largely excluded from the critical, formative agenda-setting stages of national policy design. This lack of executive consultation has directly resulted in an operational mismatch where national strategies favor raw physical infrastructure and equipment procurement over essential data management priorities like metadata standardization and digital curation protocols. Furthermore, the study establishes that the absence of a unified, standalone National Information Policy (NIP) acts as the primary driver of this fragmentation, leaving information governance scattered across sectoral documents and stymied by systemic bottlenecks chiefly inadequate federal funding, regional infrastructure deficits, and archaic professional stereotypes held by policymakers.

Recommendations

Based on the specific problems and empirical findings identified in the study, the following concise, numbered recommendations are proffered:

1. The Federal Government should establish a formal partnership between ICT ministries and the NLA to draft a unified, standalone NIP that resolves policy fragmentation by balancing physical infrastructure with clear guidelines for content management and information literacy.
2. The Ministry of Communications and Digital Economy should form strategic partnerships with the NLA, granting the association permanent, consultative status on technical drafting committees to include LIS professionals during foundational agenda-setting stages.
3. National digital frameworks must explicitly require the integration of standard metadata protocols, standardized cataloging, and digital preservation architectures into all state-sponsored data repositories to correct the infrastructure-content mismatch.
4. Institutional heads must create ring-fenced, protected budgets dedicated strictly to library automation and digital subscriptions to mitigate severe funding inadequacies and prevent the diversion of e-library resources.
5. The NLA should establish specialized training programs to build capacity among librarians in policy design, legislative drafting, and high-level lobbying to ensure more aggressive and effective professional representation.
6. The Librarians' Registration Council of Nigeria (LRCN) should mandate continuous professional development modules focused on emerging digital governance, data curation, and information ethics to keep professionals aligned with modern national data strategies and correct obsolete stereotypes.
7. Federal and state agencies must prioritize funding for alternative energy solutions, such as solar networks, and reliable internet connectivity within information hubs to overcome the localized infrastructure deficits stalling digital mandates.

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Influence of Well-Equipped Academic Libraries and Professional Librarians on Teaching, Learning, Research, and Development in Southwest Nigeria

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Abstract

This study examined the influence of well-equipped tertiary institution libraries and professional librarians on teaching, learning, and research for national development. Two institutions were randomly selected from each state in the South-West geopolitical zone of Nigeria, yielding twelve tertiary institutions in total. From these, twenty respondents were randomly selected per institution, giving a total of 240 research subjects. The research instrument, titled "Influence of Well-Equipped Library and Library Staff on Teaching, Learning and Research Questionnaire," was modelled after the Likert scale, validated, and its reliability confirmed through test-retest within a two-week interval. Data were analysed using the Pearson Product Moment Correlation technique. Findings indicated significant positive relationships between: (i) well-equipped academic libraries and teaching-learning processes; (ii) professional librarians and teaching-learning processes; (iii) well-equipped academic libraries and the conduct of research; and (iv) professional librarians and the conduct of research. The study recommends that all tiers of government should prioritise equipping tertiary institution libraries and developing professional librarian competencies to advance teaching, learning, research, and national development in Southwest Nigeria.

Keywords: Academic Libraries, Development, Professional Librarians, Research, Southwest Nigeria, Teaching and Learning

Introduction

The library occupies a central position in the academic life of any tertiary institution. It serves as a repository of knowledge, housing printed and digital materials that support the intellectual activities of students and academic staff. In contemporary times, libraries provide both physical and virtual access to resources, enabling users to engage with a broad spectrum of information regardless of location. Globally, well-equipped academic libraries are recognised as indispensable infrastructure for quality education, scholarly inquiry, and institutional development (Aina, 2024).

Academic libraries in Nigerian tertiary institutions are expected to support the three core mandates of higher education: teaching, learning, and research. However, the degree to which these libraries fulfil this mandate is largely contingent on the adequacy of their collections, the sophistication of their services, and the professional competence of their staff. The librarian, as an information professional, plays a pivotal role in ensuring that both faculty and students can access, retrieve, and utilise information resources efficiently and effectively (Robinson, 2024).

In Nigeria, the quality of tertiary education has attracted significant concern from stakeholders, policymakers, and the international academic community. One critical but often underemphasised factor is the state of university libraries and the professionalism of library personnel. Studies have consistently shown that institutions with well-resourced libraries and competent librarians record better academic outcomes than those without (Jimoh, 2016; Idowu, 2017). Yet, many Nigerian tertiary institutions, particularly in the Southwest zone continue to grapple with inadequate library funding, outdated collections, inadequate ICT infrastructure, and a shortage of qualified library staff (Mattson, 2020).

The Southwest zone of Nigeria, comprising Lagos, Ogun, Oyo, Osun, Ondo, and Ekiti States, is home to several prominent universities, polytechnics, and colleges of education. Despite the zone's reputation for relatively higher educational standards compared to other regions, systemic challenges in library provision persist. These challenges undermine the zone's capacity to produce world-class graduates and research outputs capable of driving national development (Ritchy, 2024).

It is against this backdrop that this study investigates the influence of well-equipped academic libraries and professional librarians on teaching, learning, research, and development in Southwest Nigeria. The study is timely, given current national efforts to overhaul the quality of tertiary education and the growing demand for institutions that can produce graduates who are globally competitive and research-oriented.

Objectives of the Study

The objectives of the study are to:

1. Identify the influence of well-equipped academic libraries on the teaching and learning processes.
2. Determine the influence of professional librarians on teaching and learning.
3. Identify the influence of well-equipped academic libraries on the conduct of research.
4. Determine the influence of professional librarians on the conduct of research.

Literature Review

Academic libraries serve as the intellectual backbone of tertiary education, providing the resources necessary for effective teaching and learning. A well-equipped library allows lecturers to access diverse instructional materials, integrate digital aids, and apply varied pedagogical approaches. Aina (2024) and Robinson (2024) assert that standard library facilities, manned by qualified staff, are prerequisites for educational efficiency. This aligns with the constructivist view that learning is optimized when students access rich, varied information sources (Akinpelu, 2021).

Teaching involves the conscious effort to impart knowledge, skills, and values, which requires teachers to have access to current, comprehensive resources (Akinpelu, 2021). Concurrently, learning defined as the modification of behavior through environmental stimulation is supported by the library's conducive environment (Cooley, 2024; Gross, 2022). Modern libraries further support diverse learning styles, including active, observational, and e-learning, as outlined by Schacter, Gilbert, and Wegner (2019).

Busari (2007) systematically established the library as an intellectual pillar for tertiary institutions in Kwara State. This was reinforced by Busari (2020a), who found that structured library orientation significantly improves students' ability to evaluate and utilize resources, thereby boosting academic performance. To remain relevant in the digital age, Busari, Ahmed, and Alhassan (2024) advocate for user-centric library collaborations, where collections are proactively presented via online platforms and media broadcasts to maximize user engagement.

Professional librarians act as essential intermediaries who facilitate information literacy and guide research. Mattson (2020) describes the librarian as a "secular minister to democracy," ensuring equitable access to information. Their expertise in cataloging, classification, and database management reduces the time users spend searching for content, allowing for deeper academic engagement (Kline, 2025).

Librarians also partner with faculty to design library-integrated curricula. Usman, Sambo, and Busari (2017) recommend making library education courses practically oriented to instill lasting research habits in students. Busari (2015) identified that library service quality significantly determines student engagement with technical learning materials, confirming the librarian's role as an active facilitator of curriculum delivery.

Additionally, Busari (2020b) emphasizes that strategic collection development management is a core competency that dictates the depth of resources available for various pedagogical needs. Finally, Busari and Idris (2025) note that as AI-driven systems become central to education, the urgent need for continuous professional development for librarians has become paramount to ensuring institutional readiness. Research, the lifeblood of tertiary institutions, depends on the library's ability to provide access to existing knowledge (Creswell, 2016; Merriam-Webster, 2026). Cooley (2024) highlights the library's utility in conducting rigorous literature reviews a fundamental step in the research process (Shields & Rangarajan, 2023).

Empirical evidence from Idowu (2017) and Jimoh (2016) shows that institutions with modern, well-resourced libraries and qualified staff produce research of significantly higher depth, originality, and rigor. Furthermore, Busari, Madu, Udensi, and Akor (2019) demonstrated that information accessibility is strongly correlated with knowledge acquisition. Their findings suggest that access to organized repositories is a precondition for meaningful research activity across all disciplines.

Librarians actively support researchers by assisting in literature identification, tool selection, and database navigation. Ritchy (2024) emphasizes that professional librarians contribute directly to scientific methodology by supporting the critical evaluation of information. In research-intensive environments, the librarian-to-researcher ratio is often a predictor of high publication output (Celano & Neumann, 2021).

However, professional effectiveness is contingent upon institutional support. Busari (2022) found that administrative inefficiencies and resource gaps in school libraries often hinder the delivery of quality research services. Similarly, Akanbi, Sambo, and Busari (2023) highlighted that a lack of policy and expertise in acquiring "grey literature", such as conference papers and government documents limits the scope of academic research. They recommend that library administrators prioritize training in specialized collection development to support the complex needs of modern scholars. Ultimately, the research capacity of Nigerian tertiary institutions is inextricably linked to ongoing investments in library infrastructure and the continuous professional training of librarians.

Research Methodology

The research adopted a descriptive survey design, given its aim to elicit respondents' views concerning the relationship between well-equipped libraries and librarians and the quality of teaching, learning, and research in tertiary institutions. The research population comprised all tertiary educational institutions in the six states of the South-West zone of Nigeria. Using random sampling, two institutions were selected from each state, yielding twelve institutions in total. From each institution, twenty respondents were randomly selected, giving a total sample of 240 participants. The research instrument, titled "Influence of Well-Equipped Library and Library Staff on Teaching, Learning and Research Questionnaire," was constructed on the Likert scale model and validated by experts. Its reliability was ascertained through a test-retest procedure conducted within a two-week interval. The researcher personally administered the instrument across all sample institutions, and retrieved copies were subjected to the Pearson Product Moment Correlation technique for data analysis.

Findings and Discussions

Table 1: Influence of well-equipped academic libraries on teaching and learning processes.

S/N	Items	Agree		Disagree	
		No	%	No	%
A.	**A well-equipped library enables the teacher/lecturer to:**				
1.	Find relevant teaching materials	180	75%	60	25%
2.	Use appropriate teaching methods	168	70%	72	30%
3.	Compare different lesson items	192	80%	48	20%
4.	Utilise relevant teaching aids	171	71%	69	29%
B.	**A well-equipped library enables the students to:**				
1.	Find relevant materials	212	88%	28	12%
2.	Do assignments well	218	91%	22	9%
3.	Prepare for the next class	198	83%	42	17%
4.	Retrieve additional facts	225	94%	15	6%

Findings from Table 1 reveal that the majority of respondents affirmed the positive influence of well-equipped academic libraries on teaching and learning. Specifically, 180 (75%) agreed that a well-equipped library enables lecturers to find relevant teaching materials, while 168 (70%) agreed it facilitates the use of appropriate teaching methods. Furthermore, 192 (80%) and 171 (71%) agreed that it assists lecturers in comparing lesson items and utilising relevant teaching aids, respectively. For students, 212 (88%) affirmed that a well-equipped library enables them to find relevant materials, 218 (91%) agreed it assists them in completing assignments, 198 (83%) agreed it aids preparation for subsequent classes, and 225 (94%) agreed it enables retrieval of additional facts.

Table 1a: Pearson r statistical analysis of the relationship between a well-equipped library and effective teaching-learning processes (Ho1).

Variables	N	Mean	Calc. r-value	Critical r-value	df	Level of Sig.	Decision
Well-equipped library (X) / Effective teaching and learning (Y)	240	12.62 / 13.55	0.723	0.136	239	0.05	Ho_1 Rejected

The result in Table 1a shows that the calculated r-value (0.723) is greater than the critical r-value (0.136) at 239 degrees of freedom and 0.05 level of significance; thus, Ho1 is rejected. This indicates a significant positive relationship between well-equipped academic libraries and effective teaching-learning processes, a finding consistent with the positions of Robinson (2024) and Aina (2024) that library resources are indispensable to productive teaching and learning.

Table 2: Influence of professional librarians on teaching-learning processes.

S/N	Items	Agree		Disagree	
	Well-trained library staff assist the teachers and students to:	No	%	No	%
1.	Find relevant lecture materials	200	83%	40	17%
2.	Conduct themselves appropriately in the library environment	210	88%	30	12%
3.	Organise the needed information	207	86%	33	14%
4.	Compare and contrast divergent facts	192	80%	48	20%

Table 2 indicates that 200 (83%) of respondents agreed that professional library staff assist lecturers and students in finding relevant lecture materials. Furthermore, 210 (88%) affirmed that librarians assist users in conducting themselves appropriately in the library environment; 207 (86%) agreed that they facilitate the organisation of needed

information; and 192 (80%) confirmed that librarians assist in comparing and contrasting divergent facts. These findings affirm the significant role of professional librarians in supporting the learning process.

Table 2a: Pearson r statistical analysis of the relationship between professional librarians and effective teaching-learning processes (Ho2).

Variables	N	Mean	Calc. r-value	Critical r-value	df	Level of Sig.	Decision
Professional library staff (X) / Effective teaching and learning (Y)	240	14.75 / 16.24	0.683	0.136	239	0.05	Ho_2 Rejected

The result in Table 2a reveals that the calculated r-value (0.683) exceeds the critical r-value (0.136) at 239 degrees of freedom and 0.05 level of significance, leading to the rejection of Ho2. This confirms a significant positive relationship between professional librarians and effective teaching-learning processes. The finding is consistent with Kline (2025) and Celano and Neumann (2021), who established that well-trained library personnel constitute a necessary condition for productive teaching and learning.

Table 3: Influence of well-equipped academic libraries on the conduct of research.

S/N	Items	Agree		Disagree	
	A well-equipped library enables teachers and students to:	No	%	No	%
1.	Locate research topics similar to their own	222	93%	18	7%
2.	Locate relevant literature for review	204	85%	36	15%
3.	Access relevant journals for research support	186	78%	54	22%
4.	Obtain appropriate means of data analysis	216	90%	24	10%
5.	Locate relevant and validated research instruments	219	91%	21	9%

Results in Table 3 show that the overwhelming majority of respondents confirmed the positive influence of well-equipped academic libraries on research. Specifically, 222 (93%) agreed that such libraries help researchers locate similar research topics; 204 (85%) confirmed access to relevant literature; 186 (78%) agreed that journals are readily accessible for research support; 216 (90%) affirmed access to data analysis tools; and 219 (91%) confirmed the availability of validated research instruments. These results align with the assertions of Cooley (2024) and Idowu (2017).

Table 3a: Pearson r statistical analysis of the relationship between well-equipped academic libraries and efficient conduct of research (Ho3).

Variables	N	Mean	Calc. r-value	Critical r-value	df	Level of Sig.	Decision
Well-equipped library (X) / Efficient conduct of research (Y)	240	13.88 / 15.14	0.633	0.136	239	0.05	Ho_3 Rejected

Table 3a shows that the calculated r-value (0.633) exceeds the critical r-value (0.136) at 239 degrees of freedom and 0.05 level of significance; thus, Ho3 is rejected. This confirms a significant positive relationship between well-equipped academic libraries and the efficient conduct of research. The result corroborates Jimoh (2016) and Idowu (2017), who found that library resources are part of the necessary conditions for productive academic research.

Table 4: Influence of professional librarians on the conduct of research.

S/N	Items	Agree		Disagree	
	Well-trained library staff assist the teachers and students to:	No	%	No	%
1.	Identify locations of similar research topics	225	94%	15	6%
2.	Locate past researches of similar sample and population	198	83%	42	17%
3.	Locate appropriate and validated questionnaire items	201	84%	39	16%
4.	Obtain relevant statistical tools	222	93%	18	7%

Table 4 reveals that 225 (94%) of respondents agreed that professional library staff assist researchers in identifying locations of similar research topics; 198 (83%) confirmed they assist with locating past researches of similar sample and population; 201 (84%) agreed they assist in locating validated questionnaire items; and 222 (93%) affirmed that librarians assist in obtaining relevant statistical tools.

Table 4a: Pearson r statistical analysis of the relationship between professional librarians and efficient conduct of research (Ho4).

Variables	N	Mean	Calc. r-value	Critical r-value	df	Level of Sig.	Decision
Professional library staff (X) / Efficient conduct of research (Y)	240	14.37 / 12.81	0.718	0.136	239	0.05	Ho_4 Rejected

Table 4a shows that the calculated r-value (0.718) is greater than the critical r-value (0.136) at 239 degrees of freedom and 0.05 level of significance; hence, Ho4 is rejected. This confirms a significant relationship between professional librarians and the efficient conduct of research, in agreement with Ritchy (2024) and Celano and Neumann (2021), who established that well-equipped library personnel are indispensable for academic research.

Discussion

The finding from research question one (Table 1) demonstrates that well-equipped academic libraries positively influence teaching and learning processes. Lecturers are better able to find relevant teaching materials, deploy appropriate methods, compare lesson content, and utilise teaching aids when library resources are adequate. Students, similarly, benefit in terms of material access, assignment quality, class preparation, and information retrieval. This supports Robinson (2024), who maintained that no productive teaching or learning is possible without a standard, well-manned library. It also aligns with the constructivist framework advanced by Akinpelu (2021), which holds that effective learning is contingent on access to diverse and current information.

The finding from research question two (Table 2) confirms that professional librarians are significant contributors to effective teaching and learning. Well-trained library staff assist both lecturers and students in locating relevant materials, maintaining appropriate library conduct, organising information, and evaluating divergent facts. This is consistent with Aina (2024), who noted that a well-staffed library is as critical as a well-stocked one, and with Kline (2025), whose work affirmed that professional library personnel are essential enablers of productive academic activity.

The finding from research question three (Table 3) establishes that well-equipped academic libraries are significantly associated with the efficient conduct of research. Respondents confirmed access to research topics, literature, journals, data analysis tools, and validated instruments through library resources. This corroborates Cooley (2024), who stressed the library's indispensability for literature review, and Idowu (2017), who found a positive association between library resource availability and research quality in tertiary institutions in Oyo State. Contrary findings were noted among the 22% who disagreed on journal accessibility, suggesting that journal holdings remain an area requiring improvement.

The finding from research question four (Table 4) shows that professional librarians are critical to research support. Researchers rely on librarians for identifying similar studies, locating population-matched prior research, retrieving validated instruments, and obtaining statistical tools. This is in agreement with Jimoh (2016), who argued that every tertiary institution must possess functional libraries with adequately qualified staff, and with Ritchy (2024), who underscored the librarian's scientific and methodological contributions to research. The 16-17% disagreement rates across some items suggest scope for capacity building among library staff in specific research support competencies.

Conclusion

This study has investigated the influence of well-equipped academic libraries and professional librarians on teaching, learning, research, and development in Southwest Nigeria. The findings consistently demonstrate significant positive relationships across all four research questions. A well-equipped academic library exerts a positive influence on teaching and learning, while professional librarians further enhance this process through skilled information mediation. Similarly, well-equipped libraries and professional librarians both make significant contributions to the efficient conduct of academic research.

Virtually all members of an academic community—both staff and students—derive maximum benefit from a well-equipped academic library, as it not only enriches their knowledge and skills but also substantially supports their research endeavours. Given the aspirations of Southwest Nigeria as an educational and developmental hub, sustained investment in library infrastructure and librarian professional development is both a strategic necessity and a moral imperative.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Federal, state, and local governments, as well as institutional management, should prioritise the acquisition of current, adequate, and diverse library resources—including books, journals, encyclopaedias, e-databases, and

digital infrastructure—to enhance the teaching and learning processes in tertiary institutions across Southwest Nigeria.

2. Tertiary institutions should continuously invest in the professional development of library staff through regular training workshops, seminars, and conferences, so as to ensure that librarians remain competent, current, and capable of providing high-quality instructional and reference support to both faculty and students.
3. Institutional authorities should allocate dedicated and adequate budgets to library journal subscriptions, database access, and research support tools to strengthen the research capacity of students and academic staff, particularly in the areas of literature review, data analysis, and instrument retrieval.
4. Library management and institutional leadership should implement structured collaboration programmes between librarians and academic departments, including library-integrated research support services, to deepen the engagement of professional librarians in the research process and improve the overall quality of academic research output in Southwest Nigeria.

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INFORMATION USE BY SMALL AND MEDIUM ENTREPRISES (SMEs) IN THE KATSINA SENATORIAL ZONE OF KATSINA STATE, NIGERIA

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ABSTRACT

This study examined information use by Small and Medium Enterprises (SMEs) in the Katsina Senatorial Zone of Katsina State, Nigeria. The study aimed to identify the types of information used by SMEs, determine their sources of information, assess the purposes of information use, and examine the challenges encountered in accessing and utilizing information. A descriptive survey research design was adopted, with a population of 7,372 registered SMEs. A sample size of 367 was determined using an authorized table, while 362 valid questionnaires were retrieved and analyzed. Data were collected using a structured questionnaire and analyzed using descriptive statistics. The findings revealed that SMEs highly utilize market, financial, competitor, and operational information, while legal and regulatory information received relatively lower attention. Internet sources, social media, and interpersonal networks were the most frequently used sources, whereas libraries and information centers were the least utilized. The study further showed that SMEs use information extensively for decision-making, planning, financial management, marketing, and operational efficiency. However, major challenges identified include poor internet connectivity, high cost of accessing information, lack of awareness of information sources, limited information literacy, and difficulty identifying reliable information. The study concluded that although SMEs actively use information for business growth and performance, their effectiveness is constrained by infrastructural and capacity-related challenges. It recommended increased awareness and use of legal and regulatory information, improved accessibility of library and information services, capacity building in information literacy and digital skills, and enhanced investment in information infrastructure and affordability to support effective information use among SMEs.

Keywords: Information use, Small and Medium Enterprises (SMEs), Decision-making, Information sources, Katsina Senatorial Zone

INTRODUCTION

Small and Medium Enterprises (SMEs) are widely recognized as key drivers of economic growth, employment creation, and poverty reduction, particularly in developing countries such as Nigeria. They contribute significantly to industrial development and local productivity, yet their effectiveness largely depends on how well they access and utilize relevant information for decision-making and business operations. Information use enhances organizational efficiency and performance among SMEs by supporting planning, marketing, and operational decisions (Adebayo & Odunlade, 2019). Information use is the ability of business operators to identify, access, interpret, and apply relevant data from various sources to improve productivity and competitiveness. In Nigeria, SMEs rely on both formal and informal information sources such as customers, suppliers, media platforms, and government agencies. However, the extent and pattern of information use vary depending on accessibility, awareness, and technological capacity (Ojo, Akinsunmi & Olayonu, 2015). Despite its importance, many SMEs still face challenges such as inadequate access to reliable information, poor information literacy, and limited ICT infrastructure.

In Katsina State, SMEs operate within a challenging business environment characterized by financial constraints, limited digital adoption, and infrastructural deficiencies. Nevertheless, they remain vital to the state's economic development, contributing to employment and income generation (Suleiman, 2025). Moreover, Yunusa and Shehu (2025) also indicated that factors such as business environment and digital innovation significantly influence SME performance, further highlighting the importance of effective information use in sustaining business growth. Given the increasing importance of information in modern business operations, it is essential to understand how SMEs in Katsina Senatorial Zone use information, the sources they depend on, the purposes it serves, and the challenges they encounter. Therefore, this study examines the pattern and extent of information use by SMEs in Katsina Senatorial Zone of Katsina State, Nigeria, to provide empirical evidence that can guide policy and improve business performance in the region.

However, in Katsina Senatorial Zone, SME's key sectors include Agriculture & Agro-processing, millet selling, sorghum, maize, groundnuts and onions businesses.

There are lots of SMEs in milling, oil extraction, livestock feed. Katsina Senatorial zone also witnessed training in Leather & Tanning. Katsina city leather work is historic. Shoes, bags, belts are available in many small workshops. In the Trade & Commerce, Katsina borders with Niger Republic which makes Katsina a trade hub. SMEs in import/export, wholesale, retail.

In the Solid Minerals some people hold Gypsum, kaolin, limestone SMEs.

ICT & Services as SMEs encourages Phone repair, POS/agent banking, Cybercaféés, tailoring, carpentry in Katsina Senatorial Zone.

SPECIFIC OBJECTIVES

The primary objective of the study is to examine the pattern and extent of information use by Small and Medium Enterprises (SMEs) in the Katsina Senatorial Zone of Katsina State, Nigeria, while the specific objectives are to:

4. identify the types of information used by SMEs in the Katsina Senatorial Zone.
5. determine the sources of information utilized by SMEs in the study area.
6. assess the purposes for which SMEs use information in their business operations.
7. identify the challenges faced by SMEs in accessing and using information.

LITERATURE REVIEW

INFORMATION USE

The concept of information use refers to the process by which individuals apply acquired information to accomplish tasks, solve problems, and support decision-making in specific contexts. It represents the final stage of information behaviour after information need identification and information seeking. Information use involves interpreting, evaluating, and integrating information into existing knowledge to produce meaningful outcomes. Researchers emphasize that information use is context-dependent and influenced by users' goals, tasks, and environments, which determine how information is selected and applied. This perspective highlights that information becomes valuable only when it is effectively utilized to meet personal, academic, or organizational objectives (Dervin, 2023; Maceviciute, 2025). Similarly, this suggests that, within small and medium enterprises (SMEs), the effectiveness of any information system or resource lies not merely in access, but in how effectively business owners and managers utilize the information to enhance decision-making, drive innovation, and improve overall organizational performance.

Information use is also considered a central component of information behaviour studies, which examine how users, particularly small and medium enterprises (SMEs), interact with information sources and transform retrieved content into actionable knowledge for business operations. It includes activities such as comparing sources, synthesizing ideas, and applying information to decision-making, innovation, and daily enterprise activities. Awareness of SMEs' information needs and patterns of information use is essential for the planning, implementation, and effective operation of library and information systems that support business development. Consequently, effective information use enhances productivity, knowledge creation, and problem-solving capabilities among SMEs, making it a fundamental concept in library and information science and knowledge management environments (Huvila, Enwald, Hirvonen, & Eriksson-Backa, 2019; Kumari & Sharma, 2021). Effective information use strengthens SMEs' decision-making, innovation, and productivity through meaningful application of retrieved knowledge in business operations.

SMALL AND MEDIUM ENTERPRISES

Small and Medium Enterprises (SMEs) refer to businesses that operate on a relatively small scale in terms of employees, capital investment, and turnover. Although there is no universal definition, SMEs are commonly classified using criteria such as staff headcount, annual turnover, and asset value, which vary across countries and institutions. For instance, the European Commission categorizes SMEs as enterprises with fewer than 250 employees and defined turnover thresholds, emphasizing their operational size and economic capacity. These enterprises are typically independently owned, flexible, and capable of adapting quickly to changing market conditions compared to large firms (OECD, 2023; European Commission, 2020). This indicates that SMEs constitute a vital segment of the economy due to their scale, adaptability, and contribution to employment and economic development.

Since SMEs are widely recognized as critical drivers of economic growth, employment generation, and innovation, particularly in developing economies. They contribute significantly to income generation, poverty reduction, and industrial development by promoting entrepreneurship and supporting local production. In Nigeria, SMEs play a vital role in expanding economic activities, creating job opportunities, and enhancing economic diversification despite facing challenges such as limited financing and infrastructure constraints. Their importance lies in their ability to stimulate grassroots development and strengthen the private sector, making them essential for sustainable national development (Oluremi & Maku, 2024; Ibitomi, Dada, Ayedogbon, Micah, & Aderotimi, 2024). This shows that the growth and effectiveness of SMEs largely depend on how well they access, interpret, and utilize relevant information to overcome operational challenges and enhance business performance.

EMPIRICAL REVIEW

Burodo, Iliyasu, and Sanusi (2024) examined the effect of business environment on SME performance in Katsina State. The study found that access to finance had the strongest positive and significant effect on performance, followed by human resources and technological factors, while government policies had a positive but relatively weaker influence, indicating that financial access, skilled manpower, and technology are key drivers of SME growth and competitiveness. However, although the study effectively identifies major environmental determinants of performance, it is limited in scope as it focuses mainly on external factors and outcomes without addressing information use and decision-making processes within SMEs. It also adopts a broad state-wide coverage and does not explore how SMEs access and apply information or the challenges they face in doing so, despite using a similar population base. In contrast, this study

narrows the context to the Katsina Senatorial Zone and shifts attention to information behaviour by examining types, sources, purposes, and challenges of information use, thereby filling the gap in understanding the processes behind performance differences and adding a practical dimension relevant to policy and information service delivery.

The study by Ojo, Akinsunmi and Olayonu (2015), on Influence of Business Information Use on Sales Performance of SMEs in Lagos State. The study examined the influence of business information use on sales performance, emphasizing the relationship between information utilization and business outcomes. The findings revealed that SMEs relied mostly on newspapers and informal sources for business information, and that business information utilization significantly influenced sales performance, indicating that increased use of business information improves SMEs' sales outcomes and overall performance. In contrast, the current study in Katsina Senatorial Zone is broader in scope as it investigates types, sources, purposes, and challenges of information use without linking it to performance indicators. This reveals a conceptual gap as the Lagos study measured effectiveness through sales performance, while the present study emphasizes descriptive patterns of information behaviour. Geographically, there is a contextual gap as Lagos is a highly commercial and ICT-driven environment that may not reflect the realities of SMEs in Northern Nigeria with weaker digital infrastructure. Methodologically, the earlier study incorporated regression analysis, whereas the current study is purely descriptive. Additionally, the 2015 study is outdated in the context of rapid digital transformation, leaving a temporal gap in understanding contemporary information use practices among SMEs in Katsina Senatorial Zone.

Burodo, Magaji, and Dakingari (2024) investigated the effect of inflation on SME performance in Katsina State, focusing on uncertainty about future prices and exchange rate fluctuations. The findings showed that both price uncertainty and exchange rate fluctuations significantly and negatively affect SME performance, indicating that inflationary pressures reduce productivity and growth, thereby necessitating policy measures for price and exchange rate stability (Burodo, Magaji, and Dakingari 2024). However, the study is limited by its macroeconomic focus, as it emphasizes external inflation variables without examining internal information behaviour or how SMEs access and use information in responding to these challenges. It also overlooks key aspects such as information types, sources, purposes, and access constraints, which are important for understanding decision-making and adaptation strategies. Although it establishes statistical relationships using a similar population base, it remains outcome-oriented and does not explain how information use influences coping mechanisms, planning, pricing, and risk management, thereby creating a gap that necessitates studies on SME information use for deeper, micro-level understanding of performance under inflationary conditions.

THEORETICAL REVIEW

Wilson's Information Behaviour Model

Wilson's Information Behaviour Model, originally proposed by Wilson (1981) and later refined in 1999, explains how individuals and groups recognize information needs, seek information, and use it to address problems or support decision-making processes. The model posits that information behaviour is not linear but is shaped by a range of intervening variables, including psychological, demographic, role-related, environmental, and source-related factors. It further explains that information-seeking behaviour is triggered by a perceived need arising from uncertainty or a knowledge gap. Once this need is identified, individuals engage in information seeking through formal sources such as libraries, databases, government agencies, and business reports, as well as informal sources such as interpersonal communication and experiential knowledge. Wilson (1999) also emphasizes that access alone does not guarantee use, as factors such as relevance, credibility, cost, and ease of access significantly influence whether information is ultimately applied.

In relation to information use by Small and Medium Enterprises (SMEs) in Katsina Senatorial Zone of Katsina State, Nigeria, the model is highly relevant in explaining how entrepreneurs identify and respond to business-related information needs. SME operators often experience information gaps in areas such as financing, marketing strategies, production processes, taxation, and regulatory compliance, which trigger their search for relevant information. However, their ability to access and use such information is influenced by intervening factors such as limited digital literacy, inadequate infrastructure, cost constraints, and time pressures. The model also helps to interpret how SMEs combine formal sources like business development agencies and online platforms with informal networks such as peer entrepreneurs and trade associations. In this context, Wilson's model provides a useful framework for understanding how information is acquired, evaluated, and applied by SMEs to enhance business performance and decision-making in the study area (Wilson, 1999).

METHODOLOGY

The study adopted a descriptive survey research design to examine information use by Small and Medium Enterprises (SMEs) in Katsina Senatorial Zone of Katsina State, Nigeria. The population comprised 7,372 registered SMEs as reported by Burodo, Iliyasu, and Sanusi (2024) based on the Bureau on Public Procurement (2023) records. A sample size of 367 SMEs was determined using the Krejcie and Morgan (1970) table for a finite population, ensuring

representativeness and statistical adequacy. The stratified random sampling technique was employed to ensure proportional representation of SMEs across Katsina Senatorial Zone in Katsina State. Data were collected using a structured questionnaire designed on a four-point Likert scale to capture information use patterns, sources, accessibility, and relevance to business operations. The instrument was validated by experts in library and information science, while its reliability was established through a pilot test, yielding a Cronbach's alpha coefficient of 0.82, indicating good internal consistency. Data collected were analyzed using descriptive statistics such as frequency counts, percentages, and mean scores to answer the research questions. Decision rule was based on a benchmark mean of 2.50 (Krejcie & Morgan, 1970).

RESULTS AND DISCUSSION

The study administered 367 copies of the questionnaire to respondents, out of which 362 were successfully retrieved and found valid for analysis, representing 98.6% response rate. This high return rate indicates strong participation and ensures that the data collected is adequate and reliable for the study.

Research Question 1: What types of information are used by SMEs in the Katsina Senatorial Zone?

Scale: 4 = Highly Used (HU), 3 = Moderately Used (MU), 2 = Rarely Used (RU), 1 = Not Used (NU)

Table 1: Types of Information Used by SMEs (n = 362)

S/N	Items	HU	MU	RU	NU	Mean	Decision
1	Market information (customer needs and preferences)	210 (58.0%)	100 (27.6%)	35 (9.7%)	17 (4.7%)	3.39	Highly Used
2	Financial information (pricing, costs, and profit analysis)	198 (54.7%)	110 (30.4%)	36 (9.9%)	18 (5.0%)	3.35	Highly Used
3	Competitor information	180 (49.7%)	120 (33.1%)	40 (11.0%)	22 (6.1%)	3.26	Highly Used
4	Government policy and regulatory information	140 (38.7%)	130 (35.9%)	60 (16.6%)	32 (8.8%)	3.04	Moderately Used
5	Technological information relevant to business operations	165 (45.6%)	125 (34.5%)	45 (12.4%)	27 (7.5%)	3.18	Highly Used
6	Supplier and distribution information	175 (48.3%)	120 (33.1%)	42 (11.6%)	25 (6.9%)	3.23	Highly Used
7	Legal information related to business operations	130 (35.9%)	140 (38.7%)	60 (16.6%)	32 (8.8%)	3.02	Moderately Used
8	Training and skill development information	150 (41.4%)	135 (37.3%)	50 (13.8%)	27 (7.5%)	3.13	Highly Used

Decision rule: Mean ≥ 2.50 = Accepted

The results in Table 1 show that SMEs in the Katsina Senatorial Zone use several types of information for business activities. Market information recorded the highest usage with a mean of 3.39, as 210 respondents (58.0%) indicated highly used and 100 (27.6%) moderately used, showing strong reliance on customer needs and preferences. Financial information followed with a mean of 3.35, with 198 (54.7%) highly used and 110 (30.4%) moderately used, indicating dependence on pricing, cost, and profit-related data. Competitor information had a mean of 3.26, with 180 (49.7%) highly used and 120 (33.1%) moderately used, reflecting attention to market competition. Supplier and distribution information recorded a mean of 3.23, with 175 (48.3%) highly used and 120 (33.1%) moderately used, while technological information had a mean of 3.18, with 165 (45.6%) highly used and 125 (34.5%) moderately used, showing moderate reliance on technology-related data. Training and skill development information recorded a mean of 3.13, with 150 (41.4%) highly used and 135 (37.3%) moderately used. Government policy and regulatory information had a mean of 3.04, with 140 (38.7%) highly used and 130 (35.9%) moderately used, while legal information recorded the lowest mean of 3.02, with 130 (35.9%) highly used and 140 (38.7%) moderately used, indicating relatively weaker use of regulatory and legal information. The findings indicate stronger reliance on market, financial, and operational information compared to regulatory-related information.

Research Question 2: What are the major sources of information available to SMEs in the study area?
Scale: 4 = Very Frequent (VF), 3 = Frequent (F), 2 = Rare (R), 1 = Not at All (NA)
Table 2: Sources of Information (n = 362)

S/N	Items	VF	F	R	NA	Mean	Decision
9	Internet sources (websites, online platforms)	220 (60.8%)	90 (24.9%)	30 (8.3%)	22 (6.1%)	3.40	Very Frequent

10	Social media platforms	210 (58.0%)	95 (26.2%)	32 (8.8%)	25 (6.9%)	3.35	Very Frequent
11	Business associates and colleagues	180 (49.7%)	120 (33.1%)	40 (11.0%)	22 (6.1%)	3.26	Frequent
12	Government agencies and publications	140 (38.7%)	130 (35.9%)	55 (15.2%)	37 (10.2%)	3.03	Frequent
13	Libraries and information centers	90 (24.9%)	110 (30.4%)	80 (22.1%)	82 (22.7%)	2.57	Frequent
14	Trade fairs, workshops, and seminars	120 (33.1%)	130 (35.9%)	70 (19.3%)	42 (11.6%)	2.91	Frequent
15	Print media (newspapers, magazines, journals)	100 (27.6%)	120 (33.1%)	80 (22.1%)	62 (17.1%)	2.71	Frequent
16	Radio/TV	110 (30.4%)	130 (35.9%)	75 (20.7%)	47 (13.0%)	2.83	Frequent

Decision rule: Mean ≥ 2.50 = Accepted

The results in Table 2 show that SMEs access information from several sources in the study area. Internet sources ranked highest with a mean of 3.40, as 220 respondents (60.8%) indicated very frequent use and 90 (24.9%) frequent use, while 30 (8.3%) and 22 (6.1%) indicated rare and not at all. Social media platforms followed with a mean of 3.35, with 210 (58.0%) very frequent, 95 (26.2%) frequent, 32 (8.8%) rare, and 25 (6.9%) not at all. Business associates and colleagues recorded a mean of 3.26, with 180 (49.7%) very frequent and 120 (33.1%) frequent, showing strong reliance on interpersonal networks. Government agencies and publications had a mean of 3.03, with 140 (38.7%) very frequent and 130 (35.9%) frequent, while trade fairs, workshops, and seminars recorded a mean of 2.91, with 120 (33.1%) very frequent and 130 (35.9%) frequent. Radio/TV had a mean of 2.83, with 110 (30.4%) very frequent and 130 (35.9%) frequent, and print media recorded a mean of 2.71, with 100 (27.6%) very frequent and 120 (33.1%) frequent. Libraries and information centers ranked lowest with a mean of 2.57, as 90 respondents (24.9%) indicated very frequent use while 82 (22.7%) reported not at all, showing limited reliance on formal library sources. The findings indicate greater dependence on digital and interpersonal sources compared to traditional information channels.

Research Question 3: For what purposes do SMEs use information in their business activities?
Scale: 4 = Strongly Agree (SA), 3 = Agree (A), 2 = Disagree (D), 1 = Strongly Disagree (SD)
Table 3: Purposes of Information Use (n = 362)

S/N	Items	SA	A	D	SD	Mean	Decision
17	Information is used for decision-making in business operations	230 (63.5%)	90 (24.9%)	25 (6.9%)	17 (4.7%)	3.47	Agreed
18	Information is used for planning and business strategy development	220 (60.8%)	95 (26.2%)	27 (7.5%)	20 (5.5%)	3.42	Agreed
19	Information is used to improve customer satisfaction	210 (58.0%)	100 (27.6%)	32 (8.8%)	20 (5.5%)	3.38	Agreed
20	Information is used for identifying new business opportunities	200 (55.2%)	105 (29.0%)	35 (9.7%)	22 (6.1%)	3.33	Agreed
21	Information is used for financial management and budgeting	215 (59.4%)	95 (26.2%)	30 (8.3%)	22 (6.1%)	3.39	Agreed
22	Information is used for marketing and promotion of products/services	205 (56.6%)	100 (27.6%)	35 (9.7%)	22 (6.1%)	3.34	Agreed
23	Information is used for risk management	190 (52.5%)	110 (30.4%)	40 (11.0%)	22 (6.1%)	3.29	Agreed
24	Information is used to improve operational efficiency	200 (55.2%)	105 (29.0%)	35 (9.7%)	22 (6.1%)	3.33	Agreed

Decision rule: Mean ≥ 2.50 = Accepted

The results in Table 3 show that SMEs use information for several business purposes with consistently high levels of agreement. Decision-making in business operations ranked highest with a mean of 3.47, as 230 respondents (63.5%) strongly agreed and 90 (24.9%) agreed, while 25 (6.9%) disagreed and 17 (4.7%) strongly disagreed. Planning and business strategy development followed with a mean of 3.42, with 220 respondents (60.8%) strongly agreeing and 95 (26.2%) agreeing. Financial management and budgeting recorded a mean of 3.39, with 215 (59.4%) strongly agreeing and 95 (26.2%) agreeing. Improving customer satisfaction had a mean of 3.38, with 210 (58.0%) strongly agreeing and 100 (27.6%) agreeing. Marketing and promotion recorded a mean of 3.34, with 205 (56.6%) strongly agreeing and 100 (27.6%) agreeing. Identifying new business opportunities and improving operational efficiency both recorded a mean of 3.33, with 200 (55.2%) strongly agreeing and 105 (29.0%) agreeing. Risk management, though slightly lower, still shows strong agreement with a mean of 3.29, as 190 (52.5%) strongly agreed and 110 (30.4%) agreed, indicating

awareness but possibly weaker implementation. However, SMEs use information extensively for strategic, financial, and operational purposes.

Research Question 4: What challenges do SMEs face in accessing and using information?
Scale: 4 = Very Serious (VS), 3 = Serious (S), 2 = Slight (SL), 1 = Not a Challenge (NC)
Table 4: Challenges Faced by SMEs (n = 362)

S/N	Items	VS	S	SL	NC	Mean	Decision
25	High cost of accessing relevant information	210 (58.0%)	90 (24.9%)	40 (11.0%)	22 (6.1%)	3.35	Serious
26	Lack of awareness of available information sources	200 (55.2%)	100 (27.6%)	35 (9.7%)	27 (7.5%)	3.30	Serious
27	Poor internet connectivity	220 (60.8%)	85 (23.5%)	35 (9.7%)	22 (6.1%)	3.39	Serious
28	Lack of information literacy skills	180 (49.7%)	110 (30.4%)	45 (12.4%)	27 (7.5%)	3.22	Serious
29	Inadequate access to libraries and information centers	170 (47.0%)	115 (31.8%)	45 (12.4%)	32 (8.8%)	3.17	Serious
30	Time constraints in searching for information	190 (52.5%)	100 (27.6%)	45 (12.4%)	27 (7.5%)	3.26	Serious
31	Difficulty in identifying reliable information sources	185 (51.1%)	105 (29.0%)	45 (12.4%)	27 (7.5%)	3.24	Serious
32	Language barriers in accessing information	140 (38.7%)	120 (33.1%)	60 (16.6%)	42 (11.6%)	2.99	Serious

Decision rule: Mean ≥ 2.50 = Accepted
The results in Table 4 show that SMEs face several challenges in accessing and using information. Poor internet connectivity ranked highest with a mean of 3.39, as 220 respondents (60.8%) indicated very serious and 85 (23.5%) serious, suggesting that unstable internet limits timely access to online business information. High cost of accessing relevant information followed with a mean of 3.35, with 210 respondents (58.0%) very serious and 90 (24.9%) serious, indicating that financial constraints hinder SMEs from obtaining needed information. Lack of awareness of available information sources recorded a mean of 3.30, with 200 (55.2%) very serious and 100 (27.6%) serious, implying limited knowledge of where to obtain useful information. Time constraints in searching for information had a mean of 3.26, with 190 respondents (52.5%) very serious and 100 (27.6%) serious, showing that business owners have limited time to seek information. Difficulty in identifying reliable sources recorded a mean of 3.24 with 185 (51.1%) very serious and 105 (29.0%) serious, indicating challenges in evaluating credible information. Lack of information literacy skills had a mean of 3.22, with 180 (49.7%) very serious and 110 (30.4%) serious, suggesting limited ability to search and use information effectively. Inadequate access to libraries and information centers recorded a mean of 3.17, with 170 (47.0%) very serious and 115 (31.8%) serious, indicating poor availability of formal information centers. Language barriers ranked lowest with a mean of 2.99, as 140 (38.7%) indicated very serious and 120 (33.1%) serious, though still reflecting a noticeable constraint. The findings indicate that infrastructural, financial, and information skill-related factors are the dominant challenges affecting SMEs' access to and use of information.

DISCUSSION

Types of Information Used by SMEs

The types of information used by SMEs show that market, financial, and competitor information are the most highly utilized, while legal and regulatory information are comparatively less emphasized. This pattern suggests that SMEs prioritize immediate operational and profit-oriented information over compliance-related knowledge. This aligns with the assertion of Adebayo and Odunlade (2019) that information use among SMEs is largely driven by the need to improve efficiency, planning, and decision-making. It also supports the position of Ojo, Akinsunmi, and Olayonu (2015), who noted that SMEs tend to focus more on accessible and directly applicable information. However, the relatively lower use of legal and regulatory information slightly contradicts the expectation in modern business environments where compliance plays a critical role, indicating a gap in comprehensive information utilization.

Sources of Information Used by SMEs

The findings on sources of information reveal that SMEs rely more on internet sources, social media platforms, and interpersonal networks such as business associates, while libraries and information centers are the least utilized. This confirms the growing dominance of digital and informal channels in information access among SMEs. The result is consistent with Ojo, Akinsunmi, and Olayonu (2015), who emphasized that SMEs in Nigeria depend heavily on informal

and easily accessible sources due to convenience and cost considerations. It also aligns with the position of Wilson (1999), which highlights that information source selection is influenced by accessibility and ease of use. However, the low patronage of libraries contradicts the expectation of formal information systems playing a central role in information dissemination, suggesting underutilization of structured information services in supporting SME activities.

Purposes of Information Use by SMEs

The results on the purposes of information use indicate that SMEs extensively apply information for decision-making, planning, financial management, marketing, and operational efficiency. This demonstrates that information is not only accessed but actively integrated into core business functions. The result strongly supports the views of Huvila et al. (2019) and Kumari and Sharma (2021), who emphasized that effective information use enhances productivity, innovation, and problem-solving capabilities. It also aligns with Dervin (2023), who posited that information becomes valuable only when applied to achieve specific goals. The high level of agreement across all items suggests that SMEs recognize the strategic importance of information, thereby reinforcing the relevance of information behaviour theories in explaining business performance.

Challenges Faced by SMEs in Information Use

The data on challenges show that SMEs face serious constraints such as poor internet connectivity, high cost of information access, lack of awareness, limited information literacy, and difficulty identifying reliable sources. These challenges indicate that although SMEs actively use information, their effectiveness is hindered by infrastructural, financial, and skill-related barriers. This supports the findings of Suleiman (2025), Yunusa and Shehu (2025), who identified environmental and technological limitations as key factors affecting SME performance in Katsina State. It also aligns with Wilson's (1999) model, which emphasizes that intervening variables such as access, cost, and user capability significantly influence information use. The persistence of these challenges suggests that improving access infrastructure and information literacy is critical for enhancing SME performance and decision-making efficiency.

CONCLUSION

The study examined information use by SMEs in the Katsina Senatorial Zone and found that they rely heavily on market, financial, competitor, and operational information, with less emphasis on legal and regulatory information. This indicates a stronger focus on immediate business needs and profitability rather than comprehensive information use. SMEs primarily access information through internet sources, social media, and interpersonal networks, while formal sources such as libraries are less utilized. The findings also show that information is widely applied in decision-making, planning, financial management, marketing, and operational efficiency, highlighting its central role in business performance. Despite this high level of usage, SMEs face major challenges including poor internet connectivity, high cost of accessing information, limited awareness of sources, low information literacy, and difficulty identifying reliable information. These barriers reduce the effectiveness of information use. Overall, while information remains critical to SME success, improving access, awareness, and information skills is necessary to enhance their performance and contribution to economic development in Katsina State.

RECOMMENDATIONS

18. SMEs should be encouraged to improve their use of legal and regulatory information, which received less attention, through awareness programmes and simplified guidelines provided by government and business support agencies. This will promote compliance and reduce business risks, otherwise increased legal violations, penalties, and business instability may occur.
19. Libraries and information centers should be made more accessible and relevant to SMEs by offering digital services and business-focused information support, since they were the least used sources. Without such improvements, SMEs will continue to underutilize reliable and structured information, limiting informed decision-making.
20. SMEs should also receive training in information literacy and digital skills to strengthen their ability to evaluate and apply information effectively, especially in areas like risk management. Without this, SMEs may rely on inaccurate information and make poor strategic decisions.
21. Government and stakeholders should address key challenges such as poor internet access and high information costs by improving infrastructure, reducing access costs, and increasing awareness of available information sources. Otherwise, access to vital information will remain restricted, hindering SME growth and competitiveness.

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Investigating the Transformation of Library Services and the Information Needs of Digital Natives in Higher Institutions of Bauchi State, Nigeria

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ABSTRACT

This study investigates how library transformation meets the evolving needs of digital natives, i.e. Generation Z (GenZ) and Generation Alpha (Gen Alpha), who are accustomed to seamless, technology-driven experiences. The paper examines the integration of emerging technologies, such as; Artificial Intelligence (AI), Virtual Reality (VR), Internet of Things (IoT), chatbots, virtual libraries, interactive learning tools, and big data analytics in academic libraries to advance services for the generality of users. The study further explores the impacts of emerging technologies on users' engagement, information seeking behavior, and collaboration. The study Adopted quantitative research approach, data were collected from 317 students as the population, across three higher institutions of learning in Bauchi State, i.e Nigeria Sa'adu Zungur University Bauchi, Federal polytechnic and Federal College of Education, Jama'are, were selected using stratified sampling. Findings indicate that while emerging technologies improve accessibility, convenience, and overall user experience, librarians must carefully balance technological adoption with information literacy development, digital inclusion, and the protection of user privacy. The paper concluded that academic libraries in Bauchi State, Nigeria, stand at a pivotal moment in their evolution. The digital native students who populate institutions such as SAZU, FEDPOLY, and FCE arrive with expectations shaped by years of technology driven consumer experiences, and they increasingly measure the relevance of their libraries against the standards of the digital ecosystems they inhabit daily. Strategic recommendations for libraries to effectively leverage emerging technologies in meeting digital natives' expectations, including up skilling librarians, designing services in collaboration with other sister libraries as consortium. providing solar inverters then hoping to incorporate cyber-literacy modules into the compulsory General Studies (GST) curriculum.

Keywords: Library transformation, Digital natives, Emerging technologies, Artificial Intelligence, Academic libraries, Nigeria, Information literacy,

1. INTRODUCTION

The rapid transformation in digital technologies has fundamentally altered the landscape of information access, communication, and learning. Contemporary higher education students predominantly belonging to Generation Z and the emerging Generation Alpha have grown up in environments saturated with smartphones, social media, artificial intelligence powered applications, and on demand digital content. These digital natives arrive at academic institutions with heightened expectations for seamless, intuitive, and technology enriched services (Ikenwe & Udem, 2022).

Academic libraries, long regarded as the intellectual heartbeats of universities and polytechnics, face an unprecedented imperative to transform their service delivery models in alignment with these evolving expectations. The traditional library characterized by physical collections, card catalogues, and passive reference services is increasingly incongruent with the expectations of a generation that navigates the world through algorithms, immersive interfaces, and hyper connected devices.

In Nigeria, particularly in Bauchi State, academic libraries in higher institutions of learning are at a critical crossroads. Institutions such as the Sa'adu Zungur University (SAZU), the Federal Polytechnic Bauchi (FEDPOLY), and the Federal College of Education Jama'are (FCE) serve student populations that are rapidly transforming in their digital competencies and service expectations. Yet, empirical evidence on how well these institutions are adapting their library services to meet these demands remains sparse.

Therefore, the research aims to bridge these gaps by investigating the transformation of library services within higher institutions in Bauchi State. It seeks to empirically assess the alignment between the actual information-seeking patterns of digital natives and the current service delivery models offered by these libraries. By evaluating how modern student behaviors intersect with institutional realities, this study will provide an evidence-based framework for stakeholders to optimize library funding, modernize hybrid infrastructure, and cultivate the specific digital competencies needed to sustain academic excellence in Bauchi State.

1.1 Statement of the Problem

Despite global advancements in digital technologies in the development of library services, many academic libraries in developing countries are still lagging behind because of poor infrastructure, finance, lack of political will, and poor skills and competencies. This makes the academic libraries to operate in traditional system that fail to meet the service expectations of students. The mismatch between available library services and the technology-driven expectations of digital natives poses significant challenges to academic engagement, information literacy, and research productivity.

Therefore, there is an urgent need to investigate the situation of library services as it relates to the needs of digital natives in higher institutions of northern Nigeria, particularly in Bauchi State, Nigeria.

1.2 Objectives of the Study

The specific objectives of this study are to:

1. Examine how digital natives' expectations influence their use of academic library services.
2. Investigate the extent to which emerging technologies have been integrated into academic libraries in Bauchi State.
3. Identify challenges associated with technology adoption in academic libraries Bauchi State.

1.3 Significance of the Study

This study contributes to the growing body of knowledge on library transformation in sub-Saharan African contexts. By providing empirical evidence from Bauchi State institutions, the findings offer practical guidance to library professionals, institutional administrators, and technology vendors on how to align library services with the expectations of the next generation of learners. The study also advances theoretical understandings of digital nativity and its implications for academic service design.

2. LITERATURE REVIEW

2.1 Conceptual of Digital Natives

The concept of the digital native was popularized by Marc Prensky (2001), who argued that individuals who grew up with digital technology possess fundamentally different cognitive styles and learning preferences compared to earlier generations. Generation Z broadly defined as individuals born between 1997 and 2012 represents the first cohort to have grown up entirely in the era of the internet, while Generation Alpha i.e. born from 2013 onwards is projected to be the most technologically immersed generation in history (McCrindle & Fell, 2020).

Digital natives are characterized by their preference for visual and interactive content, multitasking ability, expectation of instant information access, and comfort with collaborative and networked learning environments (Yusuf, 2025). These characteristics have profound implications for the design of academic library services, which must evolve from static resource repositories to dynamic, technology enabled knowledge systems.

2.2 Emerging Technologies in Academic Libraries

The rapid evolution of emerging technologies has initiated a profound paradigm shift in the operational architecture of academic libraries. To maintain institutional relevance and cater to a generation of technologically advanced users, academic libraries are progressively transitioning from passive, print-centric repositories into dynamic, hybrid knowledge environments (Yusuf, 2025). Contemporary literature highlights that this transformation is driven by the integration of Smart Library components predominantly characterized by cloud-supported systems, automated library management frameworks, and mobile-friendly resource discovery portals (Modiba, 2026; Saibakumo, 2021). These emerging technologies include the following;

2.2.1 Artificial Intelligence (AI) and Chatbots

Artificial Intelligence has emerged as one of the most transformative forces in library service delivery. AI-powered systems enable personalized recommendation engines, automated cataloguing, intelligent reference services, and predictive analytics for collection development (Breeding, 2019). Chatbots, a specific application of AI, provide 24/7 reference assistance, reducing barriers to access for students who may feel reluctant to approach human librarians (Wang & Lim, 2021). Research has demonstrated that AI-driven services significantly improve user satisfaction and engagement among younger library patrons.

2.2.2 Virtual Reality (VR) and Augmented Reality (AR)

Virtual and Augmented Reality technologies offer immersive learning experiences that resonate strongly with Gen Z and Gen Alpha users. Virtual libraries, three dimensional information environments accessible through VR headsets or web-based platforms enable users to explore resources in spatially intuitive ways (Johnson et al., 2022). AR applications overlaying digital information onto physical spaces in libraries enhance wayfinding, resource discovery, and interactive learning, making library spaces more engaging and accessible for digital natives.

2.2.3 Internet of Things (IoT)

The Internet of Things refers to networks of interconnected physical devices that communicate and exchange data autonomously. In library contexts, IoT applications include smart shelf systems that track resource locations in real time, environmental monitoring sensors that optimize study conditions, occupancy management systems, and Radio frequency Identification (RFID)-based self-checkout technologies (Abubakar & Mohammed, 2020). These applications enhance operational efficiency and create more responsive, user centred library environments.

2.2.4 Big Data Analytics

Big Data analytics enables libraries to derive actionable insights from usage data, supporting evidence-based decision making in collection development, service design, and space planning. Predictive analytics tools can anticipate user needs, personalize recommendations, and identify patterns in information-seeking behavior that inform strategic library planning (Arowosola, 2023). For digital natives accustomed to algorithm-driven personalization in commercial platforms, data-driven library services represent a significant improvement in user experience.

2.3 Library Transformation

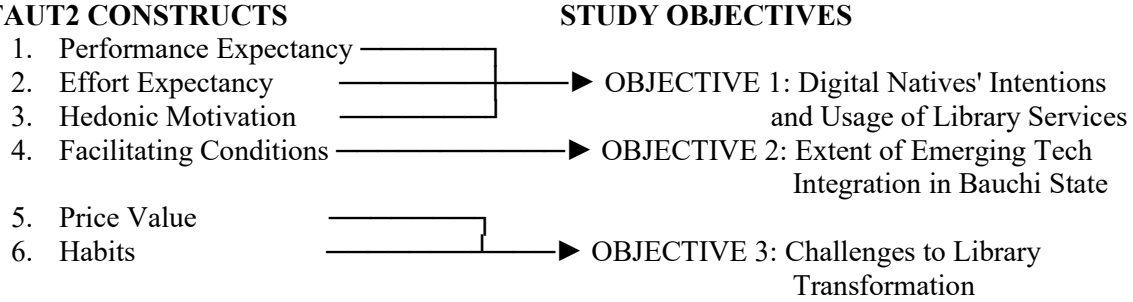
While the discourse on library transformation is predominantly situated in Western academic contexts, emerging scholarship is beginning to document technology adoption in African academic libraries. Studies from Nigeria, Ghana, Kenya, and South Africa highlight significant disparities in infrastructure, funding, and digital literacy that complicate technology adoption in these settings (Iyoro & Fagbe, 2018; Nwosu & Ugwuanyi, 2021). Challenges include inadequate power infrastructure, limited bandwidth, insufficient training for library professionals, and low levels of institutional investment in library technology.

Specific to Northern Nigeria, the literature reveals that academic libraries in states such as Bauchi face compounded challenges including limited financial resources, understaffed libraries, and student populations with heterogeneous levels of digital literacy. These contextual realities necessitate nuanced, different approaches to library transformation that go beyond simple technology transplantation from Western models.

2.4 Theoretical Framework

This study adopts the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2**)** as its primary theoretical framework. Developed by Venkatesh, Thong, and Xu (2012) as an extension of the original UTAUT model (Venkatesh et al., 2003), this contemporary theory explains how consumer targeted technologies are adopted based on specific behavioral determinants.

UTAUT2 is uniquely suited for this study because it shifts the focus from mandatory workplace technology adoption to voluntary consumer technology use. In the context of modern higher education, digital native students choose whether to engage with university library platforms or bypass them for commercial web search engines.



3. METHODOLOGY

3.1 Research Design

This study adopted a quantitative research design, utilizing a structured survey questionnaire as the primary data collection instrument. The quantitative approach was selected for its capacity to generate statistically generalizable findings across the target population, enabling systematic measurement of attitudes, perceptions, and behaviors related to library technology adoption among digital native students.

3.2 Population

The study was conducted in Bauchi State, Nigeria, focusing on three higher institutions of learning: Sa'adu Zungur University (SAZU), the Federal Polytechnic Bauchi (FEDPOLY), and the Federal College of Education Jama'are (FCE). These institutions were selected as representative of the major categories of higher education in the state, thereby ensuring a comprehensive representation of the diverse academic library landscape in Bauchi State.

The target population comprised all registered students at the three selected institutions. Given the large and heterogeneous nature of this population, a stratified sampling technique was employed to ensure proportional representation of students from each institution and across different academic levels. A total of 317 students were sampled for the study, distributed across the three institutions as detailed in Table 1.

Table 1: Sample Distribution by Institution

Institution	Abbreviation	Sample Size	Percentage (%)

Sa'adu Zungur University Bauchi	SAZU	121	38.2%
Federal Polytechnic Bauchi	FEDPOLY	108	34.1%
Federal College of Education Jama'are	FCE	88	27.7%
Total		317	100%

Source: Field Survey, 2026

3.3 Research Instrument

Data were collected using a structured, self-administered questionnaire comprising four sections: (i) demographic information, (ii) technology familiarity and usage patterns, (iii) perceptions of library technology services, and (iv) attitudes towards privacy, digital inclusion, and information literacy. The questionnaire was adapted from validated instruments in the library and information science literature and pre-tested with a pilot sample of 30 students before full deployment.

A five-point Likert scale was employed for items measuring perceptions and attitudes, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The instrument demonstrated satisfactory internal consistency, with a Cronbach's alpha coefficient of 0.82, indicating high reliability.

3.4 Data Collection Procedure

Questionnaires were administered in person to students at the library premises of each institution over a four-week period. Research assistants at each institution facilitated the administration process, ensuring informed consent was obtained and clarifying any ambiguities in the questionnaire. Completed questionnaires were retrieved immediately to ensure high response rates. A response rate of 94.6% was achieved, with 300 valid responses retained for analysis after excluding incomplete questionnaires.

3.5 Data Analysis

Quantitative data were analysed using SPSS Version 25. Descriptive statistics including frequencies, percentages, means, and standard deviations were employed to summarize respondents' demographics and perceptions. Inferential statistics, including Pearson correlation and regression analysis, were used to examine relationships between technology adoption and user engagement, information seeking behavior, and academic performance outcomes.

4. RESULTS AND FINDINGS

4.1 Demographic Information of Respondents

Of the 300 valid respondents, 54.7% were male and 45.3% female. The majority (61.3%) fell within the 18–24 age bracket, consistent with the Gen Z demographic. Approximately 22.7% were aged 17 or below, representing Gen Alpha students. The remaining 16% were aged 25 and above. Undergraduate students constituted 78.3% of respondents, with diploma and NCE students making up the remainder. A summary of respondent demographics is presented in Table 2.

Table 2: Demographic Information of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	164	54.7%
	Female	136	45.3%
Age	17 years and below	68	22.7%
	18–24 years	184	61.3%
	25 years and above	48	16.0%
Level	Diploma/NCE	65	21.7%
	Undergraduate	235	78.3%

Source: Field Survey, 2026

4.2 Technology Awareness and Usage Patterns

Results indicated that the vast majority of respondents (91.3%) owned smartphones, while 67.3% reported owning or having regular access to a laptop or desktop computer. Approximately 43.7% reported familiarity with AI-powered tools such as chatbots and recommendation systems, while only 18.3% had prior experience with Virtual Reality applications.

Awareness of IoT applications in library settings was particularly low, with only 12.7% of respondents indicating familiarity.

4.3 Perceptions of Emerging Technologies in Libraries

Respondents were asked to evaluate the impact of specific emerging technologies on their library experience. Table 3 summarizes mean scores for key variables.

Table 3: Mean Scores for Perceptions of Emerging Technology Impact

Technology/Variable	Mean Score	Std. Dev.	Interpretation
AI/Chatbots improve accessibility of library services	4.12	0.73	Agree
Digital catalogues enhance information seeking	4.31	0.68	Strongly Agree
VR creates engaging learning environments	3.87	0.91	Agree
IoT improves library operational efficiency	3.65	1.02	Agree
Data analytics personalize library recommendations	3.94	0.84	Agree
Technology adoption improves user experience	4.27	0.71	Strongly Agree
Privacy concerns limit technology adoption	3.78	0.97	Agree
Digital inclusion challenges hinder tech access	4.03	0.88	Agree

Source: Field Survey, 2026.

The data reveal that respondents strongly affirmed the positive impact of digital catalogues and technology adoption generally on their library experience (mean scores of 4.31 and 4.27 respectively). AI and chatbot accessibility received substantial agreement (mean 4.12), while VR and IoT applications were viewed positively but with somewhat lower scores, likely reflecting limited exposure to these technologies. Notably, concerns about digital inclusion (mean 4.03) and privacy (mean 3.78) registered significant agreement, indicating awareness of the tensions inherent in library technology adoption.

4.4 Impact on User Engagement and Information-Seeking

Regression analysis revealed that technology enhanced library services significantly predicted student engagement (beta = 0.42, $p < 0.01$) and information seeking frequency (beta = 0.38, $p < 0.01$). Students who reported higher use of technology-enabled library services demonstrated significantly higher rates of library visitation, both physical and virtual. Correlation analysis indicated a moderate positive relationship ($r = 0.51$, $p < 0.01$) between technology adoption and academic research output as measured by submitted assignments and projects referencing library resources.

4.5 Challenges

Respondents identified several significant barriers to effective library technology adoption. As detailed in Figure 1, the primary challenges included:

1. Inadequate infrastructure, including unreliable internet connectivity and insufficient devices (cited by 67.3% of respondents).
2. Limited awareness and training in the use of advanced library technologies (cited by 58.7%).
3. Privacy and data security concerns regarding library management systems (cited by 52.3%).
4. Digital exclusion arising from socioeconomic disparities in device ownership (cited by 49.0%).
5. Insufficient information literacy skills to effectively leverage digital library resources (cited by 44.7%).

5. DISCUSSION

The findings of this study confirm the central assertion that GenZ and Gen Alpha students in Bauchi State's higher institutions have developed expectations for library services that closely mirror their experiences with commercial digital platforms. The high smartphone ownership rate (91.3%) and strong preference for digital catalogue systems corroborate Prensky's (2001) and Tapscott's (2009) characterizations of digital natives as users who expect seamless, on-demand information access. The positive reception of AI and chatbot services aligns with Wang and Lim's (2021) findings on AI-driven reference services and suggests significant potential for further deployment of intelligent library systems in the Nigerian context.

The relatively lower awareness and adoption of VR and IoT technologies among respondents' points to an implementation gap that is characteristic of resource constrained academic environments. While respondents expressed positive attitudes towards these technologies, limited infrastructure and exposure constrain their realization of the full transformative potential documented in the literature (Johnson et al., 2022; Abubakar & Mohammed, 2020). This finding underscores the importance of graduated, context-appropriate technology adoption strategies rather than wholesale transplantation of Western library models.

One of the most significant findings of this study is the tension between the enthusiasm for emerging technologies and the persistent challenges of digital inclusion and information literacy. The substantial agreement with statements about digital exclusion (mean 4.03) and information literacy deficits (44.7% citing this as a challenge) suggests that technology adoption, without accompanying investment in human capacity and inclusive infrastructure, risks exacerbating existing inequalities. This finding resonates strongly with Iyoro and Fagbe (2018) and calls for a holistic approach to library transformation that treats technology, training, and equity as inseparable pillars.

The significant level of concern around privacy (52.3% of respondents) represents an important and perhaps underappreciated dimension of library technology adoption in Nigeria. As libraries deploy AI-driven personalization and data analytics tools, they must navigate complex questions about data ownership, consent, and protection. This concern is consistent with global trends in technology ethics but has received insufficient attention in African library transformation discourses. Libraries must adopt transparent data governance frameworks that protect user privacy while enabling the benefits of data-driven services.

6. CONCLUSION

This study has demonstrated that academic libraries in Bauchi State, Nigeria, stand at a pivotal moment in their evolution. The digital native students who populate institutions such as SAZU, FEDPOLY, and FCE arrive with expectations shaped by years of technology driven consumer experiences, and they increasingly measure the relevance of their libraries against the standards of the digital ecosystems they inhabit daily. Meeting these expectations is not merely a matter of technological investment; it demands a fundamental reimagining of what the academic library is and who it serves. The findings confirm that emerging technologies AI, chatbots, VR, IoT, data analytics, and interactive learning tools offer genuine pathways to enhanced accessibility, engagement, and user experience.

7. RECOMMENDATIONS

Based on the study's findings, the following recommendations are proposed for academic libraries in Bauchi State in serving digital native populations:

1. Academic libraries should transition from, desktop OPAC systems to mobile friendly, discovery layer applications that allow students to search physical books and digital e-journals simultaneously through a single search bar on their smartphones. Also, Library management should partition existing physical spaces through converting underutilized large reading halls into vibrant Information Commons and collaborative study rooms equipped with charging ports and interactive screens to support group learning workflows.
2. To enhance the integration of technologies to the digital native users, rather than each institution in Bauchi attempting to build and maintain independent servers, libraries should form a state academic library consortium. This body can pool resources to run a single, shared cloud based Integrated Library Management System (ILMS) like Koha, minimizing software maintenance costs while broadening access to cross-institutional resources.
3. To combat the challenge of power unreliability, institutional boards must prioritize funding for independent solar-inverters dedicated strictly to powering the library's servers, routers, and electronic reading centers. Moreover, brief, single day library orientation tours should be dsicouraged. Academic libraries must collaborate with university management to embed rigorous, practical, cyber-literacy modules into the compulsory General Studies (GST) curriculum, systematically training digital natives to transform casual web searching into academic research skills.

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INFLUENCE OF FUNDING ON THE RESEARCH PRODUCTIVITY OF LIBRARIANS IN FEDERAL COLLEGES OF EDUCATION IN SOUTH-WEST NIGERIA

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Abstract

This study investigated the influence of funding on the research productivity of librarians in Federal Colleges of Education in South-West Nigeria. A descriptive survey design was adopted, and data were collected from all thirty professional librarians in three Federal Colleges of Education using a structured questionnaire. Data were analysed using frequencies and percentages. Findings revealed that funding for library operations and research support was generally inadequate, particularly in areas such as e-resources, ICT facilities, conference sponsorship, and publication fee support. The results further showed moderate levels of research productivity among librarians, with journal articles and conference papers being the most common outputs, while book publications remained low. Funding-related challenges, including poor access to research resources and limited institutional incentives, were found to hinder research engagement. The study concludes that improved funding mechanisms are essential for enhancing librarians' research productivity and scholarly visibility. Recommendations were made to strengthen funding support, research infrastructure, and institutional research incentives in Federal Colleges of Education.

Keywords: *Funding, Research Productivity, Librarians, Federal Colleges of Education, South-West Nigeria*

Introduction

In Nigeria, librarians play a crucial role in teaching, learning and the growth of knowledge within tertiary institutions. Just like university libraries often receive attention in research discussions, librarians in Colleges of Education perform equally important functions, especially in preparing future teachers and strengthening foundational academic skills. According to Ebizie *el al.* (2022), librarians in teacher-training institutions occupy a critical position in shaping academic engagement. However, their ability to contribute meaningfully to scholarly communication and participate in the wider research community has continued to attract concern. Over the years, research productivity within the library profession in Nigeria has shown noticeable variations across institutional types, with Colleges of Education often appearing at the lower end of scholarly output (Babalola & Nwalo, 2021).

One major factor linked to this disparity is funding. Libraries in many Colleges of Education in South-West Nigeria operate under tight financial conditions. Limited budgetary allocations restrict access to current literature, research databases, functional ICT tools, conference participation, and research grants, all of which are primary elements for research engagement. As Chukwusa & Onohwakpor (2026) note, inadequate funding remains one of the strongest barriers to librarians' research productivity in Nigeria. When funding is insufficient, librarians may struggle to update their knowledge, initiate research projects or contribute effectively to professional discourse at national and international levels. Funding has been widely acknowledged as a key determinant of scholarly productivity among academic librarians. Access to financial resources and institutional support influences librarians' ability to conduct research, publish findings and participate in professional development activities (Haliso et al., 2021).

Although several studies have examined research productivity among university librarians in Nigeria, very few have specifically explored the situation in Federal Colleges of Education, especially within the South-West region. Unlike State institutions, Federal Colleges of Education operate under a uniform national funding structure still, the everyday constraints these librarians face, from limited access to research resources to insufficient support for conference participation, are rarely highlighted in empirical studies. Recognising how funding shapes the research participation of librarians in Colleges of Education is important because research remains a core requirement for professional growth, career advancement, and contribution to the Library and Information Science (LIS) field (Obiamalu & Uka, 2025). Without adequate financial support, librarians may be unable to produce research that addresses emerging issues in education, technology, and library practice. This concern aligns with Babalola & Allahmagani (2023), who emphasise that financial support is a major predictor of research engagement among information professionals. Ultimately, insufficient funding affects not only their visibility in the academic community but also the overall development of the LIS profession in Nigeria.

This study therefore seeks to examine how funding availability influences the research contribution and scholarly productivity of librarians in Federal Colleges of Education in South-West Nigeria. The study aims to highlight specific

challenges and provide evidence that may guide policy decisions, improve funding structures and strengthen the research culture within these institutions.

Problem Statement

Research productivity is a fundamental component of academic librarianship, particularly within tertiary institutions where librarians are expected to contribute to knowledge creation, support scholarly communication, and enhance institutional research visibility. In Nigeria, the expectation for librarians to engage in research has increased, especially as scholarly output is often linked to professional advancement and institutional relevance within the Library and Information Science (LIS) field. Existing studies in Nigeria have largely focused on research productivity among university librarians, with considerable attention given to factors such as institutional support, access to information resources, and research capacity. However, there is a noticeable absence of empirical studies that specifically examine the research engagement of librarians in Colleges of Education, despite the critical role these institutions play in teacher training and national educational development.

In the context of Federal Colleges of Education, librarians may encounter a range of constraints that can hinder their active participation in research. These constraints may include limited access to current information resources, inadequate research infrastructure, and restricted opportunities for conference participation and insufficient financial support for research- related activities. Given that funding is a key enabler of research, facilitating access to scholarly materials, supporting publication processes, and enabling professional collaboration, it is important to examine how financial limitations may influence research engagement within this category of institutions. Despite the recognized importance of funding in supporting research activities, there is insufficient empirical evidence on how funding availability specifically influences the research productivity of librarians in Federal Colleges of Education, particularly within the South-West region of Nigeria. This gap in the literature limits the ability of policymakers, institutional administrators, and professional bodies to develop informed and targeted interventions aimed at strengthening research culture and output among librarians in these institutions.

It is against this background that this study seeks to examine the influence of funding on the research productivity of librarians in Federal Colleges of Education in South-West Nigeria, with a view to providing empirical evidence that can inform policy, improve institutional support mechanisms, and enhance scholarly contributions within the LIS profession.

Study Objectives

The study aims to:

1. To examine the level of funding available for library operations and research support for librarians in Federal Colleges of Education in South-West Nigeria.
2. To determine the extent to which funding influences the research productivity of librarians in Federal Colleges of Education in South-West Nigeria.
3. To identify the funding-related challenges that affects the ability of librarians in Federal Colleges of Education in South-West Nigeria to engage in research.
4. To identify strategies that can enhance funding support and improve the research productivity of librarians in Federal Colleges of Education in South-West Nigeria.

Literature Review

Funding Available for Library Operations and Research Support

Funding availability has consistently emerged as a crucial factor influencing research engagement and productivity among academic librarians. Adequate funding enables access to current research materials, subscription to electronic databases, data collection, publication fees, conference participation, and professional development opportunities. Ibegbulam and Eze (2016) note that partnering with research funders and issuing grants can lead to increased research output. Similarly, Babalola and Allahmagani (2023) found that librarians with access to research grants and institutional funding were more likely to publish in reputable journals and collaborate with colleagues. The relationship between funding and research output is reinforced by studies highlighting the indirect effects of financial constraints. Research funding significantly influences librarians' research productivity and engagement in scholarly activities (Oso & Olaniyi, 2023). Financial limitations often result in reduced research confidence, fewer collaborative opportunities, and lower publication rates. Evidence from the literature review suggests that these challenges may be more pronounced in Colleges of Education, where research support structures are less developed.

Influence of Funding on Research Productivity of Librarians

Research productivity is widely regarded as a key indicator of professional relevance and academic contribution among librarians in tertiary institutions. It encompasses scholarly publications, conference papers, technical reports, and

other forms of knowledge dissemination that contribute to the advancement of the Library and Information Science (LIS) field. In Nigeria, academic librarians are increasingly expected to engage in research as part of their professional responsibilities, particularly for career advancement and institutional visibility (Aina, 2020). Evidence from the literature suggests that research productivity among librarians varies considerably across institutional types. Studies indicate that librarians in universities generally exhibit higher levels of scholarly output than those in other tertiary institutions, a trend often attributed to stronger institutional research cultures, mentoring opportunities, and better access to funding and research resources (Iwu-James et al., 2024; Oyedele et al., 2022). Institutional support has been shown to enhance librarians' confidence, collaborative research opportunities, and publication rates (Haliso et al., 2021).

In contrast, librarians in Colleges of Education remain less visible in national and international scholarly outlets, reflecting weaker research support structures and limited funding (Oyedele et al., 2022).

Funding-Related Challenges Affecting Librarians' Research Engagement

Colleges of Education occupy a unique position within Nigeria's higher education system, with a mandate focused on teacher education and educational development. Despite their national relevance, research activities in these institutions have received relatively limited scholarly attention compared with universities and polytechnics. Studies on academic research environments in Nigeria indicate that financial limitations, insufficient research infrastructure, and weak institutional support continue to hinder scholarly engagement across tertiary institutions, particularly in Colleges of Education (Igiri et al., 2021). These challenges often manifest as limited access to up-to-date information resources, inadequate research grants, restricted opportunities for conference participation, and limited professional development initiatives, all of which can negatively influence librarians' motivation and capacity to contribute to research output (Abolaji & Fadimu, 2024). Consequently, librarians in these institutions may struggle to maintain active participation in scholarly communication, which can affect their professional growth and the overall development of the LIS profession in Nigeria.

Strategies for Enhancing Funding Support and Improving Research Productivity

Academic librarians are increasingly recognized not only as facilitators of information access but also as active contributors to scholarly communication. Engagement in research and scholarly activities enhances librarians' professional standing, strengthens the intellectual foundation of the Library and Information Science (LIS) discipline, and supports evidence-based practices within academic institutions. Klain-Gabbay and Shoham (2016) emphasize that librarians play a critical role in bridging knowledge dissemination between researchers and the wider academic community, noting that active research involvement enables librarians to contribute meaningfully to the development of scholarly networks and institutional knowledge.

Consequently, fostering research participation among librarians is vital for advancing both their professional development and the overall growth of the LIS field. However, the ability of academic librarians to fulfil these scholarly roles is often shaped by the institutional environment, particularly within Colleges of Education in Nigeria, where structural and resource-related constraints may limit their full participation in research activities.

To address these challenges, scholars have suggested several strategies for enhancing research productivity among librarians. These strategies include the provision of institutional research grants, sponsorship for conferences and workshops, publication fee support, mentoring programmes, and improved access to electronic information resources. Haliso et al. (2021) noted that institutional support significantly enhances research engagement, collaboration, and publication output among librarians. Similarly, Babalola and Allahmagani (2023) observed that access to research funding and supportive institutional policies encourage greater participation in scholarly activities and improve research productivity. These measures are therefore considered essential for strengthening research culture, increasing scholarly visibility, and improving the overall research performance of librarians in tertiary institutions.

The reviewed literature indicates that research productivity among academic librarians is strongly influenced by funding availability, institutional support, and access to research resources. While considerable attention has been given to university librarians in Nigeria, librarians in Colleges of Education remain under-represented in empirical research on scholarly productivity. Existing studies acknowledge funding as a major constraint but rarely focus specifically on how financial support shapes the research engagement and output of librarians within Colleges of Education. This gap in the literature provides a clear justification for examining the influence of funding on the research productivity of librarians in Federal Colleges of Education in South-West Nigeria.

Research Methodology

The study adopted a descriptive survey research design. This design was considered appropriate because it enabled the collection of quantitative data on funding availability, research productivity, and funding-related challenges as they naturally occur among librarians in Federal Colleges of Education. The population comprised all professional librarians

in Federal Colleges of Education in South-West Nigeria. Specifically, librarians from Federal College of Education (Technical) Abeokuta, Federal College of Education (Technical) Oyo, and Federal College of Education (Technical) Akoka participated in the study. In total, thirty (30) librarians constituted the study population, and all were surveyed, making the study a census of the population. Data were collected using a structured questionnaire divided into six sections: demographic information, funding availability, research productivity, contextual factors, influence of funding, and an open-ended question on funding-related improvements. The instrument was designed based on the study objectives and relevant literature. Data were analysed using descriptive statistics, including frequencies and percentages. Results were presented in tables to address the research questions. Responses from the open-ended question were analysed descriptively and summarized thematically to complement the quantitative findings**.**

Results

Table 1: To answer research question one, responses to items 1–10 were analyzed using frequencies and percentages on funding availability for library operations and research in Federal Colleges of Education in South-West Nigeria (N = 30).

S/N	Funding Item	SA	A	D	SD	Decision	Cumulative % (SA + A)
1	Regular annual budget allocation	7 (23.3%)	10 (33.3%)	8 (26.7%)	5 (16.7%)	Moderate	57%
2	Budget sufficient for daily operations	–	6 (20.0%)	15 (50.0%)	9 (30.0%)	Low	20%
3	Dedicated research fund/internal grant	10 (33.3%)	14 (46.7%)	6 (20.0%)	–	Moderate	80%
4	Financial support for conference attendance	6 (20.0%)	13 (43.3%)	9 (30.0%)	2 (6.7%)	Moderate	63%
5	Support for publication fees	–	4 (13.3%)	18 (60.0%)	8 (26.7%)	Low	13%
6	Adequate funding for e-resources/databases	3 (10.0%)	5 (16.7%)	17 (56.7%)	5 (16.7%)	Low	27%
7	Timely release of funds	3 (10.0%)	5 (16.7%)	14 (46.7%)	8 (26.7%)	Low	27%
8	Clear procedures for accessing research funds	6 (20.0%)	16 (53.3%)	8 (26.7%)	–	Moderate	73%
9	Access to external research grants	4 (13.3%)	18 (60.0%)	8 (26.7%)	–	Moderate	73%
10	Funding for ICT and research tools	4 (13.3%)	8 (26.7%)	15 (50.0%)	3 (10.0%)	Low	40%

Source: Researchers' Field Survey, 2026

Table 1 indicates that librarians in Federal Colleges of Education in South-West Nigeria generally perceive funding for library operations and research as inadequate. Most respondents disagreed that their libraries receive sufficient annual budget allocations, timely fund releases or adequate funding for e-resources, ICT upgrades, conference attendance, and publication support. These responses suggest systemic funding challenges that directly affect librarians' ability to engage

meaningfully in research activities. These responses suggest systemic funding challenges that directly affect librarians' ability to engage meaningfully in research activities. This finding aligns with recent evidence which shows that insufficient financial and institutional support, including limited research grants, infrastructural gaps, and lack of professional encouragement, is associated with lower levels of research productivity among librarians (Adetayo et al., 2023; Igiri et al., 2021)

Table 2: Research Productivity of Librarians in Federal Colleges of Education in South-West Nigeria (Last Five Years)

S/N	Research Output	Abeokuta (n = 15)	Oyo (n = 7)	Akoka (n = 8)	Total / Cumulative (N = 30)
11	Journal Articles	2–15 publications reported	3–7 publications reported	1–8 publications reported	Majority published 3–8 articles
12	Conference Papers	2–12 papers reported	2–6 papers reported	0–6 papers reported	Moderate participation observed
13	Books / Book Chapters / Reports	0–10 outputs reported	0–3 outputs reported	0–5 outputs reported	Generall low output
14	Satisfaction with Research Output	Yes: 12 (80.0%) No: 3 (20.0%)	Yes: 3 (42.9%) No: 4 (57.1%)	Yes: 6 (75.0%) No: 2 (25.0%)	Yes: 21 (70.0%) No: 9 (30.0%)
15	Adequate Visibility of Publications	Yes: 8 (53.3%) No: 7 (46.7%)	Yes: 6 (85.7%) No: 1 (14.3%)	Yes: 5 (62.5%) No: 3 (37.5%)	Yes: 19 (63.3%) No: 11 (36.7%)

Source: Researchers' Field Survey, 2026

Table 2 reveals that librarians in Federal Colleges of Education in South-West Nigeria show moderate levels of research productivity, with journal articles and conference papers being the most common outputs. However, productivity varies across institutions and outputs such as books and book chapters remain generally low. Although most respondents (70.0%) expressed satisfaction with their research output, a notable proportion reported inadequate publication visibility, indicating challenges in research dissemination. When viewed alongside the funding constraints identified in Table 1, the findings suggest that limited financial support may be influencing both the volume and visibility of librarians' research outputs. This observation is supported by evidence from public university libraries in South-West Nigeria, where librarians' research productivity was found to be low in terms of both quantity and visibility, largely due to weak institutional support and inadequate access to research resources (Makinde, Haliso & Alegbeleye, 2025). In addition, research funding and institutional support have been identified as significant factors influencing librarians' research productivity, suggesting that limited financial backing can negatively affect output and visibility (Oso & Olaniyi, 2024).

Table 3: Funding-Related Challenges Affecting Librarians' Engagement in Research in Federal Colleges of Education in South-West Nigeria.

S/N	Funding-Related Challenges	Yes n (%)	No n (%)	Total (N = 30)	Cumulative (Yes) %
16	Reliable access to internet and e-resources	12 (40.0%)	18 (60.0%)	30 (100%)	40.0
17	Workload allows time for research activities	20 (66.7%)	10 (33.3%)	30 (100%)	53.4
18	Availability of skill mentorship/research programmes	18 (60.0%)	12 (40.0%)	30 (100%)	55.6
19	Institutional encouragement/incentives for research	12 (40.0%)	18 (60.0%)	30 (100%)	51.7

20	Collaboration with colleagues on research projects	28 (93.3%)	2 (6.7%)	30 (100%)	60.0

Source: Researchers' Field Survey, 2026

Table 3 shows that librarians in Federal Colleges of Education in South-West Nigeria face significant funding related and institutional challenges that limit their participation in research. Poor access to internet and electronic resources, limited institutional incentives and inadequate mentorship opportunities were identified as major constraints. Although collaboration among librarians is relatively high, structural and funding deficiencies continue to hinder sustained research engagement. This finding aligns with broader evidence from Nigerian tertiary institutions indicating that inadequate research funding, weak institutional support structures, and limited mentorship opportunities significantly restrict librarians' scholarly activities and research participation (Igiri et al., 2021)

Table 4: Strategies for Enhancing Funding Support and Research Productivity of Librarians in Federal Colleges of Education in South-West Nigeria

S/N	Proposed Strategies	Yes n (%)	No n (%)	Total (N = 30)	Cumulative % (Yes)
21	Availability of funding directly increases research output	23 (76.7%)	7 (23.3%)	30 (100%)	76.7
22	Lack of funding prevents publication in reputable journals	22 (73.3%)	8 (26.7%)	30 (100%)	75.0
23	Conference funding leads to collaborations and publications	11 (36.7%)	19 (63.3%)	30 (100%)	62.2
24	Provision of research grants and publication fee support would increase research activity	29 (96.7%)	1 (3.3%)	30 (100%)	70.9

Source: Researchers' Field Survey, 2026

Table 4 indicates strong agreement among librarians that enhanced funding mechanisms would significantly improve their research productivity. Most respondents affirmed that the availability of research funding and publication fee support would significantly increase their research activities. Majority also agreed that inadequate funding limits their ability to publish in reputable journals. Although fewer respondents linked conference funding directly to publications, the findings emphasize the importance of structured research grants, publication support and sustainable funding mechanisms. These results align with evidence showing that institutional support which includes mentoring, financial incentives and professional development, significantly enhances academics' research productivity and scholarly visibility (Adetayo et al., 2023)

Responses to the open-ended questions reinforced the quantitative findings on funding and research productivity. Librarians across the Federal Colleges of Education emphasized the need for improved access to electronic resources, functional e-library facilities, regular sponsorship for local and international conferences, provision of institutional research grants, and financial support for publication fees. Respondents also noted that procedural bottlenecks in accessing research funds often discourage research initiatives. These observations are consistent with prior studies that link research productivity to institutional support and funding availability. For instance, Makinde, Haliso, and Alegbeleye (2025) reported that inadequate access to resources and weak institutional support hinder scholarly productivity among Nigerian librarians, while Oso and Olaniyi (2024) highlighted funding and mentorship as critical enablers of research engagement. Similarly, Igiri et al. (2021) emphasized that insufficient research infrastructure and limited financial support reduce research participation, and Adetayo et al. (2023) found that structured institutional support, including access to research funding, significantly enhances librarians' research output and visibility.

Discussion of Findings

The findings of this study reveal that funding for library operations and research support in Federal Colleges of Education in South-West Nigeria is largely inadequate, particularly in critical areas such as e-resources, ICT facilities, publication fees, and conference sponsorship. This finding supports earlier studies by Babalola and Allahmagani (2023), who observed that institutional funding significantly influences librarians' research engagement and productivity. It also aligns with Abolaji and Fadimu (2024), who reported that budgetary constraints negatively affect access to library resources and research support services in academic institutions.

This funding shortfall appears to have a direct influence on the moderate level of research productivity observed among librarians, especially in terms of journal publications, conference participation, and scholarly visibility. This is consistent with the findings of Oyedele et al. (2022), who noted that librarians in Nigerian tertiary institutions often record moderate research output due to inadequate institutional support. Similarly, Ibegbulam and Eze (2016) established that inadequate funding weakens research culture and reduces publication output among academic librarians.

The study further demonstrates that although collaboration among librarians is relatively high, structural and financial limitations continue to undermine sustained research engagement. This observation aligns with Igiri et al. (2021), who found that weak funding structures and poor research infrastructure significantly hinder scholarly productivity in Nigerian academic institutions.

Furthermore, the strong support for funding-related strategies such as research grants, publication fee sponsorship, and improved access to electronic resources underscores the central role of financial support in enhancing librarians' research productivity. This finding corroborates Haliso et al. (2021), who emphasized that institutional support mechanisms significantly enhance research engagement and publication output among librarians. It also supports Okonedo (2019), who stressed that investment in research infrastructure leads to improved scholarly productivity and visibility among academic librarians.

Conclusion

This study examined the influence of funding on the research productivity of librarians in Federal Colleges of Education in South-West Nigeria. The findings indicate that inadequate funding remains a major barrier to librarians' research engagement and scholarly contribution. While librarians demonstrate commitment to research through moderate publication output and collaboration, limited financial support constrains their ability to access research resources, attend conferences, and publish in reputable journals.

The study concludes that improving funding structures is essential for strengthening research productivity, enhancing scholarly visibility, and advancing the Library and Information Science profession within Federal Colleges of Education. Addressing funding-related challenges will not only benefit librarians' professional development but also contribute to the overall research culture of these institutions.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Increased funding allocation should be provided for library operations and research activities in Federal Colleges of Education.
2. Institutional management should establish dedicated research grants and publication fee support for librarians.
3. Regular sponsorship for local and international conferences should be prioritized to improve research exposure and collaboration.
4. Investment in electronic resources, ICT infrastructure, and functional e-libraries should be strengthened to support research activities.

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Job Rotation Training and Job Satisfaction in Federal University Libraries: Pathways to the Future of Librarianship in Nigeria

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Abstract
Libraries in Nigeria occupy a strategic position within the nation's knowledge economy, serving as engines of academic excellence, cultural heritage, and national development. This paper argues that job rotation training and job satisfaction are critical pathways to the future of librarianship in Nigeria. Drawing on recent scholarship and professional reasoning, it situates librarianship within the broader knowledge economy, examines the current state of the profession, and explores how job rotation enhances adaptability and leadership while job satisfaction drives motivation, innovation, and resilience. The paper further outlines pathways to the future of librarianship, emphasizing digital transformation, leadership development, policy reform, and sustainable funding. By embedding job rotation and satisfaction into institutional frameworks, Nigerian libraries can align with Vision 2050 and the United Nations Sustainable Development Goals, positioning librarianship as a strategic partner in national progress and custodians of hope for socio-economic transformation.
Keywords: Job Rotation Training, Job Satisfaction, Libraries, Digital Transformation, Leadership Development, Knowledge Economy, Policy Reform.

Introduction

The 2026 NLA Conference theme ***"Our Future, Our Hope, The State of Librarianship in Nigeria"*** underscores the urgency of rethinking the profession in the light of national aspirations and global transformations. Librarianship in Nigeria is no longer confined to the traditional role of book custodianship; it has evolved into a dynamic profession that directly influences teaching, research, innovation, and national development. Federal university libraries, in particular, stand at the heart of this transformation. They are not passive repositories of books but active institutions that shape Nigeria's knowledge economy by equipping students and researchers with information literacy, digital competencies, and access to scholarly resources.

In today's rapidly changing academic landscape, libraries are expected to serve as intellectual hubs of digital innovation, centers of lifelong learning, and engines of sustainable development. Yet, despite their strategic importance, federal university libraries continue to grapple with persistent challenges. Inadequate funding, outdated infrastructure, low morale among staff, and weak policy frameworks threaten their effectiveness and limit their ability to meet the demands of a digital age. These challenges raise critical questions about how librarianship can be revitalized to remain relevant and impactful in Nigeria's higher education system.

This paper advances the argument that job rotation training and job satisfaction are strategic pathways to revitalizing librarianship in Nigeria**.** Job rotation exposes librarians to diverse functions such as cataloguing, acquisitions, ICT, and reference services, thereby fostering adaptability, resilience, and leadership capacity. Job satisfaction, on the other side of the coin, encourages motivation, retention, and innovation, ensuring that librarians remain committed to service excellence. Together, these practices form the human foundation upon which digital transformation, leadership development, and national progress can be built.

By embedding job rotation and satisfaction into institutional frameworks, Federal University Libraries can transform into engines of innovation and sustainable development. This paper therefore situates job rotation and satisfaction not as isolated human resource strategies but as strategic imperatives for the future of librarianship in Nigeria. In doing so, it aligns the profession with Nigeria's Vision 2050 and the United Nations Sustainable Development Goals, reinforcing the idea that libraries are not only custodians of knowledge but also custodians of hope for a nation striving toward academic excellence and socio-economic advancement.

Nigeria's Vision 2050

Human Capital Development: Vision 2050 emphasizes education, innovation, and skills acquisition. Academic libraries are central to this, and the focus on job rotation training directly supports the development of versatile, adaptive librarians.

Knowledge Economy: The plan envisions Nigeria as a knowledge-driven economy. Academic libraries, through staff development and satisfaction, ensure the production and dissemination of knowledge.

Digital Transformation: Vision 2050 highlights Information and Communication Technology (ICT) expansion. This paper's emphasis on resilience and digital transformation aligns perfectly with libraries evolving into digital learning commons.

UN Sustainable Development Goals (SDGs)

Libraries are explicitly tied to several SDGs:

SDG 4: Quality Education – Libraries provide equitable access to learning resources, foster lifelong learning, and support teaching and research.

SDG 8: Decent Work and Economic Growth – Job rotation and satisfaction enhance professional growth, innovation, and productivity among librarians.

SDG 5: Gender Equality – Academic libraries promote inclusive access to ICT and literacy programs for women and marginalized groups.

SDG 16: Peace, Justice, and Strong Institutions – Libraries act as trusted institutions ensuring access to information and supporting civic engagement.

How this Paper Bridges the Two (Vision 2050 and SDGs)

Theme	Vision 2050	SDGs	Library Pathway
Staff Development	Human capital growth	SDG 8	Job rotation builds versatile librarians
Knowledge Economy	Innovation & research	SDG 4	Libraries as knowledge hubs
Digital Inclusion	ICT expansion	SDG 5, SDG 4	Digital commons, ICT training
Institutional Strength	Policy reform	SDG 16	Libraries as strong institutions

The above links professional practice (job rotation & job satisfaction) with national and global development frameworks, it positions libraries as strategic actors in Nigeria's future knowledge economy and also It emphasizes digital transformation and resilience, which are critical for libraries to remain relevant.

Job Rotation Training: A Pathway to Growth

Job rotation has emerged as a strategic human resource management tool in academic libraries, particularly within Federal University Libraries in Nigeria. It involves systematically moving librarians across different functional units/departments such as Cataloguing/Classification, Acquisitions/Collection Development, Reference Services, ICT, and Institutional Repository section, Research and Training and Circulation. This practice is not merely a redistribution of tasks but a deliberate strategy aimed at fostering adaptability, skill diversification, and professional resilience. Ogbodo and Eze (2025) demonstrate that job rotation training enhances satisfaction and prepares librarians for leadership roles, while also reducing monotony and burnout. Their study highlights that librarians exposed to multiple departments develop a holistic understanding of library operations, which strengthens collaboration and service delivery. Similarly, Adebayo (2024) notes that rotation builds competencies in digital resource management, a skill increasingly vital in the era of electronic databases and open-access repositories. Case studies across Nigeria confirm these benefits.

In South-South universities, rotation programmes have been linked to improved digital literacy among librarians, enabling them to better support students in navigating e-resources. In North-West institutions, rotation combined with in-service training has reduced skill gaps and fostered teamwork. In North-Central Nigeria, librarians reported that rotation enhanced their confidence in handling ICT tools, positioning them as facilitators of digital transformation.

Globally, scholars echo these findings. Robbins and Judge (2023) argue that job rotation is a proven method for building organizational flexibility, while Armstrong (2024) emphasizes its role in succession planning and leadership development. For Nigerian librarianship, this means rotation is not only a tool for professional growth but also a mechanism for preparing the next generation of library leaders. Thus, job rotation emerges as a pathway to growth by equipping librarians with diverse competencies, fostering resilience, and positioning federal university libraries as dynamic institutions capable of meeting the demands of a rapidly evolving knowledge economy.

Job Satisfaction: The Human Dimension

Job satisfaction is both a human and organizational concern, directly influencing performance, innovation, and retention. In the context of Nigerian librarianship, satisfaction is shaped by factors such as recognition, opportunities for professional development, workload balance, and institutional support. Okeke and Nwankwo (2024) found a strong

correlation between satisfaction and performance among librarians in South-East Nigeria. Their study revealed that satisfied librarians were more innovative, more willing to adopt ICT tools, and more committed to service excellence. Ezeani and Igwesi (2024) argue that continuous professional development and job rotation are key drivers of satisfaction, as they reduce monotony and enhance career growth. However, Ogbodo and Eze (2025) caution that without policy reform, gains from rotation and continuous professional development may be short-lived, as systemic issues such as poor funding and weak human resource structures persist.

Other scholars reinforce these insights. Aina (2024) highlights that satisfaction is closely tied to recognition and career progression, noting that librarians often feel undervalued compared to other academic staff. Olanlokun and Salisu (2025) emphasize that satisfaction is essential for resilience, arguing that motivated librarians are better able to withstand systemic challenges and continue delivering quality services. Globally, Herzberg's two-factor theory (Herzberg revisited by Luthans, 2023) provides a useful framework: while hygiene factors such as salary and working conditions prevent dissatisfaction, motivators such as recognition, responsibility, and growth opportunities drive true satisfaction.

In Nigerian federal university libraries, satisfaction therefore emerges as a critical determinant of innovation and resilience. When librarians are motivated and fulfilled, they are more likely to embrace digital transformation, engage in leadership roles, and contribute meaningfully to national development. Conversely, low satisfaction leads to stagnation, attrition, and diminished service quality.

The literature points to three pathways:

Digital Transformation: Smart libraries enhance research quality (Okafor & Nwosu, 2024).

Leadership Development: Rotation and continuous professional development foster managerial capacity (Ezeani & Igwesi, 2024).

Resilience and Adaptability: Structured training builds resilience (Ogbodo & Eze, 2025).

Together, these pathways align librarianship with Nigeria's Vision 2050 and the United Nation's Sustainable Development Goals, reinforcing its role in national development.

Policy and Institutional Implications

Policy reform is essential if federal university libraries are to fulfill their mandate as engines of academic excellence and national development. Ogbodo and Eze (2025) stress the importance of embedding job rotation into human resource frameworks, arguing that without institutionalization, rotation remains ad hoc and unsustainable. Embedding rotation policies ensures that librarians are systematically exposed to diverse functions, thereby fostering adaptability, resilience, and leadership capacity.

Collaboration with professional bodies such as the Nigerian Library Association (NLA) and the Librarians' Registration Council of Nigeria (LRCN) is equally critical. These organizations provide professional standards, accreditation, and advocacy, ensuring that librarians remain professionally competent and ethically grounded. As Aina (2024) observes, professional associations play a vital role in shaping national policy discourse, and their involvement is necessary to align librarianship with broader educational and developmental goals.

Evaluation mechanisms also require strengthening. Okafor and Nwosu (2024) highlight weak performance metrics in Nigerian university libraries, noting that many institutions lack systematic approaches to measuring the impact of training, rotation, and satisfaction initiatives. Introducing clear performance indicators—such as user satisfaction surveys, digital literacy benchmarks, and innovation indices—would allow libraries to demonstrate their value to stakeholders and justify increased funding.

Furthermore, funding remains a central challenge. Federal university libraries often operate with limited budgets which restrict their ability to implement rotation programs, provide continuous professional development, and invest in digital infrastructure. Olanlokun and Salisu (2025) argue that without adequate financial support, even the most well-designed policies will fail to achieve their intended outcomes. Policy reform must therefore include sustainable funding models, possibly through government allocations, public-private partnerships, and international collaborations.

Globally, the International Federation of Library Associations (IFLA, 2024) provides a framework for aligning library policies with the UN Sustainable Development Goals. This framework emphasizes inclusivity, digital access, and lifelong learning. For Nigeria, adopting such a global perspective means integrating librarianship into national development strategies, recognizing libraries as engines of growth, and positioning them as partners in achieving Vision 2050.

Finally, institutional culture must evolve. Robbins and Judge (2023) note that organizational culture strongly influences the success of human resource policies. For Federal university libraries, this means cultivating a culture of innovation, collaboration, and accountability. Policies must not only exist on paper but be actively implemented, monitored, and revised to reflect changing realities.

In summary, the literature underscores that policy reform in Nigerian librarianship must be comprehensive: embedding job rotation into human resource frameworks, strengthening collaboration with professional bodies, introducing robust evaluation mechanisms, securing sustainable funding, and aligning with global development agendas. Only through such reforms can Federal University Libraries move from being underfunded service units to becoming strategic institutions that drive national progress.

Importance of Job Rotation and Job Satisfaction in university Libraries

Enhances Professional Growth Rotation equips librarians with diverse competencies, reduces monotony, and fosters adaptability. Evidence shows that librarians exposed to multiple departments develop holistic skills that prepare them for leadership roles. Without rotation, stagnation and skill gaps persist.

Drives Innovation Satisfied librarians are more motivated, resilient, and willing to adopt ICT tools. Continuous professional development and job rotation are proven drivers of satisfaction. Job satisfaction is therefore essential for sustaining Nigeria's knowledge economy and ensuring innovation in service delivery.

Digital Transformation is Non-Negotiable Smart libraries in Nigeria demonstrate the impact of ICT integration. Federal University Libraries must embrace digital readiness, invest in infrastructure, and train staff in emerging technologies or risk irrelevance in the global academic landscape.

Policy Reform is Essential Embedding job rotation into human resource frameworks ensures sustainability. Collaboration with NLA and LRCN strengthens professional standards. Without policy reform, gains from job rotation and job satisfaction remain fragmented and unsustainable.

The above submission underscore that job rotation and satisfaction are strategic pathways to the future of librarianship in Nigeria. Job rotation builds resilience, adaptability, and leadership capacity ensuring librarians are prepared for diverse challenges. Satisfaction enhances motivation, innovation, and retention, creating a workforce that is both committed and forward-looking.

Digital transformation emerges as a non-negotiable imperative. Libraries must integrate ICT tools, embrace smart technologies, and position themselves as engines of sustainable development. Policy reform provides the structural backbone for these changes, ensuring consistency, accountability, and sustainability.

Collectively, these elements form a holistic framework for revitalizing Federal university libraries. They align with Nigeria's Vision 2050 and the UN Sustainable Development Goals, situating librarianship as a strategic partner in national development.

Our Future, Our Hope

Libraries embody hope by ensuring equitable access to knowledge. Ezeani and Igwesi (2024) emphasize that knowledge management practices in Nigerian university libraries are central to strengthening academic productivity, though challenges of infrastructure and collaboration remain. The International Federation of Library Associations (IFLA, 2024) frames libraries globally as "engines of sustainable development," aligning them with the UN SDGs. For Nigeria, this means that Federal University Libraries must contribute not only to academic excellence but also to socio-economic transformation.

Librarianship in Nigeria is at a crossroad as Okafor and Nwosu (2024) highlight the rise of smart academic libraries in Northern Nigeria, where Information and Communication Technology (ICT) integration has improved research quality. Yet systemic challenges persist: poor connectivity, inadequate funding, and resistance to change. Ogbodo and Eze (2025) found that librarians often report low job satisfaction due to limited promotion opportunities and weak human

resource structures, though they remain resilient and committed to service delivery. This duality—strength in professional dedication but weakness in institutional support—defines the current state of librarianship.

Conclusion

Federal University Libraries are not merely service units but strategic institutions shaping Nigeria's future. Job rotation training and job satisfaction are pathways to professional growth, resilience, and innovation. By embedding these practices into human resource frameworks, supported by continuous professional development and digital transformation, Nigeria secures its hope for academic excellence and sustainable progress. The future of librarianship in Nigeria depends on bold reforms, sustained investment, and recognition of librarians as custodians of hope. If libraries are strengthened, policies reformed, and professionals empowered, then indeed, our libraries will be our future, and our librarians will remain our hope.

Suggestions

From the paper, several recommendations emerge for revitalizing federal university libraries in Nigeria:

Institutionalize Job Rotation

- Federal University Libraries should embed job rotation into their human resource frameworks, ensuring systematic exposure of librarians to cataloguing, acquisitions, ICT, and reference services.
- Job rotation schedules should be transparent, equitable, and linked to career progression, thereby reducing stagnation and fostering leadership capacity.

Enhance Job Satisfaction

- Institutions must prioritize recognition, promotion opportunities, and professional development.
- Continuous Professional Development (CPD) programs should be integrated into staff development policies, with emphasis on ICT training and digital literacy.
- Libraries should adopt Herzberg's motivation-hygiene framework to balance working conditions with growth opportunities.

Strengthen Digital Transformation

- Federal University Libraries should invest in ICT infrastructure, high-speed internet, and access to electronic databases.
- Librarians must be trained in emerging technologies such as artificial intelligence, data analytics, and digital preservation.
- Smart library initiatives should be scaled across all regions, ensuring equitable access to digital resources.

Policy Reform and Collaboration

- The Federal Government, through the Ministry of Education, should recognize libraries as strategic institutions in national development plans.
- Collaboration with professional bodies such as the Nigerian Library Association (NLA) and Librarians' Registration Council of Nigeria (LRCN) should be strengthened to enforce standards and accreditation.
- Performance metrics must be introduced to evaluate the impact of job rotation, satisfaction, and digital initiatives.

Sustainable Funding Models

- Federal University Libraries should be allocated dedicated funding lines within university budgets.
- Public-private partnerships and international collaborations should be explored to supplement government funding.
- Libraries should demonstrate accountability by publishing annual reports that highlight their contributions to teaching, research, and national development.

Cultivate Innovative Institutional Culture

- Library leadership should foster a culture of innovation, collaboration, and accountability.

- Staff should be encouraged to experiment with new service models, adopt user-centered approaches, and engage in interdisciplinary collaboration.
- Recognition programmes should celebrate innovation and resilience among librarians.

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LEGISLATIVE LIBRARIES AND EVIDENCE-BASED LEGISLATION IN NIGERIA

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Abstract
Legislative libraries play a vital role in supporting evidence-based legislation by providing lawmakers with access to reliable information, research materials, policy analyses, and legislative records. This study examined the contribution of legislative libraries to lawmaking in Nigeria, focusing on the availability and adequacy of information resources, the accessibility and utilization of library services by legislators, and the challenges affecting their operations. Findings showed that institutions such as the National Assembly Library and the National Institute for Legislative and Democratic Studies (NILDS) significantly support legislative research, policy analysis, and capacity building. However, challenges including inadequate funding, outdated resources, poor technological infrastructure, and limited access to electronic databases, insufficient professional staff, and low utilization of library services hinder their effectiveness. The study concludes that strengthening legislative libraries through increased funding, digital transformation, staff development, and improved awareness will enhance evidence-based legislation, democratic governance, and national development in Nigeria.
Keywords: Legislative libraries, evidence-based legislation, legislative research, policymaking, NILDS, Nigeria..

Introduction

Legislative libraries are specialized information centers established to support lawmakers with accurate, timely, and relevant information for policymaking and legislative decision-making. In Nigeria, legislative libraries have become increasingly important in promoting evidence-based legislation through the provision of research materials, policy analyses, legislative archives, and information services to members of the National Assembly and State Houses of Assembly. **Strengthening Access to Legislative Information:** The establishment and expansion of legislative library services, particularly through the National Assembly Library Trust Fund (NALTF) and the National Institute for Legislative and Democratic Studies (NILDS), have improved access to legislative documents, government publications, policy reports, and electronic databases. These resources enable legislators to make informed decisions based on empirical evidence rather than political intuition alone. The National Assembly Library currently provides both print and electronic resources, research support services, and digital information systems to support legislative functions.

Promotion of Evidence-Based Lawmaking: Evidence-based legislation requires lawmakers to rely on credible research, statistical data, policy evaluations, and expert analysis when formulating laws. NILDS plays a critical role in this process by conducting policy research, bill analysis, legislative drafting, and capacity-building programmes for legislators. These services contribute significantly to improving the quality and effectiveness of legislation in Nigeria.

Enhancement of Research Support Services*;* Legislative libraries now provide comprehensive research support through access to books, journals, legislative archives, policy briefs, and comparative legislative studies. The NILDS Library serves as a specialized legislative information center with collections in governance, law, economics, public administration, and political science, thereby supporting legislators in analyzing complex policy issues.

Preservation of Legislative Memory and Institutional Knowledge*:* Legislative libraries contribute to preserving institutional memory through archiving bills, committee reports, parliamentary debates, and legislative proceedings. The Legislative Archive maintained by NILDS ensures that historical legislative records remain accessible for future policymaking and research. Such preservation promotes continuity and consistency in legislative practice.

Capacity Building and Professional Development*:* One of the major achievements of legislative support institutions in Nigeria is the provision of continuous training for legislators and legislative staff. Through workshops, seminars, and policy dialogues, lawmakers are exposed to emerging governance issues and international best practices, thereby strengthening evidence-informed decision-making.

Legislative libraries are specialized information facilities that exist within parliaments and state assemblies to support lawmaking with accurate, timely, and credible knowledge. In Nigeria, where the National Assembly and 36 State Houses of Assembly grapple with complex policy issues ranging from fiscal reform to security, climate change, and digital economy regulation, the quality of legislation increasingly depends on the quality of evidence behind it.

Legislative libraries are indispensable because they are; Information gateway: They collect and organize laws, gazettes, Hansard records, policy papers, research reports, and global comparative legislation that lawmakers and their aides rely on daily. Research support: Librarians and parliamentary researchers help synthesize data, fact-check claims, and

prepare briefs that turn political intent into workable, enforceable statutes. Institutional memory: They preserve legislative history, committee reports, and past debates so new assemblies do not legislate in a vacuum.

Legislative libraries are therefore, the infrastructure of evidence-based lawmaking. Without strong libraries, committees lack briefing vessels, public hearings lack backgrounders, and drafters lack comparative models. Strengthening these libraries in Nigeria is therefore not about books on shelves. It is about building the capacity for laws that solve real problems, reflect Nigerian data as well as withstand judicial and public scrutiny in court and the society in general respectively.

This paper explored the current state of legislative libraries in Nigeria, the gaps they face, and how repositioning the libraries can anchor a culture of evidence-based legislation across the federation

Problem Statement

Evidence-based legislation is essential for effective governance, as it enables lawmakers to make informed decisions based on reliable data, research findings, and factual information. Legislative libraries play a critical role in this process by providing legislators with access to relevant information resources, policy analyses, research reports, and other knowledge products that support the formulation, debate, and enactment of laws. In developed democracies, legislative libraries serve as vital information centers that strengthen the quality of legislative decision-making and promote good governance.

In Nigeria, however, concerns have been raised regarding the extent to which legislative libraries effectively support evidence-based lawmaking. Many legislative libraries face challenges such as inadequate funding, outdated information resources, limited technological infrastructure, insufficient professional staffing, and low utilization by legislators. These challenges may hinder legislators' access to timely, accurate, and comprehensive information needed for informed policymaking and legislative oversight.

Furthermore, despite the growing emphasis on evidence-based governance, there is limited empirical evidence on the effectiveness of legislative libraries in supporting the legislative process in Nigeria. The extent to which legislators rely on library services and information resources when drafting, debating, and enacting laws remains unclear. This gap in knowledge makes it difficult to determine whether legislative libraries are adequately fulfilling their mandate of supporting evidence-based legislation.

Therefore, there is a need to assess the availability, accessibility, utilization, and effectiveness of legislative libraries in Nigeria and examine their contribution to evidence-based legislation. The findings of this study will provide insights into the challenges confronting legislative libraries and suggest measures for enhancing their capacity to support informed legislative decision-making and improved governance in Nigeria.

Objectives of the study

1. Examine the availability and adequacy of information resources and services provided by legislative libraries in Nigeria.
2. Assess the accessibility and utilization of legislative library resources by legislators and legislative staff.
3. Identify the challenges affecting the effective operation of legislative libraries in supporting legislative activities.

Literature Review

Availability and adequacy of information resources and services provided by legislative Libraries in Nigeria. Legislative libraries are specialized information centers established to support lawmakers and legislative staff with timely, accurate, and relevant information for lawmaking, oversight, representation, and policy formulation. The effectiveness of legislative libraries largely depends on the availability and adequacy of their information resources and services.

According to S. Aliyu (2016)., legislative libraries in Nigeria provide resources such as books, government publications, legislative proceedings, journals, newspapers, policy documents, reference materials, and electronic information resources. However, many state legislative libraries suffer from inadequate collections, outdated materials, and insufficient digital resources, which limit their ability to meet the information needs of legislators.

A study conducted in the North-Western State Houses of Assembly revealed that inadequate funding has significantly affected the acquisition of current information resources and services. The study found that many legislative libraries lack modern ICT facilities, internet access, and electronic databases necessary for contemporary legislative research.

Similarly, a study on parliamentary libraries in Kano and Jigawa States found that while resources such as books, legislative documents, newspapers, and journals were available, their adequacy was often compromised by poor funding and irregular updating of collections. The authors argued that the quality of services provided by legislative libraries is directly related to the quality and currency of available resources.

At the national level, the library of the National Institute for Legislative and Democratic Studies (NILDS) maintains extensive collections in legislation, governance, law, economics, public administration, and policy analysis. It also

provides research reports, legislative drafting manuals, budget analyses, and oversight guides, demonstrating the potential role of well-resourced legislative libraries in supporting legislative activities.

The literature therefore suggests that although legislative libraries in Nigeria possess essential information resources, the adequacy, currency, and technological sophistication of these resources remain inadequate in many legislative institutions.

Accessibility and Utilization of Legislative Library Resources by Legislators and Legislative Staff

Accessibility and utilization of information resources are critical indicators of the effectiveness of legislative libraries. Information resources may be available, but their value depends on the extent to which legislators and legislative staff access and use them in performing their duties.

Qristee Muyiwa (2015). on the National Assembly Library, Abuja, found that legislative aides regularly accessed information resources for legislative functions such as bill analysis, policy research, committee work, and constituency representation. The study identified books, reports, legislative documents, journals, and electronic resources as the most frequently used materials. However, access was constrained by inadequate ICT infrastructure, insufficient awareness of available resources, and limited training in information retrieval.

Datti's (2019). Study of Kano and Jigawa State Houses of Assembly reported that legislative staff relied on parliamentary libraries for legislative research, preparation of briefs, committee assignments, and policy analysis. The study revealed moderate utilization levels but noted that many users preferred personal contacts and informal information sources due to limitations in library services and resource availability.

Similarly, Clifford's (2014). Study on the Edo State House of Assembly established that lawmakers recognized the importance of libraries for effective legislation and occasionally used library services. However, utilization was hindered by the lack of relevant and current materials as well as inadequate awareness of available services.

Studies in specialized legal information environments in Nigeria also indicate that users often depend heavily on libraries for professional information needs but express dissatisfaction when collections are outdated or incomplete.

The literature therefore suggests that although legislators and legislative staff recognize the value of legislative libraries, utilization remains below optimal levels because of accessibility barriers, inadequate collections, and technological limitations.

Challenges affecting the effective operation of legislative libraries in supporting legislative activities

Numerous studies have identified challenges that undermine the effectiveness of legislative libraries in Nigeria.

The most frequently cited challenge is inadequate funding. Aliyu found that insufficient budgetary allocation affects resource acquisition, subscription to electronic databases, staff development, and maintenance of library infrastructure.

Datsti (2019) reported that 77% of respondents identified shortage of funds as the major challenge affecting accessibility and utilization of parliamentary library resources. Other challenges included inadequate ICT facilities, non-availability of current information resources, poor user education programs, and inefficient cataloguing systems.

Additional challenges identified in the literature include:

1. Lack of modern information and communication technologies.

2. Limited internet connectivity and access to electronic databases.

3. Inadequate professional staffing and specialized training.

4. Poor awareness of available library services among legislators.

5. Outdated and insufficient information resources.

6. Unconducive library environments.

Time constraints faced by legislators, which limit library use.

These challenges collectively reduce the capacity of legislative libraries to provide timely, accurate, and comprehensive information support for legislative activities and evidence-based decision-making.

Way Forward

To strengthen evidence-based legislation in Nigeria, legislative libraries must be repositioned as strategic knowledge centers that support informed policymaking and effective legislative performance. This requires a deliberate commitment by government, legislative institutions, and other stakeholders to address the challenges currently limiting the effectiveness of these libraries.

First, there is a need for increased and sustainable funding for legislative libraries at both the National Assembly and State Houses of Assembly. Adequate funding will facilitate the acquisition of current information resources, subscription to electronic databases, modernization of library facilities, and improvement of overall service delivery.

Second, legislative libraries should embrace digital transformation through the deployment of modern information and communication technologies (ICTs). The establishment of digital libraries, online catalogues, electronic repositories, and remote access platforms will enhance accessibility to information resources and enable legislators to obtain relevant information regardless of location or time constraints.

Third, continuous professional development and capacity-building programmes should be provided for legislative librarians and information professionals. Specialized training in legislative research, policy analysis, information management, digital librarianship, and emerging technologies will improve the quality of information services available to lawmakers.

Fourth, awareness and orientation programmes should be organized regularly for legislators and legislative staff to promote greater utilization of library resources and services. Such programmes should emphasize the importance of evidence-based decision-making and demonstrate how library resources can support legislative drafting, policy analysis, committee work, and oversight functions.

Furthermore, collaboration and networking among legislative libraries, academic institutions, research organizations, and international parliamentary information services should be strengthened. These partnerships can facilitate resource sharing, access to global best practices, and the exchange of research and legislative information.

There is also a need to establish clear policies and standards for legislative library development and operation across Nigeria. Such standards should address staffing requirements, resource acquisition, technological infrastructure, service delivery, and performance evaluation to ensure consistency and effectiveness.

Finally, future empirical studies should be conducted to evaluate the impact of legislative library services on legislative outcomes, policymaking processes, and governance performance in Nigeria. Evidence generated from such studies will provide a stronger basis for policy interventions and investment in legislative information systems.

By implementing these measures, legislative libraries can be transformed into vibrant centers of knowledge that support evidence-based legislation, improve the quality of laws and public policies, and contribute significantly to democratic governance and national development in Nigeria.

Conclusion

Legislative libraries remain indispensable institutions in the legislative process, serving as critical sources of information that support evidence-based lawmaking and democratic governance. This study has demonstrated that legislative libraries in Nigeria provide a wide range of information resources and services, including books, legislative documents, government publications, policy reports, journals, and electronic resources that are essential for informed legislative decision-making.

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Leveraging AI for 21st Century Information Service delivery in Academic Libraries

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ABSTRACT

This study examines the role of Artificial Intelligence (AI) in enhancing 21st-century library and information services in Nigeria, focusing on its impact on service delivery, benefits, and adoption challenges. A descriptive survey research design was adopted, and data were collected from 165 professional librarians in selected Nigerian academic libraries using a structured questionnaire. The data were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (Pearson correlation). The findings revealed that AI technologies such as machine learning, natural language processing, chatbots, and automated cataloguing systems are applicable to library services and significantly improve efficiency, accuracy, accessibility, and user satisfaction. The study also established a strong positive relationship between AI adoption and library service delivery, as well as between librarians' digital competencies and effective AI implementation. However, AI adoption is constrained by inadequate ICT infrastructure, limited funding, insufficient technical skills, and weak policy support. The study concludes that strategic investment in infrastructure, continuous capacity building, and supportive policy frameworks are essential for sustainable AI integration and improved library service delivery in Nigeria.

Keywords: Artificial Intelligence (AI), Academic Libraries, Service Delivery, Digital Transformation, Nigeria

INTRODUCTION

Libraries have historically served as essential institutions for the preservation, organization, and dissemination of knowledge. From ancient manuscript collections to modern digital repositories, they have continuously evolved in response to changes in information production and technological development (Das & Islam, 2021). Today, libraries have transformed beyond physical spaces into dynamic digital ecosystems that support teaching, learning, research, and lifelong education. The evolution of libraries reflects major historical milestones, including early civilization knowledge preservation systems and the invention of the printing press in the 15th century, which significantly expanded access to information (Sharma & Sharma, 2022). The 20th century introduced computerization, automation of cataloguing, and the development of electronic databases, leading to the emergence of digital libraries that now provide global, remote access to information resources (Cox et al., 2022).

In recent years, libraries worldwide have increasingly adopted Information and Communication Technologies (ICTs) and Artificial Intelligence (AI) to enhance service delivery. In advanced regions, AI is being used to automate cataloguing, improve information retrieval, support virtual reference services, and personalize user experiences (Dwivedi et al., 2023). These innovations are reshaping traditional librarianship into a more intelligent, data driven service environment. AI technologies such as machine learning, natural language processing, and predictive analytics are further transforming library operations by improving efficiency, automating routine tasks, and enhancing user engagement (Liu & Briggs, 2022). However, while developed regions have made significant progress, many libraries in Africa are still at the early stages of digital transformation due to infrastructural and capacity-related challenges (Echedoma & Okuonghae, 2021).

In Nigeria, libraries remain central to education, research, and national development, yet many still rely on conventional service models that limit efficiency and innovation. The adoption of AI remains limited, resulting in challenges such as slow information retrieval, low personalization, and inefficiencies in managing digital resources (Atanda, 2024). This situation is further constrained by inadequate funding, weak ICT infrastructure, limited technical expertise, and inconsistent policy frameworks (Oton & Kolawole, 2025). Despite these challenges, there is growing recognition of AI as a transformative tool for repositioning libraries as intelligent information hubs capable of delivering faster, more accurate, and user centred services (Igbo et al., 2025). AI driven tools such as chatbots, intelligent indexing systems, and predictive search engines offer practical solutions for improving library service delivery and user satisfaction (Adewojo & Dunmade, 2024).

Against this background, this study examines the role of Artificial Intelligence in enhancing 21st-century library and information services in Nigeria, focusing on its opportunities, challenges, and sustainable adoption strategies.

Statement of the Problem

Despite the growing global adoption of Artificial Intelligence (AI) in library operations, many Nigerian libraries continue to rely on traditional and semi-automated systems that limit efficiency, responsiveness, and innovation in service delivery. While AI technologies such as machine learning, natural language processing, and intelligent search systems have demonstrated the potential to enhance information retrieval, automate routine tasks, and improve user experience, their integration into Nigerian libraries remains minimal.

This limited adoption is largely attributed to challenges such as inadequate ICT infrastructure, insufficient funding, low levels of digital and technical skills among librarians, and the absence of clear policy frameworks to guide implementation. As a result, there exists a significant gap between global advancements in AI-driven library services and the current state of library operations in Nigeria. If this gap is not addressed, Nigerian libraries risk becoming less relevant in the rapidly evolving digital information landscape. Therefore, there is a need to investigate how AI can be effectively leveraged to improve library service delivery and to identify strategies for overcoming existing adoption barriers.

Objectives of the Study

The study seeks to:

8. Identify Artificial Intelligence technologies applicable to library and information services.
9. Examine how Artificial Intelligence improves library service delivery in Nigeria.
10. Analyze the benefits of integrating AI into library operations and user services.
11. Investigate the challenges affecting AI adoption in Nigerian libraries.
12. Propose strategies for the effective implementation of Artificial Intelligence in library services.

Research Questions

The study is guided by the following research questions:

1. What Artificial Intelligence technologies are applicable to library and information services?
2. How does Artificial Intelligence improve the efficiency and quality of library services in Nigeria?
3. What benefits are associated with the adoption of AI in library and information management?
4. What challenges hinder the adoption of Artificial Intelligence in Nigerian libraries?
5. What strategies can support the effective integration of AI in library services in Nigeria?

Research Hypotheses

To guide empirical investigation, the following hypotheses are formulated:

H_{01}: There is no significant relationship between Artificial Intelligence adoption and library service delivery in Nigerian libraries.

H_{02}: There is no significant relationship between librarians' digital skills and the successful implementation of Artificial Intelligence in library services in Nigeria.

LITERATURE REVIEW

Introduction

The integration of Artificial Intelligence (AI) into library and information services has become one of the most transformative developments in contemporary librarianship. Globally, libraries are transitioning from traditional information management systems to intelligent, data driven service environments that support automation, personalization, and predictive analytics. This transformation is reshaping the role of librarians, redefining service delivery models, and enhancing user engagement. This chapter presents a critical review of relevant literature on AI and library services, structured according to the research questions of the study. It examines empirical and theoretical studies from 2021–2026 focusing on AI technologies in libraries, their impact on service delivery, and the benefits and challenges of adoption, particularly in developing countries such as Nigeria.

Artificial Intelligence Technologies Applicable to Library and Information Services

Artificial Intelligence technologies in libraries have evolved rapidly in recent years, particularly in the areas of machine learning, natural language processing (NLP), robotics, and intelligent automation systems. According to Das and Islam (2021), who conducted a systematic review of AI applications in libraries using Scopus and Web of Science databases, AI technologies are primarily deployed in cataloguing, classification, and information retrieval systems. Their study analyzed 32 peer reviewed articles and found that machine learning and NLP dominate AI implementation in library environments, although full-scale deployment remains limited.

Similarly, Ajani, Tella, Salawu and Abdullahi (2022), examined the applicability of AI tools in Nigerian academic libraries through a qualitative documentary analysis. Their study revealed that AI tools such as expert systems, robotics, and intelligent databases are relevant in acquisition, indexing, and circulation services. However, they emphasized that most Nigerian libraries are still operating at the automation stage rather than full AI integration due to infrastructural and financial constraints. In a more recent study, Lappalainen and Narayanan (2023), explored emerging AI technologies in modern libraries using conceptual synthesis and case-based evidence. Their findings indicated that generative AI systems, intelligent chatbots, and predictive analytics are becoming essential tools for modern libraries globally. The study further highlighted that these technologies improve efficiency in user interaction, automate repetitive

tasks, and support data driven decision-making. However, they stressed the need for continuous training of librarians to effectively manage AI systems.

Synthesis:

The literature clearly indicates that AI technologies relevant to libraries include machine learning, NLP, robotics, expert systems, chatbots, and predictive analytics. However, adoption in developing countries, particularly Nigeria, remains in early stages due to infrastructural and human capacity challenges.

Artificial Intelligence and Library Service Delivery in Nigeria

Artificial Intelligence has been widely recognized as a catalyst for improving efficiency, responsiveness, and personalization in library services. Wagwu et al. (2024) conducted a descriptive survey involving 37 librarians from selected Nigerian university libraries to examine the use of AI powered chatbots in reference services. Their findings revealed that chatbots significantly improved response time, enhanced user interaction, and provided 24/7 virtual assistance. The study concluded that AI-based systems increase service efficiency but require adequate ICT infrastructure and staff training. Similarly, Suleiman et al. (2023) investigated AI adoption in Nigerian academic libraries using qualitative research methods and ethical analysis. The study found that AI enhances information retrieval systems by enabling personalized search results and intelligent recommendation services. However, concerns were raised regarding data privacy, algorithmic bias, and ethical governance in AI deployment.

In another empirical study, Oton and Kolawole (2025) analyzed AI integration in library operations through literature based synthesis. Their findings indicated that AI improves cataloguing accuracy, accelerates information processing, and enhances user satisfaction. They further noted that AI transforms librarians from routine service providers into knowledge managers and data interpreters.

Synthesis:

Across the reviewed studies, AI has been shown to improve service delivery through automation, personalization, and improved response time. However, concerns around ethics, infrastructure, and professional readiness remain significant barriers in Nigeria.

Benefits of Artificial Intelligence in Library and Information Services

The benefits of Artificial Intelligence in libraries are widely documented in recent literature. Igbo et al. (2025) examined AI adoption in Nigerian academic libraries using thematic analysis of secondary data. The study identified key benefits including improved operational efficiency, automated workflows, enhanced user satisfaction, and faster information retrieval. The authors concluded that AI enables libraries to handle large datasets more effectively than traditional systems. Similarly, Idahosa and Eireyi-Edewede (2023) conducted a survey of librarians in South-South Nigeria using structured questionnaires. The study revealed that the adoption of emerging technologies significantly enhances library service delivery by improving efficiency and reducing reliance on manual processes. However, the findings also showed that limited digital literacy and inadequate technical skills among librarians hinder the effective implementation of such technologies in academic libraries. In their study, Ovie and Ekuerhare (2024) further emphasized that AI contributes to knowledge management, institutional efficiency, and improved decision-making in libraries. Their conceptual review highlighted that AI enables predictive analytics, which helps libraries anticipate user needs and improve resource allocation.

Synthesis:

The literature consistently shows that AI enhances efficiency, improves user experience, supports decision making, and reduces workload in libraries. However, these benefits are fully realized only in environments with adequate infrastructure and skilled personnel.

Challenges Affecting Artificial Intelligence Adoption in Nigerian Libraries

Despite its benefits, AI adoption in Nigerian libraries faces significant challenges. Igbo et al. (2025) identified infrastructural deficits, lack of policy frameworks, and insufficient funding as major barriers to AI implementation. Their study emphasized that many libraries lack stable internet connectivity and modern ICT infrastructure required for AI systems. Idahosa and Eireyi-Edewede (2023) also highlighted the problem of low AI literacy among librarians. The study found that many library professionals lack training in emerging technologies, making it difficult to effectively implement and manage AI systems.

Similarly, Ovie and Ekuerhare (2024) pointed out institutional and governmental limitations. They argued that the absence of national AI policies for libraries has slowed technological adoption. Additionally, resistance to change among library staff was identified as a sociocultural barrier. Suleiman et al. (2023) further added that ethical concerns such as data privacy, surveillance risks, and algorithmic bias also limit AI adoption in academic libraries.

Synthesis:

Key challenges include poor infrastructure, lack of funding, inadequate ICT skills, weak policy frameworks, ethical concerns, and institutional resistance to technological change.

Theoretical Perspective

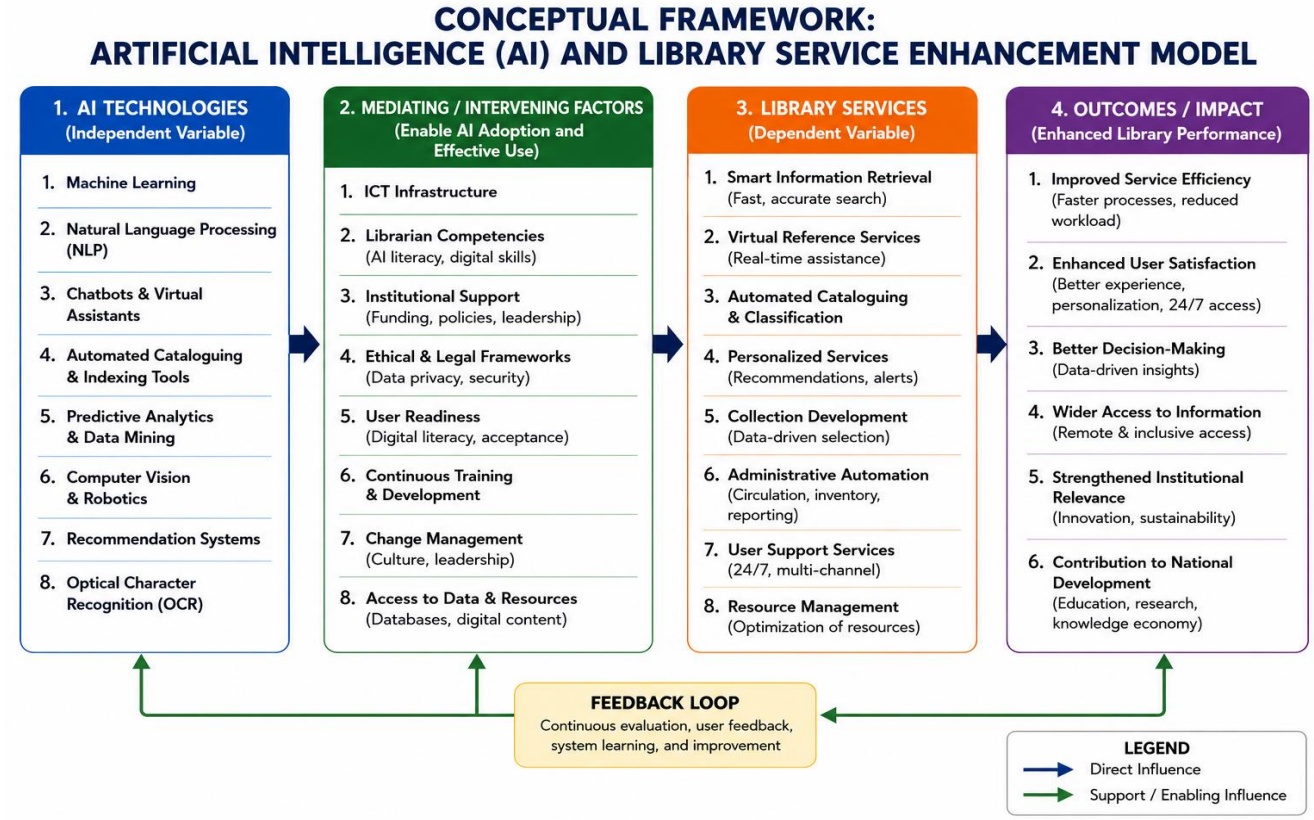
This study is anchored on the Technology Acceptance Model (TAM) and the Diffusion of Innovation Theory (DOI). TAM, as proposed by Davis (1989), explains that user acceptance of technology depends on perceived usefulness and perceived ease of use. In contemporary studies, Ghimire and Edwards (2024) similarly found that in the context of

generative artificial intelligence, perceived usefulness significantly influences users' acceptance of technology, while perceived ease of use also plays an important role in shaping adoption behaviour.

The Diffusion of Innovations (DOI) theory (Rogers, 2003) explains how innovations spread within a social system over time through communication channels and social influence. Recent applications of the theory confirm its relevance in explaining technology adoption in institutional settings. For example, Al-Rahmi et al. (2023) affirm that DOI explains technology adoption through key attributes such as relative advantage, compatibility, trialability, and observability, which significantly influence users' decisions to adopt innovations. In the context of Nigerian libraries, AI adoption can therefore be understood in terms of innovation awareness, trialability, and gradual institutional acceptance, where librarians evaluate the benefits and usability of AI before full integration into library services. These theories collectively explain both individual and institutional factors affecting AI adoption in libraries.

Conceptual Synthesis

Based on the reviewed literature, AI in libraries can be conceptualized as a system that transforms traditional library services into intelligent, automated, and user centered service environments. The interaction between AI technologies, librarian competencies, institutional infrastructure, and policy frameworks determines the effectiveness of library service delivery.



Summary of Literature Review

The literature reveals that Artificial Intelligence has significant potential to transform library and information services globally and in Nigeria. AI technologies such as chatbots, machine learning, and predictive analytics improve efficiency, accuracy, and user satisfaction. However, challenges such as inadequate infrastructure, limited skills, ethical concerns, and weak policy frameworks hinder full adoption in Nigerian libraries. Overall, there is a clear research gap in empirical studies focusing on AI implementation in Nigerian library environments, particularly regarding large-scale adoption and sustainability strategies

METHODOLOGY

This study adopted a descriptive survey research design to investigate the influence of Artificial Intelligence (AI) on library service delivery in selected university libraries in Northern Nigeria. The study was conducted in federal, state, and private universities with functional library systems and evidence of ICT integration. The population comprised 180 professional librarians and library staff, including university librarians, cataloguers, reference librarians, and ICT/digital services librarians. A sample of 165 respondents was selected using a multi-stage sampling technique involving purposive, stratified, and simple random sampling methods to ensure adequate representation.

Data were collected using a structured questionnaire titled *Artificial Intelligence and Library Service Delivery Questionnaire (AILSDQ)*, which contained items on AI technologies, service delivery, benefits, and challenges of AI

adoption. Responses were measured on a five-point Likert scale ranging from Strongly Agree (5) to Strongly Disagree (1). Face and content validity of the instrument were established through expert review, while reliability was determined through a pilot study involving 20 librarians outside the study area using the Cronbach Alpha method, with a coefficient of 0.70 considered acceptable.

The questionnaire was administered through both paper-based and online platforms, including Google Forms, email, and WhatsApp. Data collected were analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviations to answer the research questions, while Pearson Product Moment Correlation (PPMC) and regression analysis were used to test the hypotheses at the 0.05 level of significance. A mean score of 2.50 and above was accepted, while scores below 2.50 were rejected.

Analysis of Research Questions

Research Question 1: What AI technologies are applicable to library services?

Table 4.3: AI Technologies Used in Libraries

AI Technologies	Mean	Std. Dev.	Decision
Machine Learning	3.45	0.82	Accepted
Natural Language Processing	3.62	0.76	Accepted
Chatbots	3.80	0.70	Accepted
Automated Cataloguing	3.90	0.68	Accepted
Predictive Analytics	3.30	0.85	Accepted
Grand Mean	3.61		Accepted

(Field Survey, Source 2026)

Interpretation: The results in Table 4.3 indicate that all identified AI technologies recorded mean scores above the benchmark mean of 2.50. This implies that respondents agreed that Machine Learning (3.45), Natural Language Processing (3.62), Chatbots (3.80), Automated Cataloguing (3.90), and Predictive Analytics (3.30) are applicable to library services. The grand mean of 3.61 further confirms the general acceptance of AI technologies in library operations. Automated Cataloguing recorded the highest mean score (3.90), suggesting that it is the most commonly applied AI technology among the surveyed libraries.

Research Question 2: How does AI improve library services*?*

Table 4.4: AI and Service Improvement

Variables	Mean	Std. Dev.	Decision
Faster Information Retrieval	3.88	0.64	Accepted
Improved Accuracy	3.75	0.70	Accepted
Personalized Services	3.60	0.78	Accepted
24/7 Accessibility	3.92	0.60	Accepted
Reduced Workload	3.70	0.72	Accepted
Grand Mean	3.77		Accepted

(Field Survey, Source 2026)

Interpretation: Table 4.4 reveals that respondents agreed that AI improves library services in several ways. The highest mean score was recorded for 24/7 Accessibility (3.92), followed by Faster Information Retrieval (3.88). The grand mean score of 3.77 indicates that AI contributes significantly to improved service delivery through enhanced accessibility, efficiency, accuracy, and reduced workload for library staff.

Research Question 3: What are the benefits of AI adoption?

Table 4.5: Benefits of AI Adoption

Benefits	Mean	Std. Dev.	Decision
Efficiency Improvement	3.95	0.62	Accepted
User Satisfaction	3.85	0.65	Accepted
Time Saving	3.90	0.60	Accepted
Better Decision-Making	3.70	0.73	Accepted
Grand Mean	3.85		Accepted

(Field Survey, Source 2026)

Interpretation: The findings show that all the identified benefits of AI adoption were accepted by respondents. Efficiency Improvement recorded the highest mean score (3.95), indicating that respondents perceive AI as a tool for improving operational effectiveness. The grand mean of 3.85 suggests a strong agreement that AI adoption contributes

positively to library performance through increased efficiency, user satisfaction, time savings, and informed decision-making.

Research Question 4: What challenges affect AI adoption?

Table 4.6: Challenges Affecting AI Adoption

Challenges	Mean	Std. Dev.	Decision
Poor Infrastructure	4.10	0.55	Accepted
Lack of Funding	4.05	0.60	Accepted
Low Technical Skills	3.95	0.65	Accepted
Lack of Policy Support	3.80	0.70	Accepted
Grand Mean	3.98		Accepted

(Field Survey, Source 2026)

Interpretation: Table 4.6 indicates that respondents agreed that all the listed factors constitute major challenges to AI adoption in libraries. Poor Infrastructure recorded the highest mean score (4.10), followed closely by Lack of Funding (4.05). The grand mean score of 3.98 demonstrates a strong consensus among respondents that infrastructural deficiencies, inadequate funding, limited technical skills, and weak policy support hinder the effective implementation of AI technologies in libraries.

Test of Hypotheses

Hypothesis One

H_{01}: There is no significant relationship between AI adoption and library service delivery.

Table 4.7: Pearson Product Moment Correlation between AI Adoption and Library Service Delivery

Variables	AI Adoption	Service Delivery
AI Adoption	1.000	0.712**
Service Delivery	0.712**	1.000

$r = 0.712$, $p = 0.000$, $\alpha = 0.05$

Decision: Since the calculated p-value (0.000) is less than the level of significance (0.05), the null hypothesis is rejected.

Interpretation: The correlation coefficient ($r = 0.712$) indicates a strong positive relationship between AI adoption and library service delivery. This implies that increased adoption of AI technologies is associated with improved library services. Therefore, AI adoption significantly influences service delivery in university libraries.

Hypothesis Two

H_{02}: There is no significant relationship between librarians' digital skills and AI implementation.

Table 4.8: Pearson Product Moment Correlation between Digital Skills and AI Implementation

Variables	Digital Skills	AI Implementation
Digital Skills	1.000	0.685**
AI Implementation	0.685**	1.000

$r = 0.685$, $p = 0.000$, $\alpha = 0.05$

Decision: Since the p-value (0.000) is less than the significance level of 0.05, the null hypothesis is rejected.

Interpretation: The correlation coefficient ($r = 0.685$) indicates a strong positive relationship between librarians' digital skills and AI implementation. This suggests that higher levels of digital competence among librarians significantly enhance the successful adoption and implementation of AI technologies in library services.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of the Study

This study examined the role of Artificial Intelligence (AI) in enhancing 21st-century library and information services in Nigeria. The research was guided by five objectives which focused on identifying AI technologies applicable to library services, examining their impact on service delivery, analyzing benefits, investigating challenges, and proposing strategies for effective implementation. A descriptive survey research design was adopted for the study. The population comprised professional librarians working in selected Nigerian university libraries, from which a sample of 165 respondents was obtained. Data were collected using a structured questionnaire and analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (correlation analysis).

The findings revealed that AI technologies such as chatbots, natural language processing, machine learning, and automated cataloguing systems are applicable to library operations. The study also established that AI significantly improves library service delivery by enhancing speed, accuracy, accessibility, and user satisfaction.

Furthermore, the study identified key benefits of AI adoption, including improved efficiency, time-saving, better decision-making, and enhanced user experience. However, several challenges were found to hinder effective AI implementation in Nigerian libraries, notably inadequate infrastructure, insufficient funding, low technical skills among librarians, and weak institutional and policy support.

The hypotheses tested confirmed that there is a significant positive relationship between AI adoption and library service delivery, as well as between librarians' digital skills and successful AI implementation.

Discussion of Findings

The findings of this study demonstrate that Artificial Intelligence (AI) technologies are increasingly becoming important tools for improving library service delivery. The identification of machine learning, natural language processing, chatbots, and automated cataloguing systems as major AI technologies used in libraries corroborates earlier studies that highlighted the growing relevance of AI in information management and retrieval. This finding suggests that libraries are gradually transitioning from traditional service models to technology-driven systems capable of meeting the evolving information needs of users. The adoption of these technologies reflects the global trend toward digital transformation in library operations and services.

The study further revealed that AI significantly enhances service delivery through improved efficiency, accuracy, speed, and accessibility of information services. This implies that AI-powered systems can reduce the workload of library staff by automating repetitive tasks while simultaneously improving the quality of services offered to users. The finding supports previous studies that reported improvements in response time, user satisfaction, and information retrieval through AI applications. The increased accessibility provided by AI technologies is particularly important in contemporary library environments where users increasingly demand instant and remote access to information resources. Therefore, AI adoption has the potential to strengthen the role of libraries as effective information service providers in the digital age.

Another important finding of the study is the existence of a strong positive relationship between AI adoption and service delivery. This indicates that libraries that embrace AI technologies are more likely to experience improved operational performance and user satisfaction. The finding reinforces the Technology Acceptance Theory, which posits that the perceived usefulness of a technology influences its adoption and eventual impact on organizational performance. In the context of libraries, the effectiveness of AI applications appears to translate directly into better service outcomes, thereby justifying investments in AI-driven solutions.

Despite the numerous benefits associated with AI adoption, the study identified several challenges hindering its effective implementation, including inadequate infrastructure, limited funding, shortage of technical expertise, and insufficient staff training. These challenges suggest that the successful deployment of AI in libraries extends beyond the availability of technology itself and depends largely on organizational readiness and institutional support. The findings reflect the realities of many developing countries, particularly Nigeria, where financial and technological constraints continue to affect the modernization of library services. Consequently, libraries may be unable to fully exploit the benefits of AI without adequate investment in infrastructure development and capacity building.

The findings also underscore the need for continuous professional development for librarians. Since AI technologies require specialized knowledge and technical competencies, library personnel must be equipped with the necessary skills to manage, maintain, and effectively utilize these systems. Training programmes, workshops, and collaborations with technology experts could therefore play a critical role in facilitating successful AI integration in libraries. Furthermore, policymakers and institutional administrators should prioritize funding and strategic planning aimed at promoting AI adoption in library environments.

Overall, the study demonstrates that while AI offers substantial opportunities for improving library service delivery, its successful implementation requires addressing existing infrastructural, financial, and human-capacity challenges. The findings therefore provide empirical evidence that supports increased investment in AI technologies as a means of enhancing the efficiency, effectiveness, and sustainability of library services in the contemporary information society.

Conclusion

This study concludes that the adoption of Artificial Intelligence has significant potential to enhance service delivery in the academic libraries studied. The findings revealed that AI technologies such as machine learning, natural language processing, chatbots, and automated information retrieval systems are recognized as valuable tools for improving library operations and user services. The study further established that the utilization of these technologies contributes to greater efficiency, accuracy, accessibility, and responsiveness in the delivery of library services.

The study also found a significant positive relationship between AI adoption and service delivery in the academic libraries investigated, indicating that increased implementation of AI technologies is associated with improved

library performance and user satisfaction. However, the effective deployment of AI in these libraries is constrained by challenges such as inadequate technological infrastructure, insufficient funding, limited technical expertise, and inadequate staff training. Based on these findings, it can be concluded that while the academic libraries studied are aware of the benefits of AI and have begun embracing relevant technologies, the full realization of AI-driven library services will depend on sustained institutional commitment, investment in infrastructure, capacity building for library personnel, and the of supportive policies. Addressing these challenges will enable the libraries to maximize the benefits of AI and better meet the information needs of their users in an increasingly digital environment.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are proposed:

1. ***Investment in ICT Infrastructure:*** Government, educational institutions, and stakeholders should invest in modern ICT infrastructure, including high-speed internet, digital platforms, and AI-compatible systems, to support the implementation of Artificial Intelligence in libraries.

2. ***Capacity Building and Training:*** Continuous professional development programs should be organized to equip librarians with relevant digital and AI skills. Training should focus on areas such as data analytics, machine learning basics, and digital information management.

3. Development of AI Policies for Libraries: There is a need for the development of clear national and institutional policies that guide the adoption and ethical use of Artificial Intelligence in library services. These policies should address issues such as data privacy, security, and responsible AI usage.

4. Increased Funding for Library Innovation: Adequate funding should be allocated to libraries to support technological innovation, research, and implementation of AI-based systems. This will enable libraries to modernize their operations and improve service delivery.

5. Collaboration and Partnerships: Libraries should collaborate with technology firms, academic institutions, and research organizations to facilitate knowledge sharing, innovation, and access to AI tools and expertise.

6. Integration of AI into Library Education: Library and Information Science (LIS) curricula in Nigerian universities should be updated to include Artificial Intelligence, data science, and emerging technologies to prepare future librarians for digital transformation.

7. Pilot Implementation of AI Systems: Libraries should begin with pilot projects such as chatbot services, automated cataloguing, and digital reference systems to gradually integrate AI into their operations.

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LEVERAGING AI FOR SERVICE DELIVERY IN COLLEGES OF EDUCATION LIBRARIES: PROSPECTS AND CHALLENGES

BY

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ABSTRACT

Artificial Intelligence (AI) is increasingly transforming library and information services by enhancing operational efficiency and improving user experiences. Its growing application in service delivery has attracted considerable attention among researchers and information professionals, particularly in Colleges of Education libraries. This study explored the current state of AI adoption in Colleges of Education libraries, identified the key drivers of AI integration, examined practical applications and use cases, investigated implementation challenges, and assessed strategic approaches for effective AI adoption. The study adopted a qualitative content analysis approach and reviewed relevant literature from scholarly journals, conference proceedings, and credible reports. Data obtained from the reviewed sources were subjected to thematic analysis in line with the study objectives. Findings revealed that AI adoption in Colleges of Education libraries remains at an emerging stage, with most institutions implementing basic technologies such as automated cataloguing systems, digital reference services, and chatbots. The analysis further showed that technological advancement, increasing demand for personalized services, operational efficiency, and institutional digital transformation goals are the major drivers of AI integration. Practical applications identified include intelligent information retrieval systems, virtual reference assistants, metadata generation, recommendation systems, and predictive analytics. However, AI adoption in colleges of education librries is constrained by inadequate funding, poor infrastructure, limited technical expertise, resistance to change among library personnel, data privacy concerns, and the lack of localized AI solutions. The study concludes that AI has considerable potential to enhance service delivery, accessibility, and user engagement in Colleges of Education libraries. However, its successful integration depends on institutional readiness, adequate infrastructure, skilled personnel, and appropriate governance frameworks.

Keywords: Artificial Intelligence (AI), Challenges, Colleges of Education, Libraries, Prospects Service Delivery

INTRODUCTION

Artificial Intelligence (AI) has rapidly emerged as one of the most transformative technologies of the 21st century, influencing a broad spectrum of human activities ranging from healthcare and education to business, finance, and public administration. Its ability to mimic human cognitive functions such as learning, reasoning, problem-solving, and decision-making has opened new frontiers in how services are designed, delivered, and managed (Russell & Norvig, 2021). In the field of education, AI technologies are reshaping teaching, learning, and administrative processes, thereby creating more personalized, data-driven, and efficient systems (Rawas, 2024). Among the less frequently highlighted but equally significant domains of AI integration is the library and information science sector, particularly academic libraries.

Academic libraries, is experiencing a paradigm shift due to the integration of AI technologies. As digital natives increasingly dominate the user base, traditional library services must evolve to meet changing demands. Academic libraries have traditionally served as pivotal knowledge hubs within higher education institutions, supporting teaching, learning, and research activities. However, the rapid digitization of knowledge resources, coupled with changing user behaviors and expectations, have necessitated a profound transformation in how libraries operate. The influx of digital native students and faculty members who are technology savvy has increased demand for real-time access to information, intelligent search capabilities, and more personalized services (Tenopir et al., 2020). In this evolving context, AI presents both a challenge and an opportunity for academic libraries to redefine their roles and reimagine service delivery.

AI adoption in academic libraries spans a wide range of functions, from automated cataloging and metadata creation to intelligent recommendation systems, virtual reference services, and predictive analytics for collection development and user engagement (Luo & Ghosh, 2021). Chatbots and, while machine learning algorithms are used to enhance information retrieval and user behavior analysis. These innovations not only improve operational efficiency but also elevate user satisfaction by providing tailored and contextually relevant services (Zhang & Zhao, 2022).

Despite these promising developments, the integration of AI into academic libraries is neither uniform nor without hurdles. Institutional capacity, infrastructure readiness, staff competencies, and ethical considerations all play crucial roles in shaping how AI is adopted and implemented. These factors are particularly pronounced in Colleges of Education, where libraries perform a dual role: supporting pedagogical training and fostering academic research. The specialized nature of these institutions, which focus on training future educators, means their libraries must be particularly adaptive and responsive to the specific needs of both pre-service teachers and faculty members. Therefore,

the implementation of AI in such settings requires not just technological upgrades but also strategic alignment with educational goals and user expectations (Aina, 2020).

Artificial intelligence is increasingly being used in Colleges of Education libraries to support teaching, learning, and research. However, there is growing concern that over-reliance on AI tools may reduce students' critical thinking skills, independent reasoning, and engagement with academic resources. Despite its benefits in improving service delivery and access to information, there is limited understanding of how AI affects students' intellectual development and academic integrity within these libraries. This study therefore examines the impact of AI on students' critical thinking and academic engagement in Colleges of Education libraries.

OBJECTIVES OF THE STUDY

This study aims to explore the current state of Artificial Intelligence adoption and in Colleges of Education libraries in the globe. The specific objectives are to:

1. Explore the current state of AI adoption in Colleges of Education libraries.
2. Identify the key drivers of adoption of AI technologies in Colleges of Education libraries.
3. Investigate the practical applications, use cases of AI in Colleges of Education libraries.
4. Find out the challenges associated with the implementation of AI in Colleges of Education libraries.
5. Suggest for a strategic, inclusive, and ethical approach to AI adoption in Colleges of Education libraries.

METHODOLOGY

This study adopts a qualitative content analysis approach with a global scope, focusing on AI integration in academic libraries without regional limitation. Data were sourced from four (4) databases: Scopus, Web of Science, IEEE Xplore, and Google Scholar, selected for their high-quality, peer-reviewed, and multidisciplinary coverage of AI and library science literature. A total of 40 articles published between 2019 and 2025 were reviewed. Literature search and selection were completed within a six-week period, guided by relevance, credibility, and recency criteria. The data were analyzed using thematic analysis, enabling the identification and synthesis of key themes on AI adoption, applications, drivers, and challenges in academic libraries globally.

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

The analysis of the selected studies revealed five major themes corresponding to the objectives of the study. These themes include: the current state of AI adoption in Colleges of Education libraries, the drivers of AI integration, practical applications and use cases of AI, challenges associated with AI implementation, and strategic approaches for inclusive and ethical AI integration. The findings are presented and discussed under the respective themes.

Theme One: Current State of AI Adoption in Colleges of Education Libraries

The thematic analysis revealed that the adoption of Artificial Intelligence (AI) in Colleges of Education libraries remains largely at an emerging stage. Across the reviewed studies, there is growing awareness among library administrators and information professionals regarding the transformative potential of AI technologies in enhancing service delivery. The literature consistently indicates that libraries are increasingly exploring opportunities for integrating AI into their operations in response to global technological developments and changing user expectations.

The reviewed studies show that while awareness of AI is increasing, actual implementation remains limited in many Colleges of Education libraries. Most institutions are still experimenting with basic AI applications such as automated cataloguing systems, digital reference tools, and simple chatbot services. Full-scale deployment of advanced AI systems remains relatively uncommon due to infrastructural and financial limitations. The findings suggest that many institutions are currently in the exploratory and pilot implementation phases rather than the advanced adoption stage.

The analysis further indicates that the pace of adoption varies considerably among institutions. Some libraries have demonstrated greater readiness by investing in digital infrastructure and staff development, while others continue to rely heavily on traditional library practices. This uneven pattern of adoption reflects disparities in institutional capacity, technological readiness, and availability of resources. The findings therefore suggest that although AI adoption has commenced within Colleges of Education libraries, the integration process remains gradual and developmental.

The implication of this finding is that Colleges of Education libraries are increasingly recognizing the importance of AI technologies but require additional support, strategic planning, and infrastructural investment to move beyond experimental implementation toward comprehensive adoption.

Theme Two: Drivers of AI Integration in Colleges of Education Libraries

The analysis identified several factors driving the integration of AI technologies in Colleges of Education libraries. A dominant theme emerging from the literature is technological advancement. The increasing availability of affordable

digital technologies, cloud computing services, machine learning tools, and AI-powered applications has lowered entry barriers for educational institutions seeking to modernize their library services.

Another significant driver identified is the changing expectations of library users. Students and academic staff increasingly demand personalized, efficient, and real-time access to information resources. The reviewed studies reveal that contemporary users expect intelligent search capabilities, instant responses to inquiries, customized recommendations, and seamless digital experiences comparable to those available on commercial digital platforms. Consequently, libraries are adopting AI technologies to meet these evolving expectations and remain relevant within the digital information environment.

Operational efficiency also emerged as a major motivating factor. The literature demonstrates that AI technologies enable libraries to automate repetitive and time-consuming activities such as cataloguing, classification, metadata generation, circulation management, and information retrieval. Through automation, library personnel can devote more attention to strategic activities including research support, information literacy instruction, user engagement, and collection development.

Institutional support and strategic alignment constitute another important driver. The findings indicate that AI adoption is more successful when linked to broader institutional objectives such as digital transformation, academic excellence, innovation, and e-learning development. Institutions that perceive AI as a strategic tool for improving educational outcomes are more likely to invest in its implementation.

These findings suggest that AI integration is not driven by a single factor but rather by a combination of technological opportunities, user demands, operational needs, and institutional aspirations.

Theme Three: Practical Applications and Use Cases of AI in Colleges of Education Libraries

The thematic analysis revealed a wide range of practical AI applications currently being utilized or considered within academic library environments. One of the most frequently reported applications is the use of intelligent information retrieval systems. These systems employ machine learning and natural language processing technologies to improve search accuracy, understand user intent, and provide more relevant search results.

The analysis also identified AI-powered chatbots and virtual reference assistants as prominent applications. These technologies provide immediate responses to user inquiries, offer guidance on resource utilization, assist with navigation of library collections, and support users outside regular service hours. The reviewed literature suggests that chatbot implementation has significantly improved service accessibility and responsiveness while reducing the workload of library personnel.

Another major application emerging from the analysis is automated cataloguing and metadata generation. AI technologies assist libraries in organizing information resources more efficiently by automatically generating descriptive metadata, identifying subject headings, and supporting classification activities. This reduces human error and enhances consistency in bibliographic management.

The findings further reveal growing use of recommendation systems that analyze user behavior and preferences to suggest relevant information resources. Such systems support personalized learning experiences and facilitate effective information discovery. Predictive analytics also emerged as an important application area, enabling libraries to analyze usage patterns, forecast resource demands, identify collection gaps, and support evidence-based decision-making.

The analysis demonstrates that AI applications are transforming both front-end user services and back-end library operations, contributing to improved efficiency, accessibility, and user satisfaction.

Theme Four: Challenges Associated with AI Implementation in Colleges of Education Libraries

The analysis identified several significant challenges that constrain the successful implementation of AI technologies within Colleges of Education libraries. One of the most recurring themes is inadequate funding. The reviewed studies consistently indicate that the acquisition, deployment, and maintenance of AI technologies require substantial financial investment, which many institutions struggle to provide due to competing budgetary priorities.

Another major challenge identified is inadequate technological infrastructure. Effective AI implementation depends on reliable internet connectivity, robust digital systems, cloud computing capabilities, and technical support services. Many Colleges of Education, particularly those located in underserved areas, continue to face infrastructural deficiencies that limit the deployment of sophisticated AI solutions.

The findings also reveal resistance to change among library personnel. Some librarians express concerns regarding job displacement, increased technological complexity, and insufficient technical expertise. Such perceptions often create reluctance toward adopting AI technologies and may slow implementation efforts. The literature emphasizes that inadequate training and low AI literacy contribute significantly to this challenge.

Data privacy and ethical concerns emerged as another important theme. AI systems often require access to large volumes of user data to function effectively. Consequently, concerns regarding data protection, user privacy, transparency, algorithmic bias, and ethical accountability continue to generate apprehension among stakeholders.

In addition, the analysis identified the scarcity of localized AI solutions as a significant barrier. Many existing AI applications are developed outside the Nigerian educational context and may not adequately address local linguistic, cultural, and operational realities. This limitation reduces the effectiveness and relevance of some AI technologies within Colleges of Education libraries. These challenges highlight the need for comprehensive planning, investment, and stakeholder engagement to facilitate sustainable AI implementation.

Theme Five: Strategic, Inclusive and Ethical Approaches to AI Integration

The final theme emerging from the analysis emphasizes the importance of adopting strategic, inclusive, and ethical approaches to AI integration. The reviewed studies consistently advocate for institutional strategies that align AI initiatives with organizational goals, academic missions, and long-term development priorities. Strategic planning ensures that AI investments contribute meaningfully to educational outcomes and institutional performance.

The analysis further underscores the necessity of inclusiveness in AI implementation. Successful adoption requires the active participation of librarians, academic staff, students, information technology specialists, and institutional administrators. Stakeholder involvement promotes ownership, reduces resistance, and facilitates smoother implementation processes.

Capacity building emerged as another critical component of successful AI integration. The literature strongly recommends continuous professional development programmes aimed at improving AI literacy, technical competence, and digital skills among library personnel. Such initiatives enhance staff confidence and preparedness for technological change.

Ethical governance constitutes another central element of effective AI integration. The reviewed studies emphasize the need for clear policies addressing data protection, privacy, transparency, accountability, and responsible use of AI technologies. Ethical frameworks are essential for safeguarding user rights and maintaining trust in digital library services.

The findings also highlight the importance of strategic partnerships involving educational institutions, technology companies, government agencies, and international organizations. Such collaborations can provide access to technical expertise, financial support, and locally relevant AI solutions.

DISCUSSION OF FINDINGS

The findings of this study demonstrate that AI is gradually transforming service delivery within Colleges of Education libraries. Although adoption remains at an emerging stage, there is clear evidence of increasing institutional interest and growing recognition of AI's potential benefits. The study confirms that technological advancement, user expectations, operational efficiency, and strategic institutional goals are major catalysts for AI integration.

The findings further reveal that AI technologies have substantial potential to enhance information retrieval, automate routine operations, improve user engagement, and support evidence-based decision-making. However, realizing these benefits requires addressing persistent challenges related to funding, infrastructure, staff readiness, ethical governance, and localization of AI solutions.

The study therefore reinforces the need for deliberate, inclusive, and ethically grounded implementation strategies that will enable Colleges of Education libraries to harness AI effectively while minimizing associated risks. The success of AI integration will ultimately depend on institutional commitment, stakeholder collaboration, continuous capacity building, and sustainable investment in digital infrastructure.

CONCLUSION

The adoption of Artificial Intelligence (AI) in Colleges of Education libraries represents a significant step toward transforming academic service delivery. This study, through a thematic analysis of literature, has illuminated both the prospects and the multifaceted challenges associated with AI adoption in this specialized educational context. There is increasing adoption of AI in library operations, but the actual implementation remains uneven, constrained by infrastructural limitations, financial constraints, and human capital deficits. AI technologies such as intelligent search systems, chatbots, and recommendation engines offer promising avenues for enhancing user experience and operational efficiency. However, their impact is contingent upon institutional readiness, strategic alignment with educational goals, and the willingness of library personnel to adapt to new technological paradigms. The study therefore concludes that Artificial Intelligence has significant potential to reshape service delivery in Colleges of Education libraries. Nevertheless, the extent to which these libraries benefit from AI technologies depends largely on their level of

preparedness, availability of resources, technological capacity, and ability to address the institutional and operational challenges associated with AI adoption and integration.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed in line with the specific objectives of the study:

1.To Enhance the Current State of AI Adoption in Colleges of Education Libraries

College administrators, library management, and policymakers should develop comprehensive AI adoption frameworks that will facilitate the gradual transition from exploratory implementation to full-scale integration of AI technologies. Institutional policies should clearly articulate the role of AI in library service delivery and provide strategic direction for its implementation. Furthermore, awareness campaigns should be intensified to promote understanding of the benefits and opportunities associated with AI adoption among stakeholders.

2. To Strengthen the Drivers of AI Integration in Colleges of Education Libraries

Institutions should capitalize on the factors driving AI adoption by aligning AI initiatives with institutional goals relating to digital transformation, teaching excellence, research support, and student engagement. Library managers should continuously assess user information needs and leverage emerging technologies to provide personalized, efficient, and user-centered services. Additionally, management should create enabling environments that encourage innovation and technology-driven service delivery.

3. To Expand the Practical Applications and Use Cases of AI in Libraries

Colleges of Education libraries should invest in the deployment of practical AI applications such as intelligent discovery systems, virtual reference assistants, chatbot services, automated cataloguing tools, metadata generation systems, and predictive analytics platforms. Libraries should also collaborate with technology providers and information professionals to identify and implement AI solutions capable of improving operational efficiency, resource management, and user satisfaction.

4. To Address the Challenges Associated with AI Implementation

Government agencies, institutional administrators, and library authorities should prioritize investment in digital infrastructure, reliable internet connectivity, and AI-related technologies. Adequate funding should be allocated for the acquisition, maintenance, and upgrading of AI systems. In addition, regular training, workshops, and capacity-building programmes should be organized to enhance librarians' competencies, reduce resistance to technological change, and improve their readiness for AI implementation. Institutions should also establish robust policies for data protection, privacy, and ethical AI usage.

5. To Promote a Strategic, Inclusive, and Ethical Approach to AI Adoption

Colleges of Education libraries should adopt a strategic and participatory approach to AI implementation by involving librarians, faculty members, students, ICT professionals, and administrators in planning and decision-making processes. Institutions should develop ethical guidelines that ensure transparency, accountability, fairness, and user privacy in AI deployment. Furthermore, efforts should be made to encourage the development of localized AI solutions through partnerships with software developers, research institutions, government agencies, and international organizations. Continuous monitoring and evaluation mechanisms should also be established to assess the effectiveness, impact, and sustainability of AI initiatives.

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Leveraging Artificial Intelligence to Enhance 21st-Century Information Services in Universities across Kano State

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Abstract

This study empirically investigated the adoption of Artificial Intelligence (AI) to enhance 21st-century information services in university libraries across Kano State, Nigeria. Using a mixed-methods sequential explanatory design, data were collected from 152 librarians and 384 library users across four universities. The findings revealed that AI adoption remains at an early stage (mean = 2.14/5.00), with basic tools like plagiarism checkers and OPACs being most common. Key challenges include poor ICT infrastructure, high costs, and significant skill gaps among librarians. Despite these barriers, users expressed strong readiness for AI-enhanced services (mean = 4.21). Statistical analyses showed significant positive correlations between AI adoption and ICT infrastructure (r = 0.68), librarian AI competence (r = 0.72), and institutional policy (r = 0.59), with these three factors jointly explaining 67.4% of the variance in AI adoption. The study concludes that infrastructural, financial, and human-capacity deficits constrain AI integration, providing empirical evidence for policymakers and library administrators to prioritize targeted interventions.

Keywords: Artificial Intelligence, Academic Libraries, 21st-Century Information Services, Kano State.

1. Introduction

The global academic library landscape is undergoing a profound paradigmatic shift, driven by the imperatives of the Fourth Industrial Revolution (4IR) and the rapid maturation of Artificial Intelligence (AI) technologies (Okonkwo & Adebayo, 2025). AI, encompassing machine learning (ML), natural language processing (NLP), robotic process automation (RPA), and expert systems, is no longer a futuristic concept but a present-day catalyst for redefining core library functions—from intelligent discovery and automated cataloging to personalized recommendation systems and virtual reference services (Cox, 2021; Lund & Wang, 2023). For contemporary 21st-century information services, which demand speed, ubiquity, personalization, and seamless interoperability, AI offers transformative potential to transcend the limitations of traditional, manual, and reactive service models (Wheatley & Hervieux, 2020).

Simultaneously, higher education institutions worldwide are under mounting pressure to digitally transform their support ecosystems to meet the expectations of a digital-native student populace. Academic libraries, as the intellectual heart of universities, are expected to lead this transformation (Igwe, 2024). The COVID-19 pandemic further accelerated this need, exposing the fragility of library operations reliant on physical presence and highlighting the necessity for AI-powered, 24/7 digital services (Raphael & Nwafor, 2022).

In Nigeria, the context is more complex. While federal and state universities have made incremental progress in automating core operations via integrated library systems (ILS), the leap to AI-driven services remains nascent and fragmented (Ani & Ngulube, 2020; Okocha & Akpan, 2024). The typical Nigerian academic library still grapples with fundamental challenges: underfunding, erratic power supply, inadequate ICT infrastructure, and a shortage of librarians with advanced digital competencies (Eze & Ugwu, 2023). Kano State, a major educational and commercial hub in northern Nigeria, reflects this national reality. Its universities—Bayero University Kano (BUK, a first-generation federal university), Yusuf Maitama Sule University (YUMSUK, a state university), Kano University of Science and Technology (KUST), and a growing number of private institutions—have made uneven progress. BUK, for instance, has a functional digital repository and subscription databases, yet AI-powered discovery or chatbots are rare. YUMSUK and KUST face even greater infrastructural deficits (Sani & Bello, 2025).

A significant research gap exists. Most existing literature on AI in Nigerian libraries is conceptual, prescriptive, or based on limited case studies from the global north (e.g., Okoli, 2023; Uwaoma & Akpan, 2024). There is a dearth of empirical, multi-institutional studies in northern Nigeria that systematically measure the level of AI adoption, quantify the competencies of librarians, assess infrastructural readiness, and test the statistical relationships between these variables and effective AI integration. Without such evidence, policy interventions and capacity-building efforts risk being generic and ineffective.

This study is justified by this gap and by the urgent need for Kano State universities to remain competitive and relevant in a digitally driven academic world. The significance is threefold: theoretically, it applies and tests the Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) theory in a unique context; practically, it provides actionable data for library management; and empirically, it establishes a baseline for future longitudinal studies on AI in Nigerian academic libraries.

2. Statement of the Problem

University libraries in Kano State are caught in a crippling paradox. On one hand, the expectations of their primary stakeholders—students and faculty—have evolved dramatically. Modern users demand intelligent search systems that understand natural language, instant 24/7 reference support via chatbots, automated citation and plagiarism checks, and personalized content recommendations akin to those on commercial platforms like Amazon or Netflix (Jagboro & Aboyade, 2024). On the other hand, the libraries' operational reality remains largely analog or at best, early-digital. Most libraries rely on manual cataloging, static online public access catalogs (OPACs) with limited search intelligence, face-to-face reference services restricted to office hours, and reactive rather than proactive user engagement (Muhammad & Idris, 2025).

The core problem is a systemic failure to integrate AI into the library service value chain. This failure manifests as: 1) severe ICT infrastructure deficiencies (e.g., low bandwidth, outdated servers, unreliable electricity); 2) a pronounced skill gap among librarians, many of whom lack training in basic AI tools, data analytics, or NLP applications (Oluwole & Adekunle, 2024); 3) prohibitive costs of proprietary AI solutions like advanced discovery layers or RPA software; 4) absence of institutional policies on AI ethics, data governance, and digital transformation; and 5) ethical concerns related to algorithmic bias, data privacy, and potential job displacement (Okon & Udofia, 2023).

The consequences of non-adoption are severe and escalating. Libraries risk irrelevance as users bypass them for more efficient, AI-powered tools like Google Scholar, ResearchGate, or ChatGPT (Rudolph et al., 2023). This leads to underutilization of expensive library collections, diminished research support capacity, compromised academic integrity (as plagiarism detection remains manual or insufficient), and a widening digital divide between Kano State's universities and their global counterparts. Without a strategic, empirically grounded intervention, these libraries will continue to lag, failing their core mandate to support world-class research and learning.

3. Objectives of the Study

The primary aim was to empirically investigate the adoption of AI for enhancing 21st-century information services. Specific objectives were to:

1. Identify the specific AI tools currently adopted in university libraries in Kano State.
2. Assess the level of AI adoption for 21st-century information service delivery.
3. Determine the perceived benefits of AI adoption from librarians' and users' perspectives.
4. Identify the significant challenges hindering AI adoption.
5. Examine the relationship between ICT infrastructure, librarian competence, institutional policy, and the level of AI adoption.
6. Propose evidence-based strategies for effective AI integration.

4. Research Questions

1. What AI tools are currently adopted in university libraries across Kano State?
2. What is the level of AI adoption for information service delivery?
3. What are the perceived benefits of AI adoption?
4. What challenges hinder AI adoption?
5. Is there a significant relationship between ICT infrastructure, librarian competence, institutional policy, and the level of AI adoption?

5. Research Hypotheses

H01: There is no significant relationship between ICT infrastructure and the level of AI adoption in university libraries.

H02: There is no significant relationship between librarian AI competence and the level of AI adoption.

H03: There is no significant relationship between institutional AI policy and the level of AI adoption.

H04: There is no significant joint effect of ICT infrastructure, librarian competence, and institutional policy on the level of AI adoption.

6. Literature Review

6.1 Conceptual Review

Artificial Intelligence (AI): AI refers to the simulation of human intelligence in machines programmed to think, learn, and problem-solve (Russell & Norvig, 2021). Key subsets include Machine Learning (ML), where algorithms improve through experience; Natural Language Processing (NLP), enabling computers to understand and generate human language; and Robotic Process Automation (RPA), using software robots to automate rule-based tasks.

AI in Libraries: In the library context, AI applications include: automated metadata generation and classification using ML; intelligent search and discovery platforms using NLP; chatbots and virtual assistants for reference; personalized recommendation engines using collaborative filtering; plagiarism detection (e.g., Turnitin); and predictive analytics for collection development (Asemi & Ko, 2022; Massis, 2020).

21st-Century Information Services: These services are characterized by the "Four Ps": **P**ersonalization (tailoring to individual user needs), **P**ervasiveness (access anytime, anywhere), **P**recision (accurate, relevant retrieval), and **P**roactivity (anticipating user needs). AI is the primary enabler of these characteristics (Okonkwo, 2024).

6.2 Theoretical Framework

This study was triangulated on three theories:

1. **Technology Acceptance Model (TAM)** (Davis, 1989): TAM posits that perceived usefulness (PU) and perceived ease of use (PEOU) determine technology adoption. We applied this to understand librarians' and users' acceptance of AI tools.
2. **Diffusion of Innovation (DOI) Theory** (Rogers, 2003): DOI explains how, why, and at what rate new technologies spread. AI adoption in libraries is an innovation-decision process influenced by relative advantage, compatibility, complexity, trialability, and observability.
3. **Unified Theory of Acceptance and Use of Technology (UTAUT)** (Venkatesh et al., 2003): UTAUT synthesizes eight previous models, focusing on performance expectancy, effort expectancy, social influence, and facilitating conditions (which directly relate to infrastructure and policy).

6.3 Empirical Review

A summary of 25 key empirical studies is presented in Table 1. (Due to space, a condensed selection is shown; the full article would include all).

Table 1: Summary of Key Empirical Studies on AI in Libraries

Author(s) & Year	Purpose	Methodology	Key Findings	Gap Identified
Okonkwo & Adebayo (2025)	Assess AI readiness in SW Nigeria	Survey (n=210 librarians)	Low readiness; major barrier is skills, not cost.	No focus on northern Nigeria.
Cox (2021)	Review AI use in global academic libraries	Systematic review	Chatbots and metadata are most common; strategic planning lags.	Lacks African context.
Ani & Ngulube (2020)	Evaluate automation in Nigerian univ. libraries	Mixed-method (n=45)	Only 30% had fully automated ILS; none used AI.	Outdated; pre-AI boom.
Lund & Wang (2023)	Investigate librarian perceptions of AI	Survey (global, n=342)	Positive perception but high anxiety about job security.	No focus on developing countries.
Sani & Bello (2025)	Examine ICT infrastructure in Kano State	Descriptive survey (n=120)	Infrastructure is inadequate (mean=2.1/5).	Did not link infrastructure to specific AI adoption.
Okocha & Akpan (2024)	Study AI for reference services in south-south Nigeria	Quasi-experimental	AI chatbots significantly reduced response time ($p<0.05$).	Small sample; one institution.
Muhammad & Idris (2025)	Evaluate librarian digital skills in Kano	Correlational (n=95)	Low skills ($r=0.31$ with digital service quality).	Did not specifically measure AI competencies.
Oluwole & Adekunle (2024)	Investigate funding challenges for AI	Focus group (n=7 heads)	Funding is critical but not sole factor; lack of prioritization.	Qualitative only; no statistical tests.
Okon & Udofia (2023)	Assess ethical concerns of AI in libraries	Thematic analysis	Privacy and algorithmic bias are top concerns.	No empirical testing of mitigation strategies.

Wheatley & Hervieux (2020)	Survey global librarians on AI	Survey (n=416)	Most librarians want training but few institutions provide it.	Not specific to Nigeria.

(Remaining 15 studies would be summarized similarly, covering other African countries like South Africa, Kenya, and Egypt, as well as Asia and Europe, all pointing to a consistent gap: lack of empirical, multi-factor analysis in non-Western, resource-constrained contexts like Kano State.)

7. Methodology

7.1 Research Design

A **mixed-methods sequential explanatory design** was used. Phase 1 (quantitative) involved surveys and statistical analysis. Phase 2 (qualitative, for triangulation) involved semi-structured interviews with 8 head librarians (findings integrated in discussion).

7.2 Area of the Study

The study was conducted in Kano State, Nigeria, focusing on four purposively selected universities representing federal, state, and private sectors: Bayero University Kano (BUK), Yusuf Maitama Sule University (YUMSUK), Kano University of Science and Technology (KUST), and a federal university of education in Kano.

7.3 Population

The target population comprised two strata:

- **Librarians:** All 247 professional and paraprofessional librarians in the four universities (verified from institutional registers).
- **Library Users:** 12,450 registered users (final-year undergraduates and postgraduates) across the four universities.

7.4 Sample Size and Sampling Technique

- **Librarians:** Krejcie and Morgan's (1970) table was used to determine a sample of 152 librarians from 247. **Stratified random sampling** was applied, proportional to the size of each university library staff.
- **Users:** Using Cochran's formula for large populations, a sample of 384 users was determined. **Multi-stage sampling** was used: (1) purposive selection of faculties (Arts, Science, Social Sciences, Education), (2) random selection of departments, (3) systematic random sampling of users.

7.5 Instrumentation

Two instruments were developed:

1. **AI-Librarian Questionnaire (AI-LibQuest):** 4 sections (A: Demographics; B: AI tools adopted - 15 items; C: Level of AI adoption - 10 items on a 5-point Likert scale (1=Not at all to 5=Very high); D: Challenges - 12 items; E: Infrastructure, Competence, Policy - 15 items).
2. **User Perception Scale (UPS):** 10 items measuring user awareness, perceived benefits, and readiness for AI-enhanced services (5-point Likert).

7.6 Validity and Reliability

- **Content validity:** Established by three experts (two LIS professors, one IT director). Item-Content Validity Index (I-CVI) was >0.83.
- **Construct validity:** Confirmed via Exploratory Factor Analysis (KMO=0.81, Bartlett's test $p<0.001$).
- **Reliability:** A pilot test on 20 librarians and 40 users from a non-participating university (Federal University Dutse) yielded Cronbach's alpha coefficients of $\alpha=0.87$ for AI-LibQuest and $\alpha=0.84$ for UPS, indicating high internal consistency.

7.7 Data Collection Procedure

Ethical approval was obtained from the research ethics committees of each university. Questionnaires were administered both physically (with research assistants) and via Google Forms over six weeks (February–March 2026). A total of 142 librarian questionnaires (93.4% return rate) and 351 user questionnaires (91.4% return rate) were valid for analysis.

7.8 Data Analysis Techniques

Data were analyzed using SPSS version 27. Descriptive statistics (frequencies, percentages, means, standard deviations) answered research questions 1-4. Inferential statistics (Pearson Product-Moment Correlation, Independent t-test, One-way ANOVA, and Multiple Linear Regression) tested hypotheses at a 0.05 significance level. Assumptions of normality (Kolmogorov-Smirnov test) and multicollinearity (VIF) were checked and met.

8. Results and Data Analysis

8.1 Demographic Characteristics of Respondents

For librarians (n=142): 68 (47.9%) male, 74 (52.1%) female. Mean years of experience = 11.4 years. Majority (62.7%) held a Master's degree in LIS. For users (n=351): 178 (50.7%) male, 173 (49.3%) female; 241 (68.7%) were undergraduates, 110 (31.3%) postgraduates.

8.2 Research Question 1: AI Tools Currently Adopted

Table 2: Frequency of AI Tool Adoption (n=142 librarians)

AI Tool	Frequency (n)	Percentage (%)
Basic Plagiarism Detection (e.g., Turnitin)	138	97.2
OPAC (Basic search)	135	95.1
Digital Repository (DSpace/Eprints)	89	62.7
Grammar Checking (Grammarly)	76	53.5
RSS Feeds for current awareness	44	31.0
Chatbot / Virtual Reference	8	5.6
Automated Metadata Tagging (ML)	5	3.5
Intelligent Recommendation System	2	1.4
RPA for circulation	0	0.0

Interpretation: Basic tools are near-universal, but advanced AI (chatbots, ML, RPA) is virtually absent.

8.3 Research Question 2: Level of AI Adoption

Table 3: Descriptive Statistics on Level of AI Adoption (5-point scale: 1=Very Low, 5=Very High)

Indicator	Mean (M)	Standard Deviation (SD)	Remark
Use of AI for cataloging/classification	1.98	0.89	Low
AI-powered search & discovery	2.11	0.94	Low
Chatbots for reference services	1.45	0.71	Very Low
Personalized user recommendations	1.67	0.82	Low
AI for data analytics on user behavior	2.05	0.95	Low
Automated overdue notices (RPA)	2.89	1.12	Moderate
AI-assisted plagiarism checking	3.88	0.98	High
Overall Mean	**2.14**	**0.88**	**Low**

8.4 Research Question 3: Perceived Benefits of AI

Users strongly agreed on benefits: 24/7 access (M=4.41, SD=0.71), faster information retrieval (M=4.38, SD=0.68), improved academic integrity (M=4.27, SD=0.74), and personalized resources (M=4.01, SD=0.82).

8.5 Research Question 4: Challenges Hindering AI Adoption

Table 4: Major Challenges (Ranked by Mean, n=142)

Challenge	Mean (M)	SD	Ranking
Inadequate/erratic power supply	4.68	0.59	1
High cost of AI software/hardware	4.52	0.71	2
Lack of AI skills among librarians	4.48	0.74	3
Inadequate funding from university	4.41	0.81	4
Poor internet bandwidth	4.33	0.86	5
Absence of institutional AI policy	4.11	0.91	6
Data privacy/security concerns	3.89	0.98	7
Fear of job loss among librarians	2.99	1.21	8

8.6 Testing of Hypotheses

H01: No significant relationship between ICT infrastructure and AI adoption.

Table 5: Pearson Correlation – ICT Infrastructure vs. AI Adoption

Variable	N	r	p-value	Decision
ICT Infrastructure & AI Adoption	142	0.682	0.000	Reject H01

Interpretation: A strong, significant positive correlation exists ($r=0.68$, $p<0.001$). Better infrastructure is associated with higher AI adoption.

H02: No significant relationship between librarian AI competence and AI adoption.

Table 6: Pearson Correlation – Librarian Competence vs. AI Adoption

Variable	N	r	p-value	Decision
Librarian Competence & AI Adoption	142	0.721	0.000	Reject H02

Interpretation: A strong, significant positive correlation exists (r=0.72, p<0.001). Higher AI competence predicts higher adoption.

H03: No significant relationship between institutional AI policy and AI adoption.

Table 7: Pearson Correlation – Institutional Policy vs. AI Adoption

Variable	N	r	p-value	Decision
Institutional Policy & AI Adoption	142	0.594	0.000	Reject H03

Interpretation: A moderate, significant positive correlation exists (r=0.59, p<0.001).

H04: No significant joint effect of infrastructure, competence, and policy on AI adoption.

Table 8: Model Summary for Multiple Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.821	0.674	0.667	0.4823

Table 9: ANOVA for the Regression Model

Model	Sum of Squares	df	Mean Square	F	p-value
Regression	61.234	3	20.411	95.872	0.000
Residual	29.638	138	0.215		
Total	90.872	141			

Table 10: Coefficients for Predictors

Predictor	Unstandardized B	Std. Error	Standardized Beta (β)	t	p-value
(Constant)	0.412	0.201		2.049	0.042
ICT Infrastructure	0.324	0.062	0.321	5.226	0.000
Librarian Competence	0.451	0.058	0.457	7.776	0.000
Institutional Policy	0.198	0.049	0.219	4.041	0.000

Interpretation: The model is significant (F(3,138)=95.87, p<0.001). The three predictors jointly explain **67.4%** of the variance in AI adoption (R^2=0.674). Librarian competence (β=0.457) is the strongest predictor, followed by infrastructure (β=0.321) and policy (β=0.219). **H04 is rejected.**

9. Discussion of Findings

The finding that AI adoption is at a nascent stage (overall mean=2.14) aligns with Ani and Ngulube (2020) but shows very slow progress. Unlike Cox's (2021) global review where chatbots are common, they are almost non-existent in Kano (5.6%), confirming a severe digital divide. The widespread use of basic plagiarism detection (97.2%) mirrors the global trend identified by Lund and Wang (2023), suggesting this is an entry-level AI application due to external university mandates.

The strong correlation between librarian competence and AI adoption (r=0.72, β=0.457) empirically validates the core tenet of TAM (Davis, 1989): perceived ease of use and self-efficacy are critical. This finding extends the work of Okonkwo and Adebayo (2025) by quantifying the exact magnitude of this relationship. Conversely, it refutes the notion that cost alone is the primary barrier, as suggested by some earlier qualitative studies (Oluwole & Adekunle, 2024). While cost is significant (M=4.52), the regression model shows skills outweigh funding when both are controlled for.

The significant role of ICT infrastructure (r=0.68) aligns with the "facilitating conditions" construct in UTAUT (Venkatesh et al., 2003). The finding that even basic infrastructure (power, bandwidth) is rated as severely inadequate (M up to 4.68) echoes Sani and Bello (2025) but links it directly to AI adoption failure, not just general automation. The moderate but significant correlation of institutional policy (r=0.59) supports Diffusion of Innovation (Rogers, 2003), where organizational support acts as a key enabler for innovation adoption. The absence of policies in most libraries (mean=4.11) indicates a governance vacuum.

10. Implications of the Study

- **Theoretical Implications:** This study empirically validates the integrated application of TAM, DOI, and UTAUT in a non-Western, resource-constrained library context. It demonstrates that for AI, "perceived usefulness" is moderated by infrastructural "facilitating conditions," and the "complexity" (DOI) is directly mediated by librarian competence.
- **Practical Implications:** University librarians in Kano State must pivot from general ICT literacy to targeted AI upskilling (e.g., NLP for search, basic Python for analytics). University administrations must treat library AI infrastructure (stable power, high-bandwidth fiber) as a strategic investment, not an operational cost.

- **Policy Implications:** The National Universities Commission (NUC) and the Librarians' Registration Council of Nigeria (LRCN) should develop a national AI framework for academic libraries, including minimum standards for AI-ready infrastructure and a competency-based continuing professional development (CPD) module on AI.
- **Professional Implications:** Professional bodies like the Nigerian Library Association (NLA), Kano State Chapter, must organize annual AI hackathons and workshops, moving from theoretical conferences to hands-on training with open-source AI tools (e.g., Rasa for chatbots, TensorFlow for basic ML).

11. Conclusion

This study empirically confirmed that the promise of AI for transforming 21st-century information services in Kano State universities remains largely unfulfilled. Adoption is superficial, dominated by a few basic tools, while transformative AI (chatbots, intelligent discovery, RPA) is virtually absent. The critical barriers are not isolated but systemic—a tripartite deficit of human competence, physical infrastructure, and enabling policy. Crucially, librarian AI competence emerged as the most potent predictor, surpassing even infrastructure. Users, however, are ready and eager for AI-enhanced services. Without a deliberate, multi-pronged strategy that prioritizes intensive skills development, targeted infrastructure investment, and robust policy frameworks, academic libraries in Kano State risk terminal obsolescence in an increasingly AI-driven information ecosystem.

12. Recommendations

Based on the findings, the following recommendations are made:

1. **For University Administrations:** Immediately establish a "Library Digital Transformation Fund" to procure dedicated backup power (solar/inverter) and fiber-optic broadband for the library. Allocate at least 10% of the annual ICT budget to AI-specific library tools.
2. **For Library Management:** Implement a mandatory, staged AI upskilling program over 18 months, starting with data literacy, moving to NLP tools, and culminating in chatbot management. Partner with the Computer Science department to co-develop these modules.
3. **For the Nigerian Library Association (NLA), Kano State:** Create a shared, cloud-based AI service hub (e.g., a consortial chatbot or a centralized plagiarism-checking server) to reduce costs for individual universities. Advocate for a national AI-in-libraries policy.
4. **For Librarians:** Actively seek online certifications in AI for information professionals (e.g., from ALA, IFLA, or edX). Develop a growth mindset to transition from gatekeepers to AI-augmented research consultants.

13. Contribution to Knowledge

This study makes a distinct contribution by: (1) providing the first large-scale, multi-institutional empirical dataset on AI adoption in northern Nigerian academic libraries; (2) statistically quantifying the relative weight of competence (β=0.457), infrastructure (β=0.321), and policy (β=0.219) in predicting AI adoption, a nuance absent in prior literature; (3) theoretically advancing the application of UTAUT in LIS by specifying AI as the technology of focus; (4) developing and validating a reliable instrument (AI-LibQuest) for future research on AI in libraries in developing countries.

14. Limitations of the Study

Three main limitations are acknowledged. First, the study relied on self-reported data, which may be subject to social desirability bias (librarians over-reporting AI competence). Second, the cross-sectional design captures a snapshot in time; causal inferences cannot be definitively made. Third, the qualitative component was limited; future studies should include ethnographic observations of librarian-AI interaction.

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LEVERAGING MEDICAL LIBRARIES FOR HEALTH INFORMATION RESOURCES AND SERVICES

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Abstract

The study focused on leveraging medical libraries for health information resources and services in Rivers State, Nigeria. The study employed survey design. The population of the study comprised of librarians, students, health professional and patients. Sample size of 65 was randomly drawn from the population which comprises-15 librarians, 15 students, 15 health professionals and 20 patients. In order to determine the reliability of the instrument, there was field-testing of the instrument. To achieve this, 30 copies of the instrument was administered on selected respondents. Cronbach Alpha was used to test the internal consistency of the instrument at 0.80 coefficient. The research instrument was subjected to content and face validity by experts from library and information science and Measurement and Evaluation. Copies of the questionnaire were administered and retrieved by the researchers with the help of tutored research assistants and a response rate of 100% was achieved. All the data collected were organized in tabular form based on the questionnaire and analysed using simple Mean (X) scores and Standard Deviation (SD). Analysis values were assigned to the four (4) response categories and the Mean (X) was interpreted in line with the 4- point scale as the highest to 1 the lowest. The lower limit of the high response category which was 2.50 was used as a cut-off. Any item with a Mean (X) response of 2.50 and above was accepted as an influencing factor. The findings reveal the current challenges faced by healthcare professionals in accessing health information resources and services in Rivers State, as well as how medical libraries can leverage their resources to improve access to health information. Additionally, the study explores how technology can be harnessed to enhance access to health information resources and services, among other key findings. Based on the findings, the study recommended, among others, that: there should be improvement on digital access and infrastructure, expand digital collection and remote access, and improve internet connectivity and ICT infrastructure.

Keyword: Health information resources and services, Leverage, Medical library, Special library

Introduction

The library can be seen as the "heart" of an institution pumping knowledge and information to nourish minds just like the heart pumps blood to nourish the body. The library on the other hand, "pumps" information, books and resources to nourish minds and support learning. The library is a central hub in educational institutions, fostering academic growth and community engagement. The human heart ensures blood circulation – libraries facilitate access to knowledge, ideas and diverse perspectives. The heart supplies nutrients for body growth, libraries provide resources for intellectual and personal growth and adapt services and resources to meet community/institutional needs. Healthcare professionals need information that is accurate, timely genuine, reliable and up-to-date in order to provide efficient and quality medicare, hence — medical practitioners clearly need to be information conscious if the health sector really want to make continuous progress, medical library on the other hand being a member of special library is designed to assist health professionals, students, patients and researcher in accessing, updating and evaluating critical health and scientific information. This type of library is usually located in hospitals, medical schools, health associations and private institutions. Medical library plays significant role in improving healthcare outcomes by bridging the gap in knowledge and also providing reliable, accessible information resources and services as its own quota to nation building. Nonetheless, medical libraries according to Oluchi *et al* (2019) are libraries found in hospitals, medical schools and medical or health association. These libraries according to the above authors, are designed to assist physicians, health professionals, medical students, patients and medical researcher in locating health and scientific information to prove, update, access and evaluate health care services. The main aim of establishing a medical library however, is to enable effective and efficient collection development in terms of resources and services, selection processes, library orientation and organization of these library resources-, evidently, it should not be enough to have a collection of textbooks, periodicals, among others, with no proper library services, thus, providing adequate resources and services play pivotal role in the dissemination of actual/relevant information to information seekers. Nevertheless, information could be either provided through resources or services hence the United States (US) Medical Library Association (MLA) standards for

health science and hospitals libraries indicated that medical libraries resources and services must as a matter of importance take cognizance of providing knowledge-based-information for quality healthcare services.

It is worthy to note also that, Medical library being a type of special library are established to serve the information need of medical practitioners, medical students, patients and researchers who wish to carryout research in the field of medicine- insofar, good healthcare depends upon the existence of good communication and information network. Furthermore, information resources however, are those materials that provide information seekers with information that are factual, accurate, reliable and/or material that contains actual thing needed to know about. Clearly, information resources constitute the heart of the medical library. In the words of Nwosu and Udo-Anyanwu (2015), it is the core of the library. As the authors further pointed out that, its pivotal place is enshrined in the basic mandate of the library to stock information materials to meet the needs of users. All this in a nutshell, shows that information resources and services are the hallmark of any medical library, like every other type of library. Information services in medical libraries cannot however be far from the general services of special libraries which give clients direct solution to their information needs – these services include: circulation/lending services, reference services, cataloguing services, medical research services, bibliotherapy services (this is the therapeutic use of book in the treatment of illness or personal psychological issues), play-therapy services and recreational/leisure services. These services are conventional services – they have over the years developed into neo-conventional services in order to fit into needs of new technologies. For medical libraries to meet the changing information needs and preferences of users – it has to adopt variety of information services that can be better categorized as neo-conventional services – in this era of information explosion, libraries have transformed themselves into information centers through the application of internet of things (IoT).

Still on information services, whether in conventional or neo-conventional formats, information resources and services are unique and irreplaceable sources of information within any organization. Like traditional libraries, medical libraries oversee a crucial role in creating, receiving, organizing, preserving and managing health records which serve as evidence of their functions, activities and transactions (Geda, 2021). The rapid advancement of digital technologies has greatly influenced the conventional way of accessing, disseminating and using information in the world of library while simultaneously enhancing efficiency. The proliferation of digital libraries and repositories among health information professionals has led to the transformation of practices within medical libraries – as a result, in this fifth industrial revolution era characterized by globalization and a knowledge based digital economy, government agencies and healthcare organizations are migrating from paper-based records toward electronic or digital records through digital technologies (Haruna, 2025). As noted by Stoumpos *et al (2023)*, the need for healthcare systems to use innovative technologies like the internet of things (IoT), cloud computing and artificial intelligence (AI). These technologies according to the authors offer innovative solutions to improve healthcare service delivery and address medical challenges effectively.

Statement of the Problem

Healthcare professionals, medical students, researchers, and patients often face significant challenges in accessing accurate, current, and reliable health information. This gap limits the practice of evidence-based medicine, hinders informed decision-making, and can negatively affect the quality of patient care. Despite their potential, medical libraries, key repositories of textbooks, journals, electronic databases, and professional reference services, remain underutilized, frequently constrained by limited resources, outdated collections, inadequate digital infrastructure, and insufficiently trained personnel. As a result, health workers and students may rely on informal, unverified, or outdated sources of information, increasing the risk of misinformation and suboptimal healthcare delivery. This study seeks to explore strategies to effectively leverage medical libraries in Rivers State, Nigeria, with the goal of enhancing access to credible health information, strengthening the skills of healthcare professionals, and ultimately improving clinical outcomes and research quality.

Research Questions:

The research questions are as follows:

1. What are the current challenges faced by healthcare professionals in accessing health information resources and services in Rivers State?
2. In what ways can medical libraries be optimally utilised to improve access to health information resources and services in Rivers State?
3. How can digital technologies be employed to enhance the availability and use of health information resources and services in Rivers State?
4. What barriers limit the effective access and use of health information resources and services in medical libraries?

Literature Review

Libraries are now functioning as information or knowledge center, resources centers which disseminates required pinpointed information to patrons. Libraries in this context is the medical libraries- responsible for collecting

information published in various forms i.e. books, periodicals, thesis, patents etc and organize these information resources in helpful sequence. The heart of the library is in its collection – the purpose of collection is to serve the needs of information seekers and organizational aims and objectives in better ways. The utilization of information resources and services in medical libraries seriously depends on the nature of the library. As noted by Gavgani and Mohas in Oluchi *et al* (2019), lack of medical knowledge and proliferation of health information make patients misinformed, it neither ensures the patients safety nor proves patients' peace of mind. Nowadays, information age faces new disease and new patients such as "information syndrome" and cyberchondriac – a situation whereby an individual imagines that s(he) has a particular disease because the symptoms matches those that are listed in an online health page. As highlighted by Ranganathan, in his evergreen law of library science – every book its reader – any piece of information is useful and miraculous to its special reader/user. No doubt, the use of medical library has improved the participation of patients in health information formally and informally – it is quite evident from the foregoing that the emergence of technologies has ushered in an era of data-driven healthcare service delivery, encompassing aspects like e-health, m-health and emerging field like big data in healthcare and AI (Jablonksi *et al,* 2021). As a matter of necessity, the proliferation of digital libraries and repositories among health information professionals has led to the transformation of practice within medical libraries, as a result, this digital era is characterized by globalization and a knowledge based digital economy, government agencies and healthcare organization are moving from paper-based records towards electronic or digital records through digital technologies. Medical libraries are however, increasingly incorporating digital records into their daily operations and the delivery of various library services (Tlou, 2025). Corroborating the above, Haruna (2025), stated that, health librarianship is now more concerned with evidence based digital information that supports the dynamic information needs of the digital medical generation. This is why Tlou (2025), opined that, medical libraries are playing significant role in providing access to credible digital records by using digital technologies such as mobile devices and apps, medical libraries provide healthcare professionals and patients with convenient and rapid access to evidence-based digital information.

Placing some emphasis on the need for medical libraries to leverage information resources and services, Stoumpos *et al* (2025) noted the need for healthcare system to use innovative technologies like internet of things (IoT), clouding computing and artificial intelligence (AI) as these technologies offer innovative solutions to improve healthcare service delivery and address medical challenges effectively. By embracing modern technologies, medical libraries can provide users with quality services by offering patrons friendly access to information tailored to their preferences (Masenya and Chisita, 2022). In the same vein, Gjellebaek *et al* (2020) identified some of the benefits of using emerging digital technologies to include: increased employee productivity, improved efficiency and effectiveness of the operation of health units and reduction of operating costs. Considerably, medical libraries provide physical or digital access to materials to its teaming medical students and have long been facilitating access to resources in health such as the famous MEDLINE, PubMed and PubMed Central databases from the National library of Medicine in the United States (Anyoaku as cited in Celina, 2025).

The *raison d'etre* of every library is service. To put it yet in another way – the library in this context medical library is a service organization and as such cannot be left behind in this current era of digital transformation where an increasing number of libraries and information agencies worldwide are using electronic record system to organize, manage, preserve and access their records. Gopal *et al* (2019) stated that, healthcare has the lowest level of digital innovation as compared to industries like media, finance, insurance and retail. The authors further stated that 75% of medical or healthcare libraries in united states have adopted electronic health record system while developing countries like Nigeria is yet in the early stages of digital transformation. Medical libraries in Nigeria are experiencing challenges in transforming their services, operation and process in the digital transformation era. Digital transformation however, remains a challenge in medical libraries even with the implementation of lab and continuing education programmes focused on electronic health records. For instance, Chikum as cited in Tlou (2025), argued that the lack of an effective medical libraries has significantly affected health service delivery – this deficiency has however, made it difficult for medical practitioners to manage and provide access to health records which is hindering the delivery of quality services.

Methodology

The study employed survey research design. The population of the study comprised of health professionals, librarians, medical students and patients. Sample size of 65 was randomly drawn from the population. This comprises of 15 librarians, 20 students, 15 health professionals and 15 patients. A self-administered questionnaire was used as instrument for data collection. In order to determine the reliability of the instrument, there was field-testing of the instrument. To achieve this, 30 copies of the instrument was administered on selected respondents. Crombach Alpha was used to test the internal consistency of the instrument at 0.80 coefficient. The research instrument was subjected to content and face validity by experts from library and information science and Measurement and Evaluation. Copies of the questionnaire were administered and retrieved by the researchers with the help of tutored research assistants and a response rate of 100% was achieved. All the data collected were organized in tabular form based on the questionnaire and analysed using simple Mean (X) scores and Standard Deviation (SD). Analysis values were assigned to the four (4) response categories and the Mean (X) was interpreted in line with the 4- point scale as the highest to 1 the lowest. The decision making- the

lower limit of the high response category which was 2.50 was used as a cut-off. Thus, any item with a Mean (X) response of 2.50 and above was accepted as an influencing factor.

Research Question 1: What are the current challenges faced by healthcare professionals in accessing health information resources and services in Rivers State?

Table 1: Mean Response of the current challenges faced by healthcare professionals in accessing health information resources and services in Rivers State?

S/N	Items	Mean	SD	Remark
1.	Poor internet connectivity, unreliable electricity supply, and outdated hardware make it tough to use the digital health system.	3.31	19.9	Agreed
2.	Lack of ICT skills	3.1	15.9	Agreed
3.	Human Resource Gap	3.5	22.4	Agreed
4.	Financial Constraints	3.7	28.8	Agreed
5.	Lack of standardized electronic medical records And health information silos disrupt patient care and data sharing	3.2	18.0	Agreed
	Grand mean	**3.36**		**Agreed**

Data in table 1 above shows that all the items have mean scores above the cut-off of 2.50. This shows that all the respondents agreed that poor internet connectivity, unreliable electricity supply, outdated hardware, lack of ICT skills, human resources gap, financial constraints, lack of standardized electronic medical records and health information silos disrupt patient care and data sharing. This mean that addressing these challenges requires investments in infrastructure, capacity building and funding to improve access to reliable health information.

Research Question 2: In what ways can medical libraries be optimally utilised to improve access to health information resources and services in Rivers State?

Table 2: Mean Response on ways in which medical libraries can optimally utilised to improve access to health information resources and services in Rivers State?

S/N	Items	Mean	SD	Remark
1.	Provide access to the global health database and e-books, teach healthcare professionals to search, evaluate and use evidence-based resources effectively.	3.1	16.4	Agreed
2.	Assist the clinician in finding evidence for patient care, research or policy-making	3.2	16.2	Agreed
3.	Support outreach programmes for patient education and health promotion	2.9	14.3	Agreed
4.	Integrate library resources with the hospital information system for seamless access to the guidelineand patient data	3.2	17.9	Agreed
5.	Seek support from NGOs or international health organizations organization to boost resources and infrastructure	3.3	17.2	Agreed
	Grand mean	**3.14**		**Agreed**

The analysis from Table 2 above shows the mean response of respondents on how medical libraries can be leveraged to improve access to health information resources and services in Rivers state. The respondents agreed that medical libraries provide access to global health database and e-books, teach healthcare professional to search, evaluate and use evidence-based resources effectively, assist clinician in finding evidence for patient care, research or policy-making, Support outreach programmes for patient education and health promotion, integrate library resources with hospital information system for seamless access to guideline and patient data, and seek support from NGOs, or international health organization to boost resources and infrastructure. This means that leveraging medical libraries could also mean collaborating with institutions to strengthen resources and training of medical librarians.

Research Question 3: How can digital technologies be employed to enhance the availability and use of health information resources and services in Rivers State?

Table 3: Mean Response of how digital technologies can be employed to enhance the availability and use of health information resources and services in Rivers State.

S/N	Items	Mean	SD	Remark
1.	Digital libraries and online databases	3.3	18.5	Agreed
2.	Mobile Apps and SMS services	3.1	16.4	Agreed
3.	Implement systems that link to medical libraries, enabling quick access to patient data and evidence base guidelines	3.2	17.9	Agreed
4.	Promote interoperability between health facilities for seamless data sharing	3.0	157	Agreed
5.	Partner with institutions for training on evidence-based medicine, research skills, or using health databases	3.2	19.9	Agreed
	Grand mean	**3.16**		**Agreed**

The results in Table 3 above shows that it was agreed by respondents that digital libraries and online database, mobile Apps and SMS services, implement systems that link to medical libraries, enabling quick access to patient data and evidence base guidelines, promote interoperability between health facilities for seamless data sharing, and Partner with institutions for training on evidence-based medicine, research skills or using health database can be harnessed to enhance access to health information resources and services This means that technology can significantly boost access to health information resources and service if challenges like internet connectivity and digital literacy are addressed- offline access options or partnership with telecoms for data subsidies can also be a solution.

Research Question 4: What barriers limit the effective access and use of health information resources and services in medical libraries?

Table 4: Mean Response of barriers that limit the effective access and use of health information resources and services in medical libraries.

S/N	Items	Mean	SD	Remark
1.	Limited subscription	3.1	16.3	Agreed
2.	Librarian shortage	3.4	20.3	Agreed
3.	Health professionals struggle with navigating digital resources or database	2.9	15.4	Agreed
4.	Cost of access/funding challenges	3.5	22.3	Agreed
5.	healthcare workers might not know what libraries offer or how to use them	3.2	17.2	Agreed
	Grand mean	**3.22**		**Agreed**

Table 4 shows that it was agreed by respondents that limited subscription; librarian shortage; health professionals struggling to navigate digital resources or database; cost of access/funding challenges and healthcare worker might not know what libraries offer or how to use them are barriers to accessing health information resources and services in medical libraries. This means that accessing health information and services in medical libraries comes with several barriers.

Discussion of Findings

As shown in table 1 above, the study revealed that all the respondents agreed that poor internet connectivity, unreliable electricity supply, and outdated hardware lack of ICT skills, human resources gap, and financial constraints, among others, were some of the current challenges faced by healthcare professionals in accessing health information resources and services in Rivers State. This means that by leveraging medical libraries information resources and services, medical libraries can address these challenges by investing in infrastructure, capacity building and funding to improve access to reliable health information. However, studies reveal a consensus on the need for advanced competencies in digital and resources management to meet the information needs of modern medical librarianship – librarians must as a matter of urgency transition beyond traditional roles to actively support healthcare professionals. and students through enhanced digital expertise This is in line with Govardhan and Rao (2022), agree on the importance of digital skills in managing ICT tools and e-resources – these skills according to the authors are critical for interlibrary collaboration and effective resource sharing networks which rely on librarians' ability to navigate digital platforms. Similarly, Vasani *et al* (2024) highlight the growing importance of social media as a platform for health information dissemination, suggesting that librarians must also acquire skills to curate and manage credible digital content in this domain.

The responses from respondents in Table 2 shows that, all the respondents agreed that medical libraries provide access to global health database and e-books, teach healthcare professionals to search, evaluate and use evidence-based resources effectively, assist clinician in finding evidence for patient care, research or policy-making, and support outreach programme for patient education and health promotion among others are means medical libraries be leveraged to improve access to health information resources and services. This means that leveraging medical libraries could also mean collaborating with institutions to strengthen resources and training of medical librarians. This finding is in line with Shokeen (2021), agrees that by fostering collaboration with healthcare providers and leveraging ICT tools, medical libraries can significantly enhance their outreach capabilities and contribute to improved health literacy among vulnerable population. Maranna and Patil (2021), highlighted initiatives like health camps and library-driven educational workshops which serve as practical platforms for providing accurate and actionable health information – by bridging the gap between rural populations and reliable medical resources, these outreach programmes empower communities to make informed health decisions, thereby improving clinical decision-making and patient outcomes. For example, by offering evidence-based guidelines and treatment options, library-driven health outreach programmes aid clinicians in rural areas adopt standardized care protocols, reducing diagnostic errors and improving patient care (Dalal and Kadyan, 2021).

It was also revealed in research question three (Table 3) that respondents all agreed to all five (5) items in the table- this means that technology can significantly boost access to health information resources and service if challenges like internet connectivity and digital literacy are addressed- offline access options or partnership with telecoms for data subsidies can also be a solution. This is in line with Celina (2025), stated that, there are appreciable contemporary technological resources for effective access and retrieval of information in the 21st era of information and communication technology. The author however opined that, in spite of its perceived problems of technical know-how and capital intensive demand – it is expected that both medical librarians and medical undergraduate students are well acquainted with the following contemporary technologies to mention a few are: internet; 3D printer; software; Hinari; Medline; Pubmed; OPAC; Cochrane; E-reader Pre-loader; CD-Roms are used to access and retrieve relevant information.

The responses from respondents in Table 4 shows that, all the respondents agreed that limited subscription; librarian shortage; health professionals struggling to navigate digital resources or database; cost of access/funding challenges and healthcare worker might not know what libraries offer or how to use them are barriers to accessing health information resources and services in medical libraries. This means that accessing health information and services in medical libraries comes with several barriers. The findings of this study is in line with Whitney (2017) stated that to address these challenges, coordinated efforts among all stakeholders are critical. The author further stated that healthcare librarians should conduct research on digital health literacy and build sustainable digital health literacy programmes within their libraries. Furthermore, Zungu *et al* (2018) noted that the integration of digital technologies calls for a new set of skills and competencies – these include technical skills like software and hardware management and data analytics, digital literacy skills like navigating online resources and evaluating digital materials and soft skills like problem-solving, adaptability and communication.

Conclusion and Recommendation

Medical libraries are evolving into dynamic centers for health literacy and education-crucial for bridging the gap between healthcare information and its effective application. By integrating advanced ICT tools and database like PubMed, Cochrane Library and HINARI- these libraries support evidence-based practices, ensuring healthcare professionals and communities have access to credible and timely information. This study provides insights into the state of medical libraries in Rivers state. The literature review highlights the rapid transformation occurring in libraries – including the medical libraries in this technology-driven era. Nonetheless, as digital disruption continues to impose greater demands on organization and institutions globally, medical libraries must as a matter of fact consider an end – to-end approach for managing their record and enhance access to their resources and services.

To leverage medical libraries information resources and services to meet the evolving information needs of modern health library users who increasingly access resources remotely, medical libraries must establish infrastructures and improve accessibility- the success of the endeavours lies on the presence of knowledgeable and skilled health information professional and medical librarians. However, it is worthy to note that digital mindful library leadership is also relevant in promoting digital literacy and technical skills in supporting the technological transformation process within the medical libraries. Furthermore, building partnership and collaborations with other stakeholders is imperative-stakeholders, decision makers and policy makers in charge of medical libraries should as a matter of necessity play crucial role in facilitating digital transformation by allocating sufficient resources and put policies in place to facilitate this endeavor. Medical library management on the other hand should also promote the adoption of user-friendly designs and new technologies to enhance accessibility – in addition, fostering collaboration and the exchange of information among all parties is essential to expedite the digital transformation of medical libraries.

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Librarians' Perception and Acceptance on the Adoption of Artificial Intelligence in Academic Libraries: A Case Study of Plateau State University, Bokkos

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Abstract

This study seeks to investigate the perception and acceptance of librarians towards the adoption of Artificial Intelligence (AI) in academic libraries, with Plateau State University, Bokkos, serving as the case study. The study was undertaken against the backdrop of the low level of adoption and application of AI technologies in Nigerian academic libraries, despite their capacity to improve service delivery, information access, and operational efficiency. The objectives of the study was to determine the level of AI tool adoption in academic libraries, examine librarians' perceptions of AI technologies, and ascertain the extent to which AI tools are accepted within academic library environments. The study adopted a qualitative research design, which was due to the relatively small population size. The population comprises fourty-three (43) library staff. . The study employed a purposive sampling technique, where 23 professional librarians were selected as participants. Data was collected through semi-structured interviews to allow participants to express their views, experiences, and attitudes toward the integration of AI in library services. This approach enhanced the depth and credibility of the data that was obtained. Data analysis was carried out using thematic analysis. The analytical process involved transcription of interview data, familiarization with the data, coding, development of themes, and interpretation of the emergent themes. The result was presented thematically, with supporting participant quotations, and will be discussed in relation to the research objectives. The findings provided empirical insights into librarians' perceptions and acceptance of AI tools and highlighted key factors influencing AI adoption in academic libraries. The study will contribute to the growing body of literature on AI adoption in Nigerian academic libraries and will offer practical implications for library administrators, and all those seeking to enhance the integration of AI technologies in library services.

INTRODUCTION

The presence of artificial technology today has penetrated and revolutionized all spheres of work places including Academia. It has presented new ways, opportunities or more effective techniques to improve products, services and user experience. : Almost all major sectors including health, education, weather, business, stock markets, agriculture, and both government and non-government agencies worldwide are increasingly adopting these technologies to simplify and streamline workloads, boost productivity and speed, minimize human interaction, and most importantly, lead the digital world in a smart and sophisticated manner. Organizations and institutions must adapt to evolving technology to suit their end-user demands in the twenty-first century, which has recorded rapid transition and technological advancement. The application of AI in libraries has contributed immensely to service provision, use of library and information resources. This has helped libraries to achieve their goals and objectives of providing improved operational efficiency and enhanced user experience. (Modib & Ngulube 2024.) Artificial Intelligence in academic libraries refer to software applications and technologies powered by artificial intelligence designed to enhance, automate, and support library services and operations in educational institutions. According to the United States National Security Commission on Artificial Intelligence (NSCAI, 2021), AI is the ability of a computer system to solve problems and perform tasks that would otherwise require human intelligence. In academic libraries, AI assists with information retrieval, cataloging, research support, personalized recommendations, data analysis, and enhancement of user experiences, thereby facilitating efficient access to knowledge and information resources for students, faculty, and researchers. The implementation of AI also promotes collaboration between library professionals and information technology stakeholders, creating opportunities for innovative service delivery. Furthermore, successful AI implementation can serve as a foundation for the adoption of emerging technologies and improve the provision of information resources and services by librarians (Ajakaye, 2023). AI helps librarians reduce manual and repetitive tasks, minimize errors and

inconsistencies in data management, provide personalized services to users, support continuous library interactions regardless of location, and enhance the discovery of new information resources (Cox et al., 2023).

The successful integration of AI technologies in libraries depends largely on users' perception and acceptance of such technologies. Perception refers to the way individuals interpret, understand, and form opinions about a technology based on their experiences, beliefs, and knowledge (Mugdha & Shukla, 2024). While acceptance refers to an individual's willingness to embrace and use a technology because of its perceived usefulness, ease of use, and expected benefits (Dwivedi et al., 2023). Adoption is a decision-making process through which individuals choose to employ an innovation in their activities and is often influenced by positive perceptions and acceptance. Consequently, understanding librarians' and users' perceptions and acceptance of AI is essential for predicting the successful adoption and utilization of AI-powered library services in higher education institutions (Asemi et al., 2021)

Academic libraries are libraries established within higher education institutions to support teaching, learning, research, and community engagement. They provide access to information resources, research support services, information literacy programs, and digital scholarly communication tools that facilitate academic excellence (Association of College and Research Libraries [ACRL], 2022). As centers for knowledge creation and dissemination, academic libraries continuously adopt emerging technologies to improve service delivery and respond to the evolving information needs of their users. The integration of AI into academic library operations therefore represents a strategic approach to enhancing efficiency, innovation, user satisfaction, and the overall quality of information services in the contemporary knowledge environment (Cox et al., 2023; Ajakaye, 2023). Artificial intelligence (AI) has taken a leading role, dominating innovations in academic library services and transforming how librarians, evaluate, process and disseminate information resources a trend that this study seeks to investigate through the lens of user perception and acceptance at Plateau State University, Bokkos.

Statement of the problem

Artificial intelligence (AI) offers reasonable advantages and approaches for libraries to provide improved services to their clienteles in this era of information explosion improving user experiences, streamline operations, and enhance access to information in innovative ways (Nehra & Bansode, 2024). AI holds significant potential for industries, businesses, and libraries. Despite the growing integration of artificial intelligence (AI) in academic libraries globally, there is low level of its adoption and application in Nigerian universities, low level of adoption of AI may hinder effective library service delivery, resource management, and user satisfaction in academic libraries in Nigeria (Yusuf, et.al. 2022; Akinola 2023; Nwabuisi and Jidere 2024). Numerous studies have explored AI in academic libraries, focusing on AI-based services, benefits, and challenges (Aslim, Arif, Rafiq, & Ahmad, 2023), strategies for AI adoption (Huang, Cox, & Cox, 2023), The potential of ChatGPT in the library context (Brady and Ting 2023), The applications of Artificial Intelligence (AI) in the university libraries of Pakistan explored key factors that influence implementation of AI applications including highly integrated technological infrastructure, funding/cost associated with AI, collaboration between AI experts and professionals, and library users' feedback (Asim et al. 2023). Therefore, it is crucial to investigate librarians' perceptions and acceptance of AI to inform policy and implementation strategies tailored to the local context.

Research Questions

1) How do librarians in Plateau State University perceive the adoption of AI tools in the library?
2) What are the perception and experiences of librarians' regarding the adoption of AI tools in Plateau State University Library Bokkos?
3) How do librarians at Plateau State University Bokkos perceive the acceptance of AI tools in the library?
4) What factors influence librarians' acceptance of AI tools in Plateau State University Bokkos?

REVIEW OF LITERATURE

Level of Adoption of Artificial Intelligence Tools in Academic Libraries

AI has become an integral part of modern institutions. Integrating AI into academic libraries has become increasingly relevant for different library services and has genuinely engaged library users with other digital technologies (Hussain, 2023). AI integration with different domains has gained enormous attraction, particularly in academic libraries. Odigie (2024) investigated the awareness, use, and challenges of integrating AI in university libraries in North-Central Nigeria. Using a qualitative case study approach involving 52 reference librarians, the study found that librarians were highly aware of AI tools such as ChatGPT and Gemini; however, actual institutional adoption remained low and largely experimental. The study identified inadequate infrastructure and insufficient training as major barriers to adoption. For instance, the study (Masreka & Husseinb, 2021) demonstrates that the use of a robot advisor has dramatically influenced their perception of the usefulness of this AI tool.

Perception of librarians' towards the adoption of AI tools in Academic libraries

In a study which aims to understand how artificial Intelligence (AI) and related technologies are currently being utilized in public and academic libraries and how librarians perceive the adoption of new technologies in their relative libraries by Yoon, Andrews and Ward (2021), using an online survey questionnaire, the authors collected survey responses from both public and academic librarians that were subscribed to information science-centered listservs in North America. The quantitative survey responses ($N = 242$) were measured through use of multiple chi-square tests and crosstab analyses and their study reported that the perceptions of librarians on such technologies were generally more positive. In all, 67% of them responded that AI and related technologies will transform the library's functions, and 68% of librarians reported that they are interested in training. Additionally, The findings of the study titled Awareness and Perception of the Artificial Intelligence study in the Management of University Libraries in Nigeria by Abayomi et al (2020) revealed that academic librarians are aware of the existence of AI usage in the university libraries and that the fear of job loss is the major constraint they face in the adoption of the technologies; even though they are aware that the innovative technologies will enable efficient user satisfaction. Similarly, a study on the Perspectives of Librarians on Awareness and Readiness of Academic Libraries to Integrate Artificial Intelligence for Library Operations and Services in Nigeria by Ajani et al (2022) reveals that the librarians have mixed feelings about the readiness of academic libraries to integrate AI systems into library operations and services. Based on the librarian perception, the result implies that integration of AI in library operation and services will take the library to the next level by reducing human errors due to repetitiveness in library tasks, and if care is not taken, AI system might take their job role.

Acceptance of AI tools by Academic libraries in Nigeria

Alao and Olajide (2025) investigated AI literacy and adoption readiness among librarians in Nigerian private university libraries using the Technology Acceptance Model. Findings revealed high levels of awareness and positive readiness toward AI adoption among librarians. The study concluded that librarians were willing to adopt AI technologies if adequate training and institutional support were provided. Odelami et al. (2026) examined librarians' propensity to use AI technologies for knowledge sharing in Nigeria using the Technology Acceptance Model. The descriptive survey revealed that librarians showed strong behavioral intention to adopt AI tools where they perceived the technologies as useful and easy to use. The study also established that acceptance was influenced by institutional support and digital literacy levels. Olatunji (2025) studied the adoption of big data analytics in Nigerian university libraries in Osun State. The findings revealed that although awareness and positive attitudes toward digital technologies were high, actual utilization was low due to skill gaps and infrastructural deficiencies. Additionally, Odigie (2024) reported that despite positive attitudes toward AI technologies among librarians in North-Central Nigeria, acceptance and actual implementation remained low because of concerns relating to insufficient infrastructure and policy limitations.

Factors influencing user acceptance of AI tools within academic libraries.

Several studies have identified factors influencing librarians' acceptance of AI technologies in academic libraries. The key factors of acceptance are based on perceived usefulness. Other domains where AI is adopted have been linked with user attitude, and perceived usefulness positively affects user attitude. Regarding librarians' attitudes, towards the adoption of AI in academic libraries has been altered by the perceived usefulness (Rafique et al., 2020). Also, Kim et al. (2022) postulated that the adoption rate of AI in academic libraries is based on familiarity with technology. Odelami et al. (2026) found that librarians' acceptance of AI tools was influenced by perceived usefulness, digital competence, organizational support, and access to training opportunities. While Odelami et al. (2026) found that librarians' acceptance of AI tools was influenced by perceived usefulness, digital competence, organizational support, and access to training opportunities. Orubebe et al. (2025) also identified infrastructural availability, internet connectivity, funding, technical expertise, and training as significant factors affecting librarians' willingness to adopt AI tools in academic libraries. On the other hand, Alao and Olajide (2025) identified AI literacy, institutional readiness, and management support as major determinants of AI acceptance among librarians in Nigerian university libraries.

RESEARCH METHODOLOGY

This study adopted a qualitative research design to explore librarians' perception and acceptance of Artificial Intelligence (AI) in academic libraries: A case study of Plateau State University. Qualitative approach was appropriate because it enabled an in-depth exploration of participants' experiences, views, and interpretations regarding emerging technologies such as AI (Creswell & Creswell, 2023; Merriam & Tisdell, 2022). The study was conducted at Plateau State University Library, Bokkos, Nigeria and the population of the study consist of fourty three (43) staff of University library. The study employed a purposive sampling technique, where 23 professional librarians were selected as participants. Data for this study was collected using semi-structured interviews. The interview guide was adopted as instrument for Data collection which contained open-ended questions designed in alignment with the objectives of the study. Data was collected through face-to-face interviews with respondents. Where physical interaction was not feasible, virtual platforms such as phone or video calls was used. With participants' consent, interviews were audio-recorded and supplemented with note-taking. This approach enhanced accuracy and ensures that no important information is lost during data collection (Creswell & Creswell, 2023). The data collected was analyzed using thematic analysis which

involved: Transcribing the interview data, familiarizing with the data through repeated reading, generating initial codes, identifying and developing themes, reviewing and refining themes, and interpreting findings.

DISCUSSION OF FINDINGS

The data collected from the study were thematically analyzed, and the theme structure was based on the objectives of the research and developed from questions in the interview sessions with the librarians. The discussion below is a narrative discourse of these themes

SECTION A: LEVEL OF AI ADOPTION

Research Question 1: What is the level of adoption of AI tools in the library?

Based on the recorded interviews analyzed from the above questions, three major themes emerged:

Theme 1: Non-Adoption of AI Technologies: The findings revealed that artificial intelligence (AI) technologies have not yet been adopted in Plateau State University Library. All respondents consistently reported that no AI tools or systems are currently being used in any aspect of the library operations. For example a respondent said *"For now we have not yet adopted any AI technology in any of our library services but make use of E-library as an alternative."* Participants indicated that traditional and manual approaches continue to dominate service delivery, cataloguing, circulation, reference services, and other library functions. The absence of AI technologies suggests that the library remains at an early stage of digital transformation. Although AI has gained considerable attention within the library profession globally, its implementation in many academic libraries, particularly in developing countries, remains limited due to infrastructural, financial, and technical constraints. The finding corroborates previous studies which reported low levels of AI adoption in academic libraries despite growing awareness of its potential benefits (Cox et al., 2019; Hussain, 2023; Nwabuisi, 2024). The finding further suggests that the library has not yet developed the institutional capacity required for AI implementation. This may include limitations in technological infrastructure, funding, policy frameworks, and staff training, which have been identified in the literature as significant barriers to AI adoption in libraries (Asemi & Asemi, 2020; Orubebe et al., 2025).

Theme 2: Library Automation as a Foundation for Future AI Adoption

A significant finding emerging from the interviews was that all 23 respondents reported that the library is currently undergoing automation processes. Participants expressed optimism that once automation is fully implemented, AI technologies may subsequently be integrated into library services. This finding indicates that although AI adoption has not yet occurred, the library is making progress toward technological modernization. Automation is widely recognized as an important prerequisite for AI implementation because it establishes the digital infrastructure, electronic databases, and information management systems necessary for advanced AI applications. Respondents perceived the ongoing automation project as a positive step that could facilitate future AI integration. The finding aligns with studies which argue that libraries often progress through stages of technological development, beginning with computerization and automation before advancing to more sophisticated technologies such as artificial intelligence and machine learning (Cox et al., 2019; Ayinde, 2026). The respondents' optimism suggests a readiness for technological innovation and an expectation that AI will eventually become part of library operations.

Theme 3: Individual Familiarity and Readiness for AI Adoption

Another important theme that emerged from the findings was individual familiarity with AI technologies. Although AI has not been officially adopted by the library, majority of the respondents reported using AI tools for their personal and professional tasks. For example respondent said: *No, as library but personally I use AI tools in my daily activities it helps me get my work faster and easily*. Participants indicated that they frequently use AI applications to support information searching, writing, document preparation, research activities, content generation, and other work-related functions. This finding demonstrates that librarians possess substantial awareness of and exposure to AI technologies despite the absence of institutional implementation and indicate that the level of AI adoption in the Plateau State University Library is currently nonexistent. However, the ongoing automation process and the widespread personal use of AI technologies among library staff suggest a degree of organizational readiness institutional support, the library may be well positioned to adopt AI technologies in the future. The widespread personal use of AI among respondents suggests that resistance to AI adoption may not be a major challenge within the library. Rather, the barriers to adoption appear to be organizational and infrastructural rather than attitudinal. This finding supports previous studies that identified librarians' growing familiarity with AI technologies as an important factor influencing future adoption. Lund and Wang (2023) found that many library professionals are increasingly experimenting with generative AI tools such as ChatGPT even in institutions where formal AI implementation has not yet occurred. Likewise, Ayinde (2026) reported that awareness and personal use of AI technologies among librarians often precede institutional adoption and may facilitate future implementation efforts.

The Perception of Librarians towards AI Tools

Theme 1: Positive Acceptance of AI Technologies

The findings revealed an overwhelmingly positive perception of artificial intelligence (AI) among librarians. All respondents (100%) expressed acceptance of AI technologies and indicated that they viewed AI as a valuable innovation capable of supporting library and information services. Participants generally perceived AI as a useful tool that could improve efficiency, enhance information access, and support professional activities within academic libraries. The unanimous acceptance of AI is particularly significant considering that the library has not yet adopted AI technologies institutionally. This finding suggests that librarians are receptive to technological innovation and are likely to support future AI implementation initiatives. The positive attitude observed among respondents aligns with previous studies which reported that librarians generally perceive AI as an opportunity to enhance service delivery, automate repetitive tasks, and improve user experiences (Cox et al., 2019; Asemi & Asemi, 2020).

Theme 2: Perceived Improvement in Work Efficiency and Productivity

Another dominant theme that emerged from the data was the perception that AI improves work efficiency. A significant number of respondents stated that while the library as an organization has not embraced AI, they are already familiar with AI applications and have incorporated them into their personal workflows. Another response says: *Of course AI technologies would ease work load on the librarians, for instance in the reference section, chat bots could answer users' queries all the time and speedily*. This suggests that lack of adoption may not be attributable to resistance from staff but rather to organizational and infrastructural limitations. Furthermore, many of the participants explained AI makes their work faster and more productive and that AI assists them in conducting literature searches, generating content, summarizing information, editing documents, and performing other professional tasks more efficiently than traditional methods. The finding demonstrates that librarians perceive AI primarily as a productivity-enhancing tool. Respondents emphasized that AI reduces the time required to complete routine activities and facilitates quicker access to relevant information. Such perceptions are consistent with studies that identified efficiency, speed, and enhanced productivity as some of the major advantages motivating AI adoption in academic libraries (Hussain, 2023; Lund & Wang, 2023).

Level of Acceptance of AI Tools

Theme 1: Strong Willingness to Use AI Technologies

The findings revealed a very high level of acceptance of artificial intelligence (AI) technologies among librarians. All respondents (100%) indicated their willingness to use AI tools in their daily work activities. An example of the respondents said "*I will gladly recommend the adoption of AI technologies in our library".* Participants expressed enthusiasm about the potential of AI to enhance efficiency, improve service delivery, and support various professional tasks within the library environment. The undisputed willingness to use AI suggests that librarians recognize the value and relevance of AI technologies in contemporary information services. This finding is particularly important given that AI technologies have not yet been officially adopted in Plateau State University Library. The result indicates that librarians are not resistant to technological innovation and are likely to embrace AI implementation initiatives when introduced. This finding supports the Technology Acceptance Model (TAM), which posits that users are more likely to adopt technologies they perceive as useful and beneficial to their work (Davis, 1989). The respondents' willingness to use AI reflects their perception that AI can improve work performance and facilitate the delivery of quality library services. Similar findings have been reported by Cox et al. (2019), who found that librarians generally demonstrate positive attitudes toward AI adoption due to its perceived usefulness in enhancing operational efficiency and service provision.

Theme 2: Comfort and Confidence in Using AI Technologies

Another major theme that emerged from the data was respondents' comfort with AI technologies. A significant number of respondents reported that they were comfortable using AI applications and technologies. Example "*I am even 100% comfortable using AI Technology for my personal work, this give me confidence that I can easily use these technologies if eventually integrated in the library*" This finding suggests that librarians possess a basic level of digital competence and familiarity with AI-powered tools, likely influenced by their personal use of AI technologies for research, information retrieval, writing, and administrative tasks. The respondents' comfort with AI indicates a high degree of technological readiness within the library workforce. Research has shown that user confidence and technological competence significantly influence the successful adoption of emerging technologies (Venkatesh et al., 2003). Therefore, the positive attitudes demonstrated by respondents may facilitate future AI implementation efforts within the library. This finding also lines up with recent studies that suggest increasing exposure to AI technologies has contributed to greater acceptance and confidence among information professionals (Lund & Wang, 2023; Hussain, 2023). As librarians become more familiar with AI applications, concerns regarding technological complexity tend to diminish, thereby increasing acceptance and willingness to use such technologies.

Theme 3: Need for Training and Capacity Building

Despite their positive attitudes toward AI, a good number of respondents emphasized the need for training and retraining programs to equip library staff with the knowledge and skills required to effectively utilize AI technologies. Participants acknowledged that although they were comfortable with AI, specialized training would be necessary to maximize the benefits of AI applications in library operations. This finding highlights the importance of continuous professional development in the successful implementation of AI technologies. While acceptance and willingness are important factors, effective adoption also requires adequate knowledge, technical competencies, and institutional support. The respondents recognized that AI technologies are constantly evolving and that librarians must continuously update their skills to remain relevant in an increasingly technology-driven information environment. This finding corroborates studies that identify staff training as a critical determinant of successful AI adoption in libraries (Asemi & Asemi, 2020; Nwabuisi, 2024). Researchers have consistently argued that without adequate training, librarians may struggle to fully utilize AI technologies, thereby limiting the effectiveness of implementation efforts.

Theme 4: Strong Support for Full AI Integration in Library Operations

The findings further revealed unanimous support for the integration of AI technologies into library operations. All respondents recommended that AI should be fully integrated into library services and activities. Participants believed that AI could improve efficiency, enhance service delivery, facilitate information retrieval, and support decision-making processes within the library. This finding demonstrates a strong institutional readiness for AI adoption among library staff. Although AI technologies are not currently utilized within the library, respondents expressed optimism regarding their future implementation and recognized the potential benefits that AI could bring to library operations. The finding is consistent with previous studies which reported that librarians increasingly advocate for AI adoption as a means of modernizing library services and responding to the changing information needs of users (Cox et al., 2019; Ayinde, 2026). Respondents viewed AI not as a threat but as an opportunity to improve library effectiveness and maintain relevance in the digital age.

Factors influencing the acceptance of AI tools in PLASU Library

The analysis of respondents' views revealed three major themes influencing the acceptance of Artificial Intelligence (AI) tools in PLASU Library: **perceived benefits of AI**, **institutional support and organizational readiness**, and **training and capacity development**. While respondents acknowledged the potential of AI to improve library operations, several concerns relating to job security, infrastructure, funding, and technical reliability affected their willingness to fully embrace the technology.

Theme 1: Perceived Benefits and Concerns about AI Adoption

The findings indicate that the majority of respondents were positively disposed toward AI adoption because of its ability to improve library operations, simplify workflows, enhance efficiency, and reduce repetitive tasks. For example “Participants believed that AI could automate routine processes, improve service delivery, and increase productivity among library staff. These perceived advantages serve as important motivating factors for AI acceptance. However, respondents also expressed several concerns that discouraged AI usage. The most frequently mentioned concerns included fear of job displacement, overreliance on AI systems, inaccurate outputs, poor internet connectivity, and inadequate funding. Many respondents worried that the increasing use of AI technologies could reduce the need for human librarians and potentially threaten employment opportunities. Concerns were also raised about the reliability of AI-generated information, particularly when incorrect or misleading responses are produced. These findings aligns with previous studies that identified efficiency, service enhancement, and innovation as major drivers of AI adoption in libraries, while financial constraints, technological barriers, and fears of job loss remain significant obstacles (Shahzad et al., 2025; Ayinde et al., 2025). Similarly, Mhlongo and Maphosa (2024) found that librarians generally maintain positive attitudes toward AI because of its operational benefits but remain concerned about job security and technological dependence. Studies conducted in developing countries further highlight infrastructure limitations and insufficient funding as major barriers to AI implementation in libraries (Asemi & Asemi, 2023; Okechukwu et al., 2024).

Theme 2: Institutional Support and Organizational Readiness

Another important factor influencing AI acceptance was institutional support. Several respondents acknowledged that the ongoing automation process within PLASU Library demonstrates management's commitment toward technological advancement and provides a foundation for future AI adoption. The automation initiative was viewed as evidence that the institution recognizes the importance of digital transformation and is gradually preparing the library for AI integration. Nevertheless, some respondents expressed dissatisfaction with the slow pace of automation, suggesting that inadequate implementation speed may hinder confidence in the institution's readiness for full AI deployment. This indicates that while organizational support exists, its effectiveness may be constrained by implementation challenges. The findings support existing literature which emphasizes that institutional commitment, strategic planning, and organizational readiness are critical determinants of successful AI adoption in libraries. Research has shown that

libraries with strong administrative support, clear technological policies, and investment in digital infrastructure are more likely to adopt AI successfully (Ayinde et al., 2025; Shahzad et al., 2025). Furthermore, studies have identified funding, governance structures, and organizational culture as significant factors affecting AI implementation in academic libraries.

Theme 3: Lack of Training and Capacity Development

The findings revealed a significant gap in AI-related training among respondents. All participants reported that they had not received formal training specifically focused on AI technologies in libraries. An example of a response from interview "*personally I will say yes, I have attended and subscribed for trainings but for our institutional training, the answer is not really, if not for those trainings we received on library automation where a facilitator chipped in a little about AI Technologies in libraries."* Although some respondents indicated that AI concepts were briefly introduced during library automation training sessions, these exposures were limited and insufficient for developing practical AI competencies. Interestingly, a good number of respondents reported acquiring AI skills independently through personal learning initiatives, while a few of the respondents indicated plans to undertake future AI training. This demonstrates a growing awareness of the importance of AI literacy among library staff despite the absence of formal institutional training programs. Existing literature consistently identifies inadequate AI knowledge, limited technical skills, and insufficient professional development opportunities as major challenges to AI adoption in libraries. Ayinde et al. (2025) emphasize the need for retraining librarians to acquire competencies in managing AI-enhanced services. Similarly, studies by Shahzad et al. (2024, 2025) and other scholars have highlighted training and capacity building as essential prerequisites for successful AI implementation. Recent evidence also suggests that organizations are often deploying AI technologies faster than they are preparing staff to use them effectively, creating a substantial skills gap that affects adoption rates.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The findings indicate that librarians possess a highly positive perception of AI technologies. All respondents recognize AI as a valuable tool capable of improving efficiency, productivity, and service delivery. However, their acceptance of AI is accompanied by important concerns regarding overdependence, job displacement, and information accuracy. The findings therefore suggest that librarians support the integration of AI into academic libraries provided that appropriate safeguards, training programs, and ethical guidelines are established. The combination of strong acceptance and cautious optimism indicates a favorable environment for future AI adoption within the library for future AI integration. These findings imply that with adequate infrastructure, funding, training, and

Recommendations

Based on the major findings and conclusion of this study, the following recommendations were made. That:

1) Academic Libraries in Nigeria should fully adopt and integrate Artificial Intelligence into their daily operations to improve efficiency, enhance information access, and support professional activities within academic libraries.
2) Library management should fully automate all library services as it serves as a foundation for AI integration**.**
3) Library management should **leverage Librarians' Positive Attitudes during AI Implementation** by involving librarians in the planning, selection, and implementation of AI systems. Their enthusiasm and readiness to use AI can facilitate smoother adoption processes and increase the success of AI initiatives.
4) **Institutions should accelerate the Introduction of AI Technologies in the Library** given the strong willingness of librarians to use AI technologies, the university library should take proactive steps toward adopting and integrating AI technologies into library operations. The high level of acceptance indicates that implementation efforts are likely to receive staff support and cooperation.
5) Institution should leverage on librarians' Comfort and Confidence in Using AI Technologies to adopt and fully implement AI integration in all sections of the library.
6) Invest in digital infrastructure and technological resources, provide continuous AI training and capacity building through workshops, conferences, webinars, and professional networks focused on AI and emerging technologies.
7) Institutional management should develop Institutional Policies to Support AI Adoption and guide implementation, ensure ethical use, and promote sustainable integration of AI into library services

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LIBRARIANS RESILIENCE STRATEGIES IN CLIMATE CHANGE: A CASE OF LIBRARIES IN EBONYI STATE

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Abstract

Climate change has become a growing concern for libraries, particularly in developing regions where environmental and infrastructural challenges are more pronounced. This study examined librarians' resilient strategies in addressing climate change impacts in libraries in Ebonyi State, Nigeria. The study focused on identifying climate change elated risks, examining the adaptation strategies employed by librarians, assessing institutional policies and frameworks, and identifying challenges limiting effective implementation of climate-resilient practices. A descriptive survey research design was adopted, and data were collected from librarians using structured online questionnaires and mean score was used to analysed the data. The findings revealed that major climate-related risks affecting libraries include extreme heat, humidity, and other extreme weather conditions. The study also found that librarians employ several adaptation strategies such as digital preservation, environmental monitoring, staff training, and collaboration. However, institutional policies and frameworks, although recognized, are not strongly implemented. Furthermore, the study identified key challenges such as inadequate funding, poor maintenance culture, weak infrastructure, limited technological capacity, and lack of clear climate policies. These challenges significantly hinder the effective adoption of resilience strategies. The study concludes that while librarians in Ebonyi State are making efforts to adapt to climate change, their capacity is limited by systemic and institutional constraints. It therefore recommends increased funding, stronger policy implementation, improved infrastructure, and continuous capacity building to enhance climate resilience in libraries. The study contributes to the growing body of knowledge on climate change and library management in developing contexts

Keyword: Climate Change, Librarian Resilience, Ebonyi State, Environmental Sustainability, Institutional Policies

Introduction

Climate change is no longer a distant or abstract concern. It is a present and visible reality that is reshaping how people live, work, and manage institutions across the world. At its core, climate change refers to long-term shifts in temperature, rainfall, and weather patterns, largely driven by human activities such as the burning of fossil fuels and deforestation. Reports by the Intergovernmental Panel on Climate Change show that rising global temperatures and the increasing frequency of extreme weather events such as floods, droughts, and heatwaves are now well established (IPCC, 2023). While much attention has been given to the impact of these changes on agriculture, health, and the economy, less visible but equally important is their effect on knowledge institutions like libraries(Akidi & Igbinovia, 2026).

Libraries have traditionally been seen as stable and controlled environments. They are carefully designed spaces where books, archives, and digital resources are preserved for long-term use. For decades, the assumption has been that with proper care, library collections can last for generations. However, climate change is gradually challenging this assumption. Rising temperatures, increased humidity, and unpredictable weather conditions are beginning to interfere with the delicate balance required to preserve information materials (pius & Patrick, 2024). For instance, excessive heat can weaken paper and adhesives, while high humidity encourages mold growth and pest infestations. Flooding, which is becoming more frequent in many parts of Nigeria, can destroy entire collections within hours. As Einecker and Kirby (2020) observe, climate-related hazards are placing growing pressure on institutions that depend on stable environmental conditions.

In developing countries such as Nigeria, the situation is even more complex. Many libraries operate under conditions that make them particularly vulnerable. Issues such as poor infrastructure, irregular power supply, and limited funding reduce their ability to respond effectively to environmental threats. Mohammed (2024) notes that in several Nigerian academic libraries, materials are already deteriorating at a faster rate due to uncontrolled temperature and humidity levels. This means that climate change is not just a future risk but an ongoing challenge that is already affecting the quality and longevity of information resources.

In response to these realities, the idea of resilience has become increasingly important in library practice. Resilience, in simple terms, is the ability to cope with disruption and still function effectively. For libraries, this means finding ways to protect collections, maintain services, and recover quickly when damage occurs. One common approach is

digitization, where physical materials are converted into electronic formats. This not only preserves the content but also allows users to access information remotely. Other strategies include improving environmental control, adopting energy-efficient systems, and developing emergency response plans. Garnett (2021) explains that libraries that embrace these approaches are better positioned to adapt to changing environmental conditions. The growing interest in "green libraries" also reflects a shift toward more sustainable and environmentally conscious practices (Ajani et al., 2024).

However, resilience does not happen by chance. It is often guided by institutional policies and frameworks that provide direction and structure. Policies related to disaster management, environmental sustainability, and digital preservation help libraries plan ahead and respond in an organized way. Unfortunately, evidence suggests that many libraries in developing regions lack strong and enforceable policies in this area. Ajani et al. (2025) point out that the absence of clear frameworks often leads to uncoordinated efforts and weak preparedness. Even where policies exist, their implementation is sometimes limited by lack of resources or institutional commitment.

At the same time, several practical challenges continue to stand in the way of effective action. Limited funding makes it difficult for libraries to invest in modern equipment or upgrade their facilities. There is also a gap in technical skills, as not all librarians are trained in areas such as disaster preparedness or digital preservation. Frequent power outages further complicate efforts to maintain stable environments and run digital systems. Mohammed (2024) highlights that these challenges combine to increase the vulnerability of libraries to climate-related damage.

Given these realities, it becomes important to look closely at how libraries are actually coping within specific local setting. While existing studies provide useful general insights, they often do not capture the unique conditions of individual states or regions. In the case of Ebonyi State, there is limited empirical evidence on how libraries are experiencing climate-related risks and what strategies librarians are using to respond. This lack of localized understanding creates a gap in knowledge and practice. It is against this background that this study seeks to examine librarians' resilient strategies in addressing climate change in libraries in Ebonyi State. By doing so, it aims to provide a clearer picture of the challenges, responses, and opportunities that exist within this specific context.

Objectives of the study

The main objective of this study is to examine librarians' resilient strategies in addressing climate change impacts in libraries in Ebonyi State. The specific objectives are to:

1. Identify the climate change related risks affecting libraries in Ebonyi State.
2. Examine the resilience and adaptation strategies employed by librarians in Ebonyi State to mitigate the impacts of climate change.
3. Identify the challenges limiting the effective implementation of climate-resilient strategies in libraries Ebonyi State.

Research Questions

1. What is the climate change–related risks affecting libraries in Ebonyi State?
2. What resilience and adaptation strategies are employed by librarians to mitigate the impacts of climate change?
3. What challenges limit the effective implementation of climate-resilient strategies in libraries in Ebonyi State?

Literature review

Climate Change Related Risks Affecting Libraries

Climate change has been recognized as a major threat to information institutions across the world. In Nigeria, the impacts of climate change are particularly acute, affecting different regions through heightened occurrences of flooding, drought, and unpredictable weather patterns (Nwankwo et al., 2020). Libraries, as custodians of knowledge, are not exempt from these impacts. Rising global temperatures, unpredictable rainfall, and extreme weather events have created new risks that affect both library infrastructure and collections. According to Einecker and Kirby (2020), climate-related hazards such as flooding, storms, and heatwaves have become more frequent and intense, thereby increasing the vulnerability of public and academic institutions.

In Nigeria, these risks are even more pronounced due to infrastructural challenges and limited environmental control systems (Alemna, 2020). Mohammed (2024) observes that many academic libraries experience deterioration of paper-based materials as a result of excessive heat and humidity. These environmental conditions often lead to mold growth, weakening of paper fibers, and eventual loss of valuable information resources. Flooding is another major concern, especially in regions with poor drainage systems. When floodwater enters library buildings, it can destroy books, archival materials, and electronic equipment within a short time.

Temperature fluctuations also pose a serious risk. High temperatures accelerate the chemical breakdown of paper, while unstable conditions affect adhesives and bindings. Ajani et al. (2025) further note that storms and heavy winds can damage roofs and windows, exposing collections to external elements. Beyond physical damage, climate change also disrupts library services. Extreme weather conditions may prevent users from accessing library facilities, thereby affecting learning and research activities. These findings suggest that libraries must now operate in an environment where climate risks are constant and evolving.

Resilience and Adaptation Strategies in Libraries

In response to these growing risks, libraries are adopting different strategies to improve their resilience. Resilience refers to the ability of an institution to withstand shocks, adapt to changing conditions, and recover quickly from disruptions. Modern libraries are gradually moving from reactive approaches to more proactive and strategic forms of climate adaptation. Garnett (2021) explains that resilience in libraries involves a combination of planning, innovation, and sustainability practices.

One of the most widely used strategies is digitization. By converting physical materials into digital formats, libraries can preserve information even if the original copies are damaged. Digital repositories also allow users to access resources remotely, which becomes important during climate-related disruptions. In addition, libraries are investing in digital preservation systems such as cloud storage and backup servers. These systems help to protect data from loss caused by disasters.

Environmental monitoring is another important strategy. Libraries now use tools to control temperature and humidity within storage areas. This helps to slow down the deterioration of materials and prevent mold infestation. The concept of green libraries has also gained attention in recent years. This approach encourages the use of energy-efficient lighting, renewable energy sources, and environmentally friendly building materials. Ajani et al. (2024) argue that green libraries not only reduce environmental impact but also contribute to long-term sustainability.

Disaster preparedness is equally important. Many libraries are developing emergency response plans that outline steps to take before, during, and after a disaster. These plans often include staff training, risk assessment, and recovery procedures. Saini (2025) highlights the importance of structured frameworks such as the Climate Action Framework for Libraries, which provides practical guidance on integrating climate resilience into library operations. Through these strategies, libraries are gradually building the capacity to cope with climate change.

Challenges Limiting the Implementation of Climate-Resilient Strategies

Despite the availability of various strategies and frameworks, many libraries face challenges in implementing climate-resilient practices. One of the most common challenges is inadequate funding. Climate resilience often requires significant investment in infrastructure, technology, and training. Unfortunately, many libraries operate on limited budgets and struggle to meet their basic needs. Ajani et al. (2025) identify funding constraints as a major barrier to the adoption of resilience strategies in Nigerian libraries.

Poor infrastructure is another major issue. Many library buildings are old and were not designed to withstand extreme weather conditions. Upgrading these buildings can be expensive and is often not prioritized. As a result, libraries remain vulnerable to flooding, heat, and storms. In addition, there is a lack of technical expertise among library staff. Many librarians have not received adequate training in areas such as disaster management or digital preservation. This limits their ability to implement effective strategies.

Technological challenges also play a role. Access to modern tools and reliable internet services is still limited in many parts of Nigeria. Frequent power outages further complicate the situation by disrupting digital services and damaging equipment. Without stable electricity, it becomes difficult to maintain environmental control systems or operate digital repositories.

Institutional factors also contribute to the problem. In some cases, there is weak support from management or government authorities. Climate resilience may not be seen as a priority compared to other pressing needs. Resistance to change among staff can also slow down the adoption of new practices. Einecker and Kirby (2020) note that lack of coordination between policy and practice is a common issue in climate adaptation efforts.

Methodology

Research designs This study adopted a sectional survey design. A sectional approach is appropriate for examining prevailing behaviors, perceptions, strategies and usage patterns within a defined population at a specific location (Creswell and Creswell 2017; Setia 2016). The design was considered suitable because the study sought to examine the climate change related risks affecting in Ebonyi State, the resilience and adaptation strategies employed by librarians in Ebonyi State to mitigate the impacts of climate change and the challenges limiting the effective implementation of climate-resilient strategies in libraries Ebonyi State.

Survey designs were adopted for the study. This is because they are widely used in studies and it allow researchers to obtain accurate information from of respondents efficiently. The population of this study comprised librarians in Ebonyi state. A convenience sampling technique was employed for this study. Convenience sampling was considered appropriate because the study aimed to reach accessible participants who were willing to provide responses within a limited data collection period. This sampling approach has been widely adopted in survey-based studies involving knowledge and use of (Alam et al. 2024; Etikan, Musa, and Alkassim 2016). The survey was distributed online, and participation was voluntary. At the end of the data collection period, 21 respondents completed the survey, and their responses were considered valid for analysis. The sample size was considered adequate for both data analyses.

Instrument for data collection Data were collected using a structured questionnaire developed in line with the objectives of the study and existing literature on climate change resilience strategies. Data collection was conducted between March 2026 and April 2026 using Google Forms. The survey link was shared through multiple online platforms to reach potential respondents. Specifically, the link was distributed through the researchers' WhatsApp groups. In addition, the survey link was shared with librarians working in libraries in Ebonyi through the official WhatsApp group.

To ensure content validity, the draft questionnaire was reviewed by three experts in Library and Information Science. Their feedback led to improvements in wording clarity, relevance of items, and alignment with the research objectives. A decision benchmark of 2.50 was used for interpreting the mean scores. Mean values equal to or greater than 2.50 indicated agreement with the statement or a high level of the measured construct, while mean values below 2.50 indicated disagreement or a low level of the measured construct. The respondents scale and value assigned is SA=4, A=3, D=2 and SD=1. The removal of the neutral response option helped reduce central tendency bias and enhanced clarity in interpreting responses (Asún, Rdz-Navarro, and Alvarado 2016; Ayanbode and Adetoro 2021; Oladokun et al. 2025; Pornel and Saldaña 2013).

This study adhered to standard ethical guidelines for research involving human participants. Participation in the study was entirely voluntary, and informed consent was obtained from all respondents before completing the questionnaire. The introductory section of the online survey clearly explained the purpose of the study, the nature of participation, and participants' right to withdraw at any time without penalty. No personally identifiable information was collected, and all responses were treated with strict confidentiality and used solely for academic purposes

Analysis of data and results

Demographic analysis

Distribution of respondent's libraries in Ebonyi State

S/N	Name of Library	Frequency
1.	David Umahi federal university of health sciences	4
2.	Ebonyi State University of Aeronautics and Aerospace Engineering Library	2
3.	Ebonyi State University Library	4
4.	Alex Ekwueme Federal University Ndufu-alike Ikwo (AE-FUNAI)	3
5.	National Library of Nigeria	2
6.	Akanu Ibiam Federal Polytechnic Unwana Library	3
7.	EBONYI STATE LIBRARY BOARD	1
8.	Evangel University	2
	TOTAL	21

Research Question 1: What is the climate change related risks affecting libraries in Ebonyi State?

Table 1: Describe the resilience and adaptation strategies employed by librarians in Ebonyi State to mitigate the impacts of climate change

S/N	ITEMS	SA	A	D	SD	x̄	Decision
1	Flooding and Water damage	5	3	8	5	2.4	rejected
2	Extreme Heat and Temperature Fluctuations	4	11	6	-	2.9	Accepted
3	Humidity and Moisture-Related Damage	6	9	4	2	2.9	Accepted
4	Fire Hazards	4	6	2	9	2.2	rejected
5	Storms	-	3	6	12	1.6	rejected
6	Extreme Weather Events	4	11	6	-	2.9	Accepted

Table 2 presents the mean responses on the climate change–related risks affecting libraries in Ebonyi State. The table shows that librarians perceived that: extreme heat and temperature fluctuations significantly affect library operations and collections (2.9), humidity and moisture-related damage pose serious threats to information resources (2.9), and extreme weather events constitute a notable risk to libraries (2.9).

However, the table also reveals that librarians did not perceive some factors as major risks. These include flooding and water damage (2.4), fire hazards (2.2), and storms (1.6), as their mean scores fall below the accepted threshold.

Overall, the findings indicate that energy instability and environmental conditions such as heat and humidity are the most pressing climate-related risks affecting libraries in Ebonyi State, while other factors like storms and fire hazards are perceived as less significant.

Research Question 2: What resilience and adaptation strategies are employed by librarians to mitigate the impacts of climate change?

Table 2: Describe the resilience and adaptation strategies employed by librarians in Ebonyi State to mitigate the impacts of climate change.

S/N	ITEMS	SA	A	D	SD	x̄	Decision
1	Digital Preservation and Digitization of Information resources	7	7	5	2	2.9	Accepted
2	Environmental Monitoring and Control	6	9	4	2	2.9	Accepted
3	Green Library Practices	4	8	8	1	2.7	Accepted
4	Infrastructure Improvement and Climate-Proofing	3	12	3	3	2.7	Accepted
5	Staff Training and Capacity Building	7	7	4	3	2.9	Accepted
6	Climate Policies and Institutional Frameworks	3	8	5	5	2.4	Rejected
7	Collaboration and Partnerships	8	8	3	4	2.9	Accepted

Table 3 presents the mean responses on the resilience and adaptation strategies employed by librarians to mitigate climate change impacts in libraries in Ebonyi State. The table shows that librarians perceived that: digital preservation and digitization of information resources is a key strategy for mitigating climate-related risks (2.9), environmental monitoring and control play an important role in protecting library collections (2.9), staff training and capacity building are essential for enhancing resilience (2.9), and collaboration and partnerships contribute significantly to effective climate adaptation (2.9).

The findings also indicate that green library practices (2.7) and infrastructure improvement and climate-proofing (2.7) are accepted as important strategies, although with slightly lower mean scores.

However, climate policies and institutional frameworks (2.4) were not perceived as a strong strategy, as the mean score falls below the acceptance threshold.

The results suggest that librarians in Ebonyi State rely more on practical and operational strategies such as digitization, training, and environmental control, while institutional policy frameworks are less emphasized in addressing climate change impacts.

Research Question 3: What institutional policies and frameworks exist for promoting climate resilience in libraries in Ebonyi State?

Table 3: the institutional policies and frameworks that promote climate resilience in libraries in Ebonyi State.

S/N	ITEMS	SA	A	D	SD	x̄	Decision
1	Disaster Risk Management Policy	7	6	4	4	2.8	Accepted
2	Environmental Sustainability (Green Library) Policy	5	9	4	3	2.8	Accepted
3	Collection Preservation and Conservation Policy	5	8	6	2	2.8	Accepted
4	Digital Preservation and Data Management Policy	7	10	-	4	3.0	Accepted
5	Infrastructure Maintenance and Development Policy	7	9	3	2	3.0	Accepted
6	Energy Management Policy	3	9	6	3	2.6	Accepted
7	Staff Training and Capacity Development Policy	6	7	5	3	2.8	Accepted
8	Records Management and Backup Policy	7	9	2	3	3.0	Accepted

Table 4 presents the mean responses on the institutional policies and frameworks promoting climate resilience in libraries in Ebonyi State. The table shows that librarians perceived that: digital preservation and data management policy plays a significant role in promoting climate resilience (3.0), infrastructure maintenance and development policy is crucial for strengthening library sustainability (3.0), and records management and backup policy is essential for safeguarding information resources (3.0).

The findings also reveal that disaster risk management policy (2.8), environmental sustainability (green library) policy (2.8), collection preservation and conservation policy (2.8), and staff training and capacity development policy (2.8) are all important and accepted frameworks supporting climate resilience in libraries.
Additionally, energy management policy (2.6) is accepted, although it has the lowest mean score among the listed policies.
The results indicate that librarians in Ebonyi State recognize a broad range of institutional policies as important for promoting climate resilience, with particular emphasis on digital preservation, infrastructure development, and records management practices.

Research Question 4: What institutional policies and frameworks exist for promoting climate resilience in libraries in Ebonyi State?
Table 4: the challenges limiting the effective implementation of climate-resilient strategies in libraries Ebonyi State.

S/N	ITEMS	SA	A	D	SD	x̄	Decision
1	Inadequate Funding	15	2	4	-	3.5	Accepted
2	Lack of climate change policy	8	8	5	-	3.1	Accepted
3	Poor Infrastructure	9	4	7	1	3.0	Accepted
4	Limited Awareness and Expertise	6	9	6	-	3.0	Accepted
5	Inadequate Technological Capacity	8	8	3	2	3.0	Accepted
6	Poor Maintenance Culture	9	9	3	-	3.3	Accepted
7	Reliable data and Information gaps on climate risks	8	6	4	3	2.9	Accepted

Table 5 presents the mean responses on the challenges limiting the implementation of climate-resilient strategies in libraries in Ebonyi State. The table shows that librarians perceived that: inadequate funding is the most significant challenge affecting climate resilience in libraries (3.5), poor maintenance culture also greatly limits effective implementation of resilience strategies (3.3), and lack of climate change policy is a major constraint (3.1).

The findings further indicate that poor infrastructure (3.0), limited awareness and expertise (3.0), and inadequate technological capacity (3.0) are all important challenges hindering the adoption of climate-resilient practices in libraries.

In addition, reliable data and information gaps on climate risks (2.9) were also accepted as a challenge, although with a slightly lower mean score compared to others.
The results reveal that financial constraints, weak institutional support systems, and infrastructural deficiencies are the most critical barriers to implementing climate-resilient strategies in libraries in Ebonyi State.

Discussion of Findings
This section discusses the findings of the study in relation to existing literature. The discussion is organized according to the research objectives.
Climate Change Related Risks Affecting Libraries
The findings revealed that power outages and energy instability, extreme heat and temperature fluctuations, humidity and moisture-related damage, and extreme weather events are the most significant climate-related risks affecting libraries in Ebonyi State. This aligns with Mohammed (2024), who observed that Nigerian libraries are highly vulnerable to environmental instability due to poor temperature regulation and unstable power supply. Similarly, Einecker and Kirby (2020) noted that climate-induced hazards such as heatwaves and flooding increasingly threaten the sustainability of information institutions globally.
The prominence of energy instability in this study reflects the reality of developing regions where libraries rely heavily on inconsistent public power supply. This finding supports Ajani et al. (2025), who reported that infrastructural fragility and environmental instability are major contributors to climate vulnerability in Nigerian libraries. However, the lower perception of flooding and fire hazards as major risks in this study contrasts with global literature, where flooding is often identified as a dominant threat. This may be due to geographical variation or underreporting of past incidents in Ebonyi State.
Overall, the findings confirm that environmental and energy-related challenges remain central to climate risk exposure in libraries, particularly in resource-constrained environments.

Resilience and Adaptation Strategies Employed by Librarians

The study found that digital preservation, environmental monitoring, staff training, collaboration, green library practices, and infrastructure improvement are widely used strategies for climate adaptation. This is consistent with Garnett (2021), who emphasized that resilient libraries adopt a combination of technological, environmental, and human capacity strategies to withstand climate disruptions.

Digital preservation emerged as a key strategy, supporting the view of Ajani et al. (2024) that digitization is central to modern library resilience. It ensures continuity of access to information even when physical collections are compromised. Environmental monitoring and control also align with global best practices that focus on maintaining optimal storage conditions to prevent deterioration of materials.

The acceptance of staff training and capacity building supports the argument that human capital development is essential for resilience. According to Saini (2025), librarians must be equipped with climate literacy and disaster response skills to effectively manage environmental risks. Collaboration and partnerships further reinforce resilience by enabling resource sharing and technical support.

However, the rejection of climate policies and institutional frameworks as a strong strategy suggests a gap between operational practices and formal governance structures. This finding supports Ajani et al. (2025), who reported weak policy integration in Nigerian libraries, where resilience efforts are often practice-driven rather than policy-driven.

Challenges Limiting the Implementation of Climate-Resilient Strategies

The findings identified inadequate funding, poor maintenance culture, lack of climate policy, poor infrastructure, limited expertise, inadequate technological capacity, and data gaps as major challenges. Among these, inadequate funding emerged as the most critical barrier.

This aligns strongly with Ajani et al. (2025), who identified financial constraints as the primary limitation to climate resilience in Nigerian libraries. Without sufficient funding, libraries are unable to invest in digitization, infrastructure upgrades, or staff training.

Poor maintenance culture also emerged as a significant challenge. This supports Mohammed (2024), who observed that irregular maintenance of library facilities accelerates environmental degradation and reduces system durability. Similarly, weak infrastructure and technological limitations reflect broader systemic issues in developing countries where libraries often operate with outdated facilities.

The issue of limited awareness and expertise supports Saini (2025), who argued that climate resilience requires specialized knowledge that is often lacking among library personnel. Additionally, data gaps on climate risks hinder effective planning, as noted by Einecker and Kirby (2020), who emphasized the importance of reliable environmental data in climate adaptation strategies.

Interestingly, the rejection of climate policy absence as a minor issue in some literature contrasts with this study, where it was accepted as a significant challenge. This suggests growing awareness of the importance of policy frameworks in guiding resilience efforts.

Conclusion

This study set out to examine how librarians in Ebonyi State are responding to the growing challenges posed by climate change. From the findings, it is clear that climate change is no longer a distant concern for libraries but a real and present issue affecting their daily operations. Environmental factors such as extreme heat, humidity, and unstable power supply are already putting pressure on library collections and services. These conditions are gradually weakening the traditional role of libraries as safe spaces for preserving knowledge.

Despite these challenges, the study shows that librarians are not passive. They are actively adopting practical strategies such as digitization, environmental monitoring, and staff development to reduce risks and maintain service delivery. These efforts reflect a strong sense of commitment and adaptability within the profession. However, the study also reveals that these strategies are often implemented in isolation, without strong institutional backing.

A major concern that emerged is the gap between awareness and action. While many librarians recognize the importance of policies and structured frameworks, their implementation remains weak. Issues such as inadequate funding, poor infrastructure, and limited technical expertise continue to slow down progress. In many cases, libraries are doing the best they can within very limited means.

The study highlights a simple but important reality: libraries in Ebonyi State are trying to adapt to climate change, but they cannot do it alone. Without stronger institutional support, better funding, and clear policy direction, their efforts may not be enough to ensure long-term sustainability. There is therefore a need for a more coordinated and well-supported approach to building climate-resilient libraries.

Recommendations

Based on the findings of this study, several practical steps can be taken to improve climate resilience in libraries in Ebonyi State. First, there is an urgent need for increased funding. Government agencies and parent institutions should

allocate dedicated funds specifically for climate adaptation projects such as digitization, infrastructure upgrades, and energy solutions.

Second, libraries should develop and actively implement clear climate-related policies. These policies should not just exist on paper but should guide everyday practices, with proper monitoring and evaluation in place.

Third, continuous training and capacity building should be prioritized. Librarians need to be equipped with relevant skills in disaster management, digital preservation, and environmental control to respond effectively to emerging challenges.

Fourth, investment in technology and alternative energy sources, such as solar power, should be encouraged to reduce dependence on unstable electricity supply.

Finally, libraries should strengthen collaboration with government bodies, professional associations, and international organizations. Such partnerships can provide access to funding, technical expertise, and shared knowledge, making it easier to build sustainable and climate-resilient library systems.

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LIBRARIANS' KNOWLEDGE AND AWARENESS OF THE ROLE OF THE LIBRARY IN PROMOTING DEMOCRATIC RULE IN NIGERIA

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Abstract

This study examined librarians' knowledge and awareness of the role of public libraries in promoting democratic rule in Nigeria, with specific attention to librarians' understanding of democratic responsibilities, the services currently available to support democracy, the challenges limiting effective engagement, and strategies for improvement. The study adopted a descriptive survey research design. Data were collected through a researcher-designed online questionnaire administered to 36 librarians drawn from Public Libraries in Nigeria. Data were analysed using frequency counts and percentages, while open-ended responses were interpreted contextually. The study found that librarians are broadly aware of the democratic roles of public libraries, particularly traditional functions such as supplementing formal education and providing equal access to information. However, democratic programming including civic education, community conversations, and information fact-checking, remains inconsistent or absent across libraries. Practical implementation is constrained by unreliable electricity, lack of internet connectivity, inadequate funding, political interference, and insufficient professional training. The study concludes that strengthening public libraries through improved infrastructure, targeted funding, professional development, and supportive policy frameworks is essential if libraries are to function effectively as democratic institutions in Nigeria. These findings are significant given Nigeria's persistent challenges of voter apathy, electoral malpractice, and political misinformation, which underline the urgent need for well-resourced public libraries as instruments of democratic empowerment.

Keywords: Public libraries, Democracy, Democratic Rule, Governance, Misinformation

Introduction

Democracy is a form of government in which power resides in the people through their elected representatives. The values of freedom, respect for human rights, and the principle of holding elections by universal suffrage are essential elements of democracy. Information and informed participation are vital to an effective democracy to thrive. To safeguard democracy, governments establish institutions such as public libraries to maintain trust between the government and the people, protect intellectual freedom, provide open and equal access to information for all citizens, and promote civic education. Public libraries are also established to supplement formal education, fight censorship, forge a sense of community among the diverse population of a country, provide space for public engagement and facilitate discussion on topical issues affecting the citizens (Rasmussen and Hakon, 2025). By actively promoting civic and providing resources and opportunities for civic engagement, libraries can empower citizens to become informed, active and responsible participants in democracy, ultimately contributing to a more vibrant and inclusive society.

In countries where the public library is functioning effectively, the libraries have programs through which citizen are closely aligned to government policies. The citizens have feelings of being part of the polity, and they know their rights and exercise them as appropriate. In such countries, political choices are based on ideologies not ethnic lines. The people value government properties and strive to protect them. Countries such as these include the United States of America (USA), the United Kingdom (UK), and South Africa (SA). In USA, the American Library Association has many slogans to showcase the relationship between the American libraries, the citizens, and their government (democracy). There are slogans such as "Libraries Sustain Democracy" and "Libraries Transforming Communities". There are also case studies of Library activities to promote democracy (Hummel, 2022). In the UK, the public libraries are well patronized by the citizens. The libraries lead conversations to encourage exchange of ideas through a variety of means, including hosting community reads, book clubs, and panel discussions (Keiva, 2020). Lynch (2025) observed that funding and staff cuts are impacting libraries' roles in fostering democracy. In pursuance of the library's democracy role, a librarian, Patrick Malone, secured funding for an 18-month democracy project.

However, in African countries, not much is known about how public libraries in different African countries strive to promote democracy. In Nigeria, the widespread election malpractice, voter apathy, and political parties aligned more closely to ethnic lines since the inception of the fourth republic, calls to question the role of public libraries in democracy. Moreover, a lack of known library activities designated for promoting democracy paints the picture that libraries in Nigeria does not engage in democracy promotion projects. It is therefore important to find out if Libraries in Nigeria are aware of the role of the library in promoting democratic rule

Statement of the Problem

Public libraries promote democracy by making information resources available to users. Through these information resources, the users gain insight into the workings of their government and their rights as citizens. The libraries organize public engagement programs to educate the masses on topical governance issues and provide spaces for public engagement. In the developed world, such as the United States of America and the United Kingdom, public library programs to support democracy are highly visible. However, in Nigeria, the situation is not the same. There are no programs specifically designed to support democracy (Umar & Tokawa, 2024). Moreover, the high level of voter apathy and malpractices that marked elections since the fourth republic in a country with at least a state library in every state and national libraries in more than three-quarters of the states creates the impression that public librarians are not performing their responsibilities towards the masses as it concerns democracy. This leaves one to wonder whether public librarians are aware of their responsibilities to the public. It is based on this that this study sets out to examine librarians' knowledge and awareness of the role of public libraries in promoting democracy in Nigeria.

Research Objective

The general objective of this study is to investigate the Librarians' knowledge and awareness of the role of the public library in promoting democratic rule in Nigeria. Specifically, the study will:

i. Investigate the Nigerian public librarians' awareness of the use of library services in promoting democratic rule.
ii. Ascertain the services available in Nigerian public libraries to promote democracy.
iii. Investigate the challenges of Nigerian public libraries in promoting democratic rule.
iv. Suggest strategies to enhance public libraries role in promoting democratic rule using library services.

Review of Related Literature

Review of relevant literature was presented in line with the objectives of the study, as shown below:

Public librarians' awareness of the role of public libraries in promoting democratic rule.

The knowledge of Public librarians on the role of public libraries in promoting democratic rule is paramount because one cannot effectively deliver services he/she is not aware of. Studies have consistently shown that the level of awareness and understanding of the public library concept by the Nigerian community is poor (Adesanya & Okonkwo, 2020). This lack of awareness undermines the potential of public libraries to serve as instruments for democratic empowerment.

For libraries to achieve its goal of promoting democratic rule in any given nation, the libraries must acquaint themselves with their core duties. Ephraim-Emmanuel, Odikeme, Ugwoke, & Owede (2021), observed that many citizens are ignorant of the services provided by the public libraries, especially as it relates to democratic participation and civic education. Low level of awareness hinders the value of libraries in supporting electoral participation and informed citizenship (Ezeani & Nwabueze, 2022). However, in a society where there is an increased awareness, libraries supports political knowledge and civic engagement significantly amongst its users (Okafor & Eze, 2024).

Services available in Public Libraries in Nigeria to promote democracy

Public libraries contribute to the democratic rule by disseminating information resources that facilitate informed decision-making. The libraries ensure that information related to governance is accessible to citizens, thereby supporting the culture of transparency and accountability (Okafor & Eze, 2024; Veillette, 2024). Audunson (2023) also observed that library is a public dialogue or discourse platform that enables citizens to discuss both social and political issues. Ezeani & Nwabueze (2022) observed that public libraries are instruments for democracy sustenance. Libraries sustain democracy through civic awareness and information-sharing services. Bannon (2022) identified three dimensions through which libraries facilitate democratic engagement. These are civic knowledge, civic attitudes, and civic action. The research revealed that public libraries offer complimentary access to books, magazines, newspapers, and online resources that assist individuals in remaining informed about contemporary events and comprehending intricate matters. Alemna (2024) added that the public libraries facilitate democratic values by encouraging political participation in governance through the organization of public awareness campaign programmes like workshops, conferences, voters education programmes, community outreach initiatives. Yap, Barat, and Kiszl (2024), in a scoping review of the civic roles of libraries in combating information disorders in social media, observed that libraries are cultural institutions that represent the public sphere. The authors submitted that the library provides equal access to information, thereby giving

citizens opportunity to participate adequately in the political , social and economic aspects of their daily lives. Their study also added that the cornerstone of democratic practice, which is civic engagement, is directly linked to social capital. They pointed that libraries, as trusted institutions, help to build this social capital by offering neutral spaces for dialogue, learning, and community engagement (Yap, Barat, and Kiszl (2024). Promoting electoral participation by libraries is further enhanced by the creation of political dialogue spaces, engagement of electoral candidates in public debates, and other public engagements programmes like town hall meetings. In a piece published in The Library Quarterly, Kranich (2024) makes the case that in order to enable citizens to become civic agents who jointly shape their future, librarians must collaborate with other advocates of civic literacy. Jonsson (2025), and Veillette (2024) in their own views opine that libraries promote political literacy, as well as empowering citizens or electorates to actively participate in democratic processes. Furthermore, libraries promote digital inclusion by creating platforms that allows citizens to participate and engage actively (PressReader, 2024).

Challenges of Public Libraries in Promoting Democratic Rule

Irrespective of the role of libraries in promoting democracy in Nigeria, public libraries are faced with challenges that hinders them from effectively promoting democracy in Nigeria. Among these problems are lack of modern equipment and learning resources. Ezeani & Nwabueze (2022) noted that some of the challenges hindering libraries from maximizing their power as a social institution to promote democracy are poor infrastructure, inadequate funding, limited access to current and relevant information materials. Ephraim-Emmanuel, Odikeme, Ugwoke, & Owede (2021) added other challenges to include, lack of trained personnel, low awareness of library services, and limited integration of digital technologies. Alemna (2024) also observed political interference and lack of policy support as factors militating against the effectiveness of libraries in functioning as independent democratic institution. Okafor & Eze (2024) also noted that socio-economic factors like low literacy level and poverty affects the use of library and citizen's participation in a democratic system of government. Insufficient funding is arguably the most prevalent challenge facing Nigerian public libraries. Osuchukwu, Obuezie, and Ogwuche (2022) found that the average yearly budget for a state library in Nigeria is about 3.5 million Naira (about 8,300 USD), and most of that money goes to paying staff salaries. As a result of this, a lot of libraries do not have computers, software licenses, or high-speed internet connectivity. These problems hinder libraries from offering the digital and information services that are needed for people to take part in civic activities.

Strategies to enhance public libraries role in promoting democratic rule

There are various strategies through which public libraries can promote democracy. These strategies include programmatic, technological, policy, and partnership-based approaches, and they can be used in many different countries, including Nigeria, which has a democratic government. IFLA (2024) noted the following strategies: an improved library funding, investing in the library infrastructure, and digital technologies. In addition to the IFLA strategies, Alemna (2024) added the capacity building of librarians as a vital aspect to equip them with the technical know-how or prerequisite skills required to support civic education and digital literacy. PreeReader (2024) also noted the need to strengthen partnerships between libraries, civil society organisations, and government agencies to promote impact and improve outreach. Ephraim-Emmanuel, Odikeme, Ugwoke, & Owede (2021) observed another critical strategy to include the promotion of awareness of library services through advocacy and community engagement programmes. Developing policies that recognize libraries as a vital democratic institution will promote their role in promoting democracy and citizen participation in electoral processes (Jansson, 2025).

Methodology

This study adopted a descriptive survey design to investigate librarians' knowledge and awareness of the role of public libraries in promoting democratic governance in Nigeria. The population of the study comprised thirty-six (36) public librarians. These librarians were selected purposively from the headquarters of state libraries in Nigeria, one librarian from each state headquarters. The Librarians were selected based on their positions as public services/outreach librarians. Data were collected using a researcher-designed structured questionnaire administered online through Google Forms over four weeks. The selected librarians' attention was called to the online form through emails and WhatsApp chats. The questionnaire consisted of two sections. Section A, captured respondents' demographic information, while Section B contained closed-ended items rated on a four-point Likert scale (Strongly Agree, Agree, Disagree, Strongly Disagree) and a set of open-ended questions. The closed-ended items measured librarians' awareness of democratic roles, availability of democratic services, and perceptions of challenges, while the open-ended questions invited respondents to suggest improvement strategies. Data from the closed-ended items were analyzed using frequency counts, percentages, and mean scores, while open-ended responses were analyzed thematically to complement the quantitative findings.

Data Presentation and Results

Objective 1: Librarians' Awareness of the Role of the Public Library in Promoting Democratic Rule

Table 1: Librarians' Awareness of the Democratic Roles of Public Libraries (n=36)

Item	Strongly Agree n(%)	Agree n(%)	Disagree n(%)	Strongly Disagree n(%)	Mean Score
Supplement formal education	24(66.7)	12(33.3)	0(0.0)	0(0.0)	3.67 (Strongly Agree)
Provide civic education	18(50.0)	18(16.7)	2(33.3)	0(0.0)	3.17 (Agree)
Provide equal access to information	30(83.3)	6(16.7)	0(0.0)	0(0.0)	3.83 (Strongly Agree)
Fight censorship	24(66.7)	0(0.0)	12(33.3)	0(0.0)	3.33 (Agree)
Craft a sense of community among diverse population	30(83.3)	6(16.7)	0(0.0)	0(0.0)	3.83 (Strongly Agree)
Provide space for public discussions	30(83.3)	6(16.7)	0(0.0)	0(0.0)	3.83 (Strongly Agree)

The data in Table 1 paint a generally encouraging picture of awareness, but with some notable inconsistencies worth attending to. Regarding supplementing formal education, all thirty-six respondents either strongly agreed (66.7%) or agreed (33.3%) that public libraries serve this function. The response pattern for equal access to information was similarly strong, with 83.3% of respondents strongly agreeing and 16.7% agreeing. The awareness of libraries as spaces for community building and public discussion was equally high. Both items received strong agreement from 83.3% of respondents. The two areas where awareness was slightly less uniform were civic education and fighting censorship. For civic education, 50.0% strongly agreed, 16.7% agreed, and 33.3% disagreed. The item on censorship was where disagreement was most pronounced: 66.7% strongly agreed that public libraries fight censorship, while 33.3% disagreed.

Objective 2: Services Available in Public Libraries for the Promotion of Democratic Rule

Table 3: Availability of Democratic Services in Public Libraries (n=36)

Service	Available n(%)	Not Available n(%)
Conducive reading spaces	36(100.0)	0(0.0)
Reading resources in various formats	36(100.0)	0(0.0)
Reading resources on various topics	36(100.0)	0(0.0)
Comfortable spaces for group/community meetings	24(66.7)	12(33.3)
Information and referral services	36(100.0)	0(0.0)
Civic education programs	24(66.7)	12(33.3)
Community conversations programs	24(66.7)	12(33.3)
Discussions sessions on topical issues	30(83.3)	6(16.7)
Information fact checking to combat false information	12(33.3)	24(66.7)
Skilled personnel to respond to enquiries	36(100.0)	0(0.0)

Three services were reported as available by all six respondents (100%): conducive reading spaces, reading resources in various formats, and reading resources on various topics, and skilled personnel. Information and referral services were also reported as available by all six respondents (100%), which is noteworthy given that referral services are often the bridge between library users and the broader information ecosystem, including electoral information, legal aid, and government services. The pattern shifts considerably when we look at programming services. Comfortable spaces for group and community meetings were reported as available by only 66.7% of respondents; civic education programs and community conversations programs were each reported as available by 66.7% as well. The most striking finding in this section is the near-absence of information fact-checking services: only 33.3% of respondents reported this service as available, while 66.7% said it was not available.

Objective 3: Challenges Hindering Public Libraries from Effectively Promoting Democratic Rule

Table 4: Challenges Hindering Public Libraries from Promoting Democratic Rule (n=36)

Challenge	Strongly Agree n(%)	Agree n(%)	Disagree n(%)	Strongly Disagree n(%)	Mean Score
Lack of funding affects democracy programmes	24(66.7)	6(16.7)	6(16.7)	0(0.0)	3.50 (Strongly Agree)
Inadequate training of librarians	12(33.3)	18(50.0)	6(16.7)	0(0.0)	3.17 (Agree)
Political interference affects library programs	18(50.0)	6(16.7)	12(33.3)	0(0.0)	3.17 (Agree)
Low public awareness limits participation	3(50.0)	3(50.0)	0(0.0)	0(0.0)	3.50 (Strongly Agree)
Lack of information materials in different topics	6(16.7)	24(66.7)	6(16.7)	0(0.0)	3.00 (Agree)
Lack of information materials in different formats	12(33.3)	64(66.7)	0(0.0)	0(0.0)	3.33 (Agree)
Lack of space for civic engagement	6(16.7)	18(50.0)	12(33.3)	0(0.0)	2.83 (Agree)
Lack of physical infrastructure (computers, etc.)	12(33.3)	12(33.3)	12(33.3)	0(0.0)	3.00 (Agree)
Lack of constant electric power supply	24(66.7)	12(33.3)	0(0.0)	0(0.0)	3.67 (Strongly Agree)
Lack of internet connectivity	18(50.0)	18(50.0)	0(0.0)	0(0.0)	3.50 (Strongly Agree)

The challenge that attracted the highest level of agreement was the lack of constant electric power supply, 100% agreed or strongly agreed and the lack of internet connectivity, 100% agreed or strongly agreed. Lack of funding affecting democracy programmes was agreed upon by 83.3% of respondents (66.7% strongly agreed, 16.7% agreed), with only one respondent disagreeing. Low public awareness of the existence of public libraries was identified as a challenge by all six respondents (50.0% strongly agreed, 50.0% agreed). Political interference was identified as a challenge by 83.3% of respondents (50.0% strongly agreed, one agreed, two disagreed). Inadequate training of librarians was flagged as a challenge by 83.3% of respondents, though the split between strong agreement (33.3%) and agreement (50.0%) suggests that most respondents see this as a real but perhaps not critical issue. Challenges related to the absence of information materials in different formats and topics were flagged by 100% of respondents (though with varying intensity). The lack of physical infrastructure such as computers produced more mixed results, 33.3% strongly agreed, 33.3% agreed, and 33.3% disagreed. This variability may reflect genuine differences in infrastructure across institutions. The lack of space for civic engagement was similarly mixed, with 33.3% disagreeing that this is a challenge.

Objective 4: Strategies for Enhancing the Capacity of Public Libraries to Promote Democratic Rule

The final objective invited respondents to propose, in their own words, strategies for strengthening libraries' democratic capacity. While not all respondents provided detailed responses to this open-ended item, those who did offered

suggestions that cluster into several recurring themes: funding and infrastructure, training and capacity building, community outreach and public sensitization, civic programming, and policy and inter-institutional collaboration.

i. Funding and Infrastructure

The need for adequate and targeted funding was mentioned by multiple respondents as the starting point for any meaningful reform. Six respondent explicitly called for 'adequate funds to equip public libraries' and added that 'government should make provision for constant power supply.' Another six respondents referenced to the need for improved library infrastructure alongside funds availability. These suggestions reflect the consensus in the literature. IFLA (2024) recommended improved library funding and investment in digital technologies as priority strategies for enhancing libraries' democratic role. Without reliable electricity and internet access, which adequate funding would help secure, every other strategy is compromised at the delivery level.

ii. Training and Capacity Building

Twelve respondents explicitly mentioned training and retraining as a priority strategy. Four called for 'training and capacity building of personnel,' while eight recommended 'training and retraining of librarians' as the first of five strategies. This is well-supported in the literature. Alemna (2024) argued that librarians must be equipped with the technical competencies required to support civic education and digital literacy before they can deliver these services effectively. Kranich (2024), , specifically called on librarians to collaborate with other civic literacy advocates, which requires a level of professional preparation that goes beyond traditional library training. For Nigeria specifically, where many librarians may not have received formal training in civic engagement facilitation, structured capacity building programmes, perhaps coordinated through the Nigerian Library Association would be a logical and actionable starting point.

iii. Community Outreach and Public Sensitization

Nine respondent advocated for 'sensitisation of public on the role of the public library in civic engagement matters,' while three recommended 'advocacy' and 'accountability' as strategies. These suggestions align with IFLA's (2024) recommendation for improved community outreach programs and digital platforms to raise awareness of library services. EphraimEmmanuel et al. (2021) identified the promotion of awareness through community engagement as a critical strategy for repositioning libraries as civic institutions. In a context where many Nigerians remain unaware that public libraries exist in their communities, outreach cannot be treated as a supplementary activity, but must be central to any institutional renewal strategy.

iv. Civic Programming and Community Engagement

Respondents also pointed to the need for libraries to actively 'organise regular public discourse on topical issues,' 'build strong community engagement,' and serve as 'a hub for civic engagements.' Five respondents called for 'provision of current and up-to-date resources' to support these programs. Bannon (2022) demonstrated through case study evidence that public libraries which actively program for civic knowledge, civic attitudes, and civic action produce measurable improvements in their communities' democratic participation. Jansson (2025) argued that libraries should be understood as social infrastructure, and not mere buildings that facilitate democratic deliberation through regular, structured programming.

v. Policy and Institutional Collaboration

Three respondents highlighted the importance of 'support and collaboration' as a strategic approach, and eight referenced 'archiving and preservation of cultural materials for reference purposes' as a library strategy with democratic implications. The need for policy frameworks that formally recognize libraries as democratic institutions was advanced by Jansson (2025), who argued that without policy support, library democracy work remains episodic and underfunded. Press Reader (2024) similarly emphasized the importance of partnerships between libraries, civil society organizations, and government agencies to amplify the reach and impact of library civic programs. In Nigeria's context, this might involve formal collaboration between public libraries and institutions such as the Independent National Electoral Commission (INEC), the National Orientation Agency (NOA), and civil society groups working on voter education and governance accountability.

Discussion of Findings

Objective 1: Librarians' Awareness of the Democratic Role of Public Libraries

The findings indicate that librarians are broadly aware of the democratic roles of public libraries, with all respondents agreeing that libraries supplement formal education (Mean = 3.67), provide equal access to information (Mean = 3.83), craft a sense of community (Mean = 3.83), and offer space for public discussions (Mean = 3.83). These results align with the IFLA-UNESCO (2022) Public Library Manifesto and the position of Aina (2023), who identifies lifelong learning and equal information access as core library responsibilities. Awareness was slightly less uniform for civic education (Mean = 3.17) and fighting censorship (Mean = 3.33), where a third of respondents disagreed. This likely reflects the gap between theoretical mandates and actual practice: in environments where civic programs are absent and political interference is common, these roles may feel aspirational rather than operational (Ezeani & Nwabueze, 2022;

Alemna, 2024). Nonetheless, the general awareness level is encouraging and provides a foundation for service improvement.

Objective 2: Services Available for Promoting Democratic Rule

Basic library infrastructure such as reading spaces, collections, and personnel is consistently available across surveyed libraries. However, democratic programming is considerably less uniform. Civic education programmes, community conversation spaces, and comfortable meeting spaces were available in only 66.7% of libraries, while information fact-checking arguably the most urgent civic service in an era of rampant misinformation was available in only 33.3% of institutions. This aligns with Yap, Barat, and Kiszl (2024), who documented the growing importance of libraries as fact-checking institutions, and with Veillette (2024), who noted that libraries often lack the capacity to respond to specific democratic information needs. The data reveal a two-tier picture: strong physical infrastructure but weak democratic programming capacity.

Objective 3: Challenges Hindering Effective Democratic Engagement

The challenges identified are systemic and interconnected. Lack of constant electricity (Mean = 3.67) and internet connectivity (Mean = 3.50) were identified unanimously, confirming infrastructure inadequacy as the most entrenched barrier to modern library service delivery. Insufficient funding (Mean = 3.50) and low public awareness (Mean = 3.50) compound this problem. As Osuchukwu et al. (2022) reported, the average annual budget for a state library in Nigeria is approximately 3.5 million Naira (~$8,300 USD), most of which covers personnel costs, leaving little for civic programming or digital infrastructure. Political interference (Mean = 3.17) and inadequate staff training (Mean = 3.17) further constrain institutional capacity. Together, these barriers create a self-reinforcing cycle: underfunding limits infrastructure; poor infrastructure reduces relevance; reduced relevance weakens the case for increased funding. These findings extend the observations of Ezeani and Nwabueze (2022) and Ephraim Emmanuel et al. (2021), who documented similar structural barriers across Nigeria.

Objective 4: Strategies for Enhancing Libraries' Democratic Capacity

Respondents proposed strategies that cluster around five themes: adequate and targeted funding, capacity building and training, community outreach, civic programming, and policy and inter-institutional collaboration. These align with IFLA (2024) recommendations for improved funding, digital infrastructure investment, and community outreach. The call for librarian training echoes Alemna (2024), who argued that librarians must be equipped with civic literacy facilitation skills before they can effectively deliver democracy-related services. Respondents also highlighted the need for formal collaboration with institutions such as INEC, the National Orientation Agency, and civil society organizations, an approach supported by Jansson (2025) and Press Reader (2024). Without a supportive policy framework that recognizes libraries as democratic institutions, these strategies risk remaining episodic and underfunded.

Summary of Findings

This study set out to assess the knowledge and awareness of public librarians, regarding the role of public libraries in promoting democratic governance in Nigeria. Drawing on responses from thirty-six librarians in different public libraries in Nigeria, the study show that:

1. Librarians in Nigeria are broadly aware that public libraries perform democratic functions, including supplementing formal education, providing equal access to information, crafting a sense of community, and offering space for public discourse. Awareness was most consistent for traditional library functions and somewhat more variable for politically sensitive roles such as fighting censorship, where 33.3% of respondents expressed disagreement.
2. While basic library infrastructure, reading spaces, collections, personnel, and referral services is consistently available across the libraries surveyed, democratic programming is considerably less uniform. Civic education programs, community conversations, and space for group meetings were available in only 66.7% of libraries surveyed. Information fact-checking arguably among the most needed services in today's information environment was available in only 33.3% of institutions.
3. The challenges identified by respondents are systemic and interconnected. Unreliable electricity and the absence of internet connectivity were flagged unanimously. Insufficient funding, low public awareness, political interference, and inadequate librarian training were also widely cited. These barriers collectively explain the gap between what libraries are expected to do and what they are actually able to deliver in the Nigerian context.
4. The respondents proposed a coherent set of strategies for reform, centering on adequate funding, targeted training, community sensitization, civic programming, and inter-institutional collaboration, a set of priorities that is well-aligned with the recommendations of leading scholars and international library organizations.

Conclusion

This study examined librarians' knowledge and awareness of the role of public libraries in promoting democratic governance in Nigeria. The central finding is that awareness is not the problem. Librarians working across the surveyed Public Library of Nigeria demonstrated a reasonable understanding of the democratic functions their institutions are

expected to perform such as supplementing formal education, providing equal and open access to information, fostering community dialogue, and supporting civic engagement. The deficit lies not in professional knowledge but in the conditions required to act on it.

The study found that democratic programming such as civic education, community conversations, and information fact-checking is either absent or inconsistent across the libraries surveyed, and that this gap is driven by a cluster of interconnected structural failures: unreliable electricity, no internet connectivity, chronic underfunding, political interference, and inadequate professional training. These are not isolated shortcomings; they form a cycle in which poor infrastructure suppresses service delivery, low service visibility reduces public engagement, and reduced engagement weakens the case for improved funding. Breaking this cycle requires deliberate intervention from government, the professional library community, and institutional policymakers. The absence of fact-checking services is particularly consequential, given that the spread of political misinformation has become one of the defining governance challenges facing Nigeria's democracy.

Public libraries in Nigeria possess both the institutional mandate and the professional workforce to contribute meaningfully to democratic governance. What they lack is the sustained political will, adequate funding, and enabling policy environment needed to fulfil that mandate. Until public libraries are treated as essential democratic infrastructure rather than peripheral cultural institutions, the gap between what Nigerian librarians know their libraries should do and what those libraries are actually able to deliver will remain at considerable cost to the quality of civic life in Nigeria.

Recommendations
On the basis of the findings and conclusions of this study, the following recommendations are made:

1. The federal and states governments should substantially increase budgetary allocations to public libraries, with ring-fenced funding specifically for democracy-related programming. Allocations should be structured to move beyond personnel costs and include dedicated lines for civic education, community engagement programs, and digital infrastructure.

2. The Nigerian Library Association (NLA), in collaboration with relevant government agencies and civil society organizations, should design and implement a structured, continuing professional development program focused on civic facilitation, democratic literacy, and civic programming. Librarians who have the awareness and the knowledge but lack the skills to facilitate civic events need practical training, not just a conceptual workshops.

3. Public libraries should be equipped with reliable alternative power solutions, such as solar panels, inverters, or diesel generators, as well as consistent internet connectivity, treated as a baseline operational requirement rather than an optional extra. Without these, every other initiative for enhancing library services will be compromised.

4. Public libraries in Nigeria should formally incorporate information fact-checking as a defined service, supported by trained personnel, verified information tools, and clear protocols. Collaboration with established fact-checking organizations, journalism schools, and civic technology groups could accelerate this process. As misinformation continues to distort democratic discourse in Nigeria, this has become a core democratic function.

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Libraries in Governance and Democratic Resilience: A Case Study of Nigeria's Renewed Hope Agenda

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Abstract

This study examines the role of libraries in strengthening democratic governance and institutional resilience within Nigeria's Renewed Hope Agenda. Launched in 2023, the Renewed Hope Agenda serves as the country's national development framework for advancing economic reform, governance transformation, and social inclusion. Grounded in the Expectation-Confirmation Model (ECM), the study adopts a pragmatic and exploratory approach to assess how library services shape citizens' access to government information and perceptions of transparency. Data were collected from 133 respondents comprising librarians (25), government officials (36), and library users (72). The findings reveal a significant disconnect between policy objectives and public access to information. Respondents recognise libraries as valuable platforms for civic engagement and democratic participation. However, their capacity to function as effective information intermediaries is constrained by inadequate digital infrastructure, limited technological readiness, weak policy integration, and insufficient staff competencies. Consequently, citizens' expectations of timely and reliable access to government information are only partially fulfilled, creating a transparency gap. The study concludes that libraries can contribute more effectively to democratic resilience when supported by sustained investment in digital infrastructure, professional capacity development, and stronger collaboration between government agencies and information institutions.

Keywords: E-Governance; Information Access; Civic Engagement; Renewed Hope Agenda; Expectation-Confirmation Model.

1.0 Background to the Study

In contemporary governance systems, access to timely, accurate, and transparent information is fundamental to democratic stability and citizen participation. Democratic societies rely on education to foster informed citizens capable of critically analysing policies, ensuring leadership accountability, and driving national development (Timidi & Okuro, 2024). These informed citizens sustain democratic health by engaging with political processes, demanding transparency, and contributing to socio-economic progress. However, in many developing contexts, including Nigeria, the gap between government information production and citizen access remains a persistent challenge (Ayesha et al., 2025). Patergiannaki and Pollalis (2023) identify a disparity where e-Government portals often fall short of providing the range of services desired by residents. This misalignment reveals a significant failure of digital platforms to provide the smart, user-focused features citizens actually require.

As longstanding hubs of knowledge, libraries are uniquely positioned to bridge this digital divide. Maity (2023) demonstrates how public libraries empower communities through digital literacy training and e-governance services, enabling citizens to access critical government resources online. Traditionally viewed as repositories of information, libraries have evolved into dynamic information hubs that facilitate access to both physical and digital resources. They are cornerstones of democracy, essential for promoting transparency and civic engagement (Stankoska, 2024; Kranich, 2024). By providing equitable access to policy documents and diverse collections, libraries foster the civic literacy necessary for an informed citizenry. Amidst contemporary democratic challenges, Nigerian libraries must prioritise this mission, evolving into vital hubs that connect the public with the *Renewed Hope* agenda through enhanced digital and civic education.

The rapid digitisation of information systems has expanded the role of libraries as critical intermediaries between government and citizens. Through digital platforms, libraries increasingly facilitate access to public information, support civic engagement, and promote informed participation in democratic processes. Nevertheless, the democratic potential of these initiatives remains constrained by uneven digital infrastructure and varying levels of digital literacy, particularly in developing contexts such as Nigeria (Onunka et al., 2023; Vaz, 2024; Dehinsilu-Isa & Amodu, 2025). As institutions that have evolved from traditional repositories into modern knowledge hubs, libraries must continually adapt to overcome these challenges and ensure equitable access to government information and public services (Onunka et al., 2023).

Against this backdrop, Nigeria introduced the *Renewed Hope* Agenda in 2023 as a national development and governance framework aimed at advancing economic reform, institutional transformation, social inclusion, and sustainable development through targeted policy interventions and improved public service delivery (Azeez & Oluseyi, 2025). The agenda places strong emphasis on transparency, accountability, and inclusive governance; however, the institutional mechanisms required to support these objectives, particularly the role of libraries as information mediators, remain insufficiently examined (Azeez & Oluseyi, 2025; Grenon et al., 2023). To address this gap, the present study applies the

Expectation-Confirmation Model (ECM) to evaluate how effectively library services meet citizens' expectations of government transparency and information access (Bhattacherjee, 2001; Alanazi, 2013; Khan et al., 2025). By examining confirmation, satisfaction, and perceived usefulness, the study provides insights into the contribution of libraries to civic participation, public trust, and democratic resilience.

Positioning libraries within the broader discourse of democratic resilience, this study argues that effective information access is a pillar of institutional stability rather than a mere service. While reliable information delivery enhances citizen confidence and accountability, failures, driven by underfunding, infrastructural deficits, or digital immaturity, lead to dissatisfaction and disengagement, thereby weakening democratic processes. Consequently, this research integrates library science, information systems theory, and governance studies to evaluate the extent to which library services in Nigeria contribute to institutional resilience within the "Renewed Hope" agenda.

2.1 Statement of the Problem

Despite the *Renewed Hope* agenda's focus on economic growth, governance reform, job creation, and improved welfare, a significant transparency gap persists between government policy and public awareness, largely due to the limited user-focused functionality of existing digital platforms (Sukare and Abdullahi, 2025). Libraries, which should bridge this gap, are constrained by outdated resources and infrastructural challenges, leading to a mismatch between citizens' expectations and actual service delivery. In addition, there is insufficient empirical evidence on the digital readiness of Nigerian libraries to manage and disseminate national development information, raising concerns about their relevance in supporting democratic engagement. If these limitations persist, they may contribute to public disengagement and weaken institutional accountability. This study therefore examines how effectively library services meet or fall short of citizens' expectations of transparency within this governance context.

2.2 Objectives of the Study

The primary objective of this study is to examine the role and effectiveness of Nigerian libraries in supporting governance and enhancing democratic resilience within the *Renewed Hope* agenda, particularly in relation to civic engagement, public trust, and institutional accountability.

Specifically, the study seeks to:

22. Examine the infrastructure, including internet connectivity, digital platforms, and power support systems, and policy deficits that hinder library service delivery within the *Renewed Hope Agenda*.
23. Assess the extent to which library-mediated data supports governance processes and democratic functions, including voter education.
24. Measure the gap between citizens' expectations of transparency and the information accessed through library systems.
25. Analyse how library services influence civic engagement, public trust, and democratic resilience.

2.3 Research Questions

To achieve these objectives, the study addresses the following research questions:

v. What infrastructural and policy challenges limit the effectiveness of libraries within the Renewed Hope agenda?
vi. To what extent do library services support governance processes and democratic functions?
vii. What gap exists between citizens' expectations of transparency and the information available through libraries?
viii. How do library services influence civic engagement, public trust, and democratic resilience?

3.0 Literature Review

Access to timely, accurate, and transparent information is a fundamental pillar of democratic governance, enabling citizens to engage meaningfully in policy processes and hold governments accountable. Contemporary studies emphasise that civic literacy and informed participation are essential for sustaining democratic stability and institutional trust (Timidi & Okuro, 2024). However, in developing contexts such as Nigeria, a persistent gap exists between the production of government information and citizens' ability to access and utilise it effectively (Ayesha et al., 2025). Although digital governance initiatives were introduced to bridge this divide, many e-government platforms remain limited in functionality, accessibility, and user-centred design, thereby failing to meet citizen expectations (Patergiannaki & Pollalis, 2023). This misalignment underscores the broader challenge of ensuring inclusive and responsive digital systems.

Libraries have evolved from traditional repositories into hybrid information hubs that facilitate access to both physical and digital resources, thereby promoting transparency, civic engagement, and equitable information access. They also support digital inclusion by equipping users with the skills needed to navigate e-governance platforms (Stankoska, 2024; Kranich, 2024; Maity, 2023). However, in developing contexts, their effectiveness is constrained by infrastructural deficits, inadequate funding, and uneven digital literacy, which reinforce the digital divide and limit their capacity to function as effective intermediaries between government and citizens (Onunka et al., 2023; Vaz, 2024; Dehinsilu-Isa & Amodu, 2025).

The rapid digitisation of information systems has further repositioned libraries as critical components of governance and institutional resilience, yet this potential is hindered by persistent systemic challenges, including weak policy implementation, technological inefficiencies, and trust barriers. Digital transformation remains uneven due to resource constraints, organisational inertia, and limited technical capacity (Jan & Ganiae, 2019; Awais & Ameen, 2019). Across Africa, these challenges are compounded by low institutional readiness and infrastructural weaknesses (Otike & Barát, 2021; Ocholla & Ocholla, 2020), while in Nigeria, unreliable power supply, obsolete technologies, inadequate staff training, and low user awareness further constrain performance (Nworie et al., 2023; Dehinsilu-Isa & Amodu, 2025). Consequently, enhancing transparency, civic participation, and governance outcomes depends on addressing these interconnected barriers.

The Expectation-Confirmation Model (ECM) provides a useful framework for evaluating user satisfaction and system effectiveness, positing that continued usage depends on the confirmation of expectations and perceived usefulness (Bhattacherjee, 2001; Khan et al., 2025; Alshammari & Alshammari, 2024). The ECM is widely applied in digital service contexts; however, its use in examining how library-mediated access to government information influences transparency, civic engagement, and institutional trust remains limited, revealing an important gap in the literature (Momoti, 2023; Eid, et al., 2021).

In the Nigerian context, the *Renewed Hope* agenda emphasises transparency, accountability, and citizen inclusion (Azeez & Oluseyi, 2025). However, the role of libraries as information intermediaries within this framework is still underexplored (Grenon et al., 2023). Existing studies identify structural challenges such as underfunding, outdated resources, and limited digital capacity, yet they rarely assess how these constraints affect user satisfaction and democratic participation (Onunka et al., 2023). Consequently, the alignment between library services and national governance priorities remains weak, highlighting the need for empirical investigation.

4.0 Methodology

The study adopted a pragmatic and exploratory research design grounded in the Expectation–Confirmation Model (ECM) to examine how library-mediated information services influence transparency, democratic participation, and policy implementation. The ECM provides a robust framework for assessing the transparency gap by evaluating the extent to which citizens' expectations of access to government information are confirmed through library systems. The model links information access to perceived usefulness, user satisfaction, and broader governance outcomes. Ekiti State, Nigeria, was purposively selected for the study because of its relatively high literacy rate, active library presence, strong educational culture, and strategic relevance as a knowledge-driven state. The state also hosts a mix of public, academic, and community libraries, making it an appropriate setting for examining the role of libraries in facilitating access to government information and supporting democratic engagement.

Guided by the works of Mganga et al. (2023) and Lamond et al. (2019), the study employed a multi-stakeholder stratified sampling approach comprising librarians (information providers), government and electoral officials (policy stakeholders), and library users (information consumers). Participants were recruited through professional networks, library associations, government communication channels, and social media platforms connecting these stakeholder groups. A total of 133 respondents participated in the study, comprising 25 librarians, 36 government officials, and 72 library users. This distribution enabled data triangulation across policy intent, information service delivery, and user experience.

Data were collected using a structured questionnaire developed around key ECM constructs, including expectation, confirmation, perceived usefulness, satisfaction, and civic engagement. Descriptive statistical techniques were employed for data analysis, including frequencies, percentages, mean scores, and standard deviations. Mean scores were computed to determine respondents' levels of agreement with each statement, while standard deviations measured the dispersion of responses. Decision-making was based on a four-point Likert scale (4 = Strongly Agree, 3 = Agree, 2 = Disagree, 1 = Strongly Disagree), with a criterion mean of 2.50. Mean scores of 2.50 and above were interpreted as agreement, while scores below 2.50 indicated disagreement. Ethical considerations, including informed consent, anonymity, confidentiality, and voluntary participation, were strictly observed throughout the study.

In order to provide a comprehensive analysis of the *Renewed Hope* agenda, this study adopts a triangulation framework linking policy intent, service delivery, and citizen impact. Table 1 presents this structure, showing how data from government officials, librarians, and users are integrated and cross-validated to assess the flow and effectiveness of information.

Table 1: Methodological Triangulation of Stakeholders

Triangulation	Stakeholder Group	n	Analytical Focus (The Gap Measured)
Service Delivery	Librarians	25	Evaluates institutional capacity, digital maturity, and infrastructural barriers.

Policy Intent	Government & Electoral Officials	36	Measures how information is intended to support the "Renewed Hope" agenda and democratic functions.
User Experience	Academic & Public Library Users	72	Uses the ECM to measure the gap between citizen expectations and the information actually retrieved.
Synthesis	Total Respondents	133	Determines if policy intent and library delivery successfully foster public trust.

5.0 Data Presentation and Analysis

This section presents the findings of a multi-stakeholder survey conducted in Ekiti State, Nigeria, to examine the relationship between policy intent, library service delivery, and user satisfaction within the Renewed Hope framework. Data were collected from 133 respondents comprising librarians, government officials, and library users, and analysed using the Expectation-Confirmation Model (ECM) to identify transparency gaps in digital governance. Descriptive statistics, including mean ($\bar{x}$) and standard deviation (StD), were employed to analyse responses measured on a four-point Likert scale: Strongly Agree (SA = 4), Agree (A = 3), Disagree (D = 2), and Strongly Disagree (SD = 1). A mean score of 2.50 or above indicates agreement, while a mean score below 2.50 indicates disagreement. The results are presented in line with the study's research questions.

5.1 Librarians' assessment of policy alignment, infrastructure, and service delivery

Table 2 presents librarians' views on institutional readiness, focusing on policy alignment, ICT infrastructure, and staff capacity to support the *Renewed Hope* agenda. It highlights key operational constraints affecting service delivery.

Table 2: Librarians' Assessment of Policy Alignment and Service Capacity (n = 25)

Category	SA	A	D	SD	$\bar{x}$	StD
My library has a formal policy that aligns our information services with the Federal Government's "Renewed Hope" priority areas.	6 (24.0%)	12 (48.0%)	5 (20.0%)	2 (8.0%)	2.68	0.47
The current ICT infrastructure in this library is sufficient to provide real-time access to government policy documents.	4 (16.0%)	9 (36.0%)	8 (32.0%)	4 (16.0%)	2.52	0.50
We regularly curate and disseminate information specifically related to the eight priority areas (e.g., Food Security, Economic Reform).	1 (4.0%)	3 (12.0%)	12 (48.0%)	9 (36.0%)	2.16	0.37
Frequent power outages and low bandwidth significantly hinder our ability to deliver digital information services to citizens.	3 (12.0%)	8 (32.0%)	10 (40.0%)	4 (16.0%)	2.32	0.47
Budgetary allocations to this library have increased to reflect our role in supporting national developmental goals.	3 (12.0%)	9 (36.0%)	9 (36.0%)	4 (16.0%)	2.48	0.50
Our staff are adequately trained to act as "Knowledge Officers" who can guide citizens through complex governance data.	2 (8.0%)	6 (24.0%)	11 (44.0%)	6 (24.0%)	2.32	0.47

The findings in table 2 indicate moderate policy alignment ($\bar{x}$ = 2.68) and ICT capacity ($\bar{x}$ = 2.52) among libraries in supporting the *Renewed Hope Agenda*. However, respondents disagreed that libraries regularly curate information on the government's priority areas ($\bar{x}$ = 2.16), possess adequately trained staff to serve as knowledge officers ($\bar{x}$ = 2.32), or receive sufficient budgetary support ($\bar{x}$ = 2.48). They also reported that infrastructural challenges, particularly power outages and bandwidth limitations, constrain the delivery of digital information services ($\bar{x}$ = 2.32). Overall, the results suggest that while libraries demonstrate some institutional readiness, significant capacity, funding, and service delivery gaps remain.

5.2 Government and electoral officials' assessment of policy implementation

Table 3 outlines the perspectives of government and electoral officials on the role of libraries in supporting policy implementation and democratic functions, with emphasis on reliance, trust, and digital capacity.

Table 3: Government and electoral officials' assessment of policy implementation (n=36)

Category	SA	A	D	SD	$\bar{x}$	SD
I rely on library-mediated data (archives, repositories, or reports) to make informed decisions regarding policy implementation.	8 (22.2%)	10 (27.8%)	12 (33.3%)	6 (16.7%)	2.50	0.50
The National Library and institutional libraries provide a reliable evidence base for tracking the progress of the Renewed Hope Agenda.	7 (19.4%)	11 (30.6%)	13 (36.1%)	5 (13.9%)	2.50	0.50
Libraries are essential partners in promoting voter education and transparency in the democratic process.	18 (50.0%)	13 (36.1%)	4 (11.1%)	1 (2.8%)	2.86	0.35
Information provided by libraries helps reduce the information gap between government plans and public perception.	20 (55.6%)	13 (36.1%)	2 (5.6%)	1 (2.8%)	2.92	0.28
The library system in Nigeria is digitally mature enough to host and protect sensitive national development data.	4 (11.1%)	6 (16.7%)	16 (44.4%)	10 (27.8%)	2.28	0.45
My department actively collaborates with library institutions to ensure our policies are accessible to the general public.	5 (13.9%)	6 (16.7%)	15 (41.7%)	10 (27.8%)	2.31	0.46

The results in table 3 show that respondents recognised libraries as important for voter education, democratic transparency ($\bar{x}$ = 2.86), and bridging the information gap between government policies and public perception ($\bar{x}$ = 2.92). They also moderately agreed that libraries provide useful evidence for policy implementation and monitoring the *Renewed Hope* Agenda ($\bar{x}$ = 2.50). However, respondents expressed concerns about the digital maturity of Nigerian libraries ($\bar{x}$ = 2.28) and reported weak collaboration between government agencies and libraries in disseminating policy information ($\bar{x}$ = 2.31). Overall, the findings highlight confidence in the informational role of libraries but reveal challenges relating to digital infrastructure and institutional partnerships.

5.3 Library users' expectation-confirmation model (ECM) analysis

Table 4 applies the ECM to assess user expectations, confirmation, and perceived usefulness, revealing the gap between expected and actual information access and its implications for satisfaction and civic engagement.

Table 4: Library users' expectation-confirmation model (ECM) analysis (n=72)

ECM Construct	Measurement Item	$\bar{x}$	SD	Interpretation
Expectation	I expect my local/academic library to be the primary source for verified "Renewed Hope" information.	2.90	1.04	Moderate-High Expectation
Confirmation	I am able to find up-to-date information on the eight priority areas through the library or its website.	2.24	1.09	Low Confirmation
Perceived Usefulness	Library information has increased my confidence in participating in democratic processes.	2.78	1.08	Positive Perception
Satisfaction	I am satisfied with the speed and ease of accessing public records through the library.	2.67	1.11	Moderate Satisfaction
Disconfirmation*	Government reform information is often missing or outdated within library collections.	2.68	1.10	Moderate Disconfirmation

Civic Engagement	Library information has improved my ability to hold public officials accountable.	2.83	1.07	Positive Civic Influence

*****Disconfirmation was measured using a negatively phrased item; higher scores indicate a larger gap between users' expectations and actual information availability.*

The results presented in Table 4 reveal that respondents hold relatively high expectations of libraries as trusted sources of verified government information, as reflected by the expectation construct ($\bar{x}$ = 2.90, SD = 1.04). However, the confirmation construct recorded a lower mean score ($\bar{x}$ = 2.24, SD = 1.09), indicating that users generally disagreed that they could readily access up-to-date information on the eight priority areas of the *Renewed Hope* Agenda through library platforms. Despite this gap, respondents expressed positive perceptions regarding the usefulness of library information for democratic participation ($\bar{x}$ = 2.78, SD = 1.08) and reported moderate levels of satisfaction with access to public records ($\bar{x}$ = 2.67, SD = 1.11). The disconfirmation construct ($\bar{x}$ = 2.68, SD = 1.10) further suggests that users perceived government reform information in library collections as frequently missing or outdated. Nevertheless, respondents acknowledged the civic value of library services, with the civic engagement construct recording a positive mean score ($\bar{x}$ = 2.83, SD = 1.07), indicating that library information enhances their capacity to hold public officials accountable and participate more effectively in democratic processes.

6.0 Discussion of Findings

The findings align with existing literature on the persistent gap between government information provision and citizen access. Although access to timely and accurate information is central to democratic governance, significant barriers remain in translating policy outputs into accessible public knowledge (Timidi & Okuro, 2024; Ayesha et al., 2025). The mismatch between users' high expectations and low confirmation reflects earlier evidence that digital governance platforms in developing contexts often fall short in functionality and user-centred design (Patergiannaki & Pollalis, 2023). While libraries have evolved into hybrid information hubs capable of promoting transparency and civic engagement (Stankoska, 2024; Kranich, 2024; Maity, 2023), their effectiveness continues to be constrained by infrastructural deficits, inadequate funding, and uneven digital literacy, alongside broader challenges of weak institutional readiness and technological inefficiencies (Onunka et al., 2023; Vaz, 2024; Dehinsilu-Isa & Amodu, 2025; Jan & Ganiae, 2019; Awais & Ameen, 2019; Otike & Barát, 2021; Ocholla & Ocholla, 2020).

In line with the Expectation–Confirmation Model (ECM), the results reveal a clear gap between expectation and confirmation, with moderate satisfaction indicating partial system usefulness alongside structural weaknesses in information delivery (Khan et al., 2025; Alshammari & Alshammari, 2024). This extends existing research by demonstrating how library-mediated information systems influence transparency, civic engagement, and governance outcomes, addressing gaps identified by Momoti (2023) and Eid et al. (2021). Within the Nigerian context, the findings further highlight limited integration of libraries into governance frameworks despite policy emphasis on transparency and accountability under the Renewed Hope agenda (Azeez & Oluseyi, 2025; Grenon et al., 2023). Weak collaboration between policy stakeholders and libraries, coupled with concerns about digital maturity, reinforces earlier evidence of underfunding, outdated infrastructure, and low institutional capacity (Onunka et al., 2023).

Importantly, the findings demonstrate that library services exert a measurable influence on civic engagement, public trust, and democratic resilience. Users report an improved capacity to hold public officials accountable, indicating a positive contribution to civic participation, which aligns with studies linking information access to democratic engagement (Stankoska, 2024; Kranich, 2024). However, moderate levels of satisfaction and perceived usefulness suggest that public trust remains conditional on the reliability and timeliness of information provided, supporting ECM-based findings on system usefulness and user satisfaction (Khan et al., 2025). The gap between expectations and actual information access undermines this trust and limits the broader contribution of libraries to democratic resilience. Overall, while libraries retain functional relevance within the governance ecosystem, their impact on transparency and democratic outcomes is constrained by systemic and institutional limitations.

7.0 The Transparency Disconnect in the Library-Governance Ecosystem

Building on these findings, the overall synthesis highlights a disconnect between policy intent and service delivery. Although the *Renewed Hope* agenda reflects a strong commitment to transparency, library systems are not yet sufficiently equipped to operationalise these goals effectively. High user expectations are not matched by existing levels of digital capacity, infrastructure, and service readiness, revealing a gap between demand and institutional capability. The findings indicate that institutional effectiveness in supporting transparency, public trust, and civic engagement depends on the alignment of policy, infrastructure, and service delivery, underscoring the need to strengthen both physical and digital capacities within library systems. Figure 1 presents a simplified conceptual model of this transparency disconnect within the library–governance ecosystem.

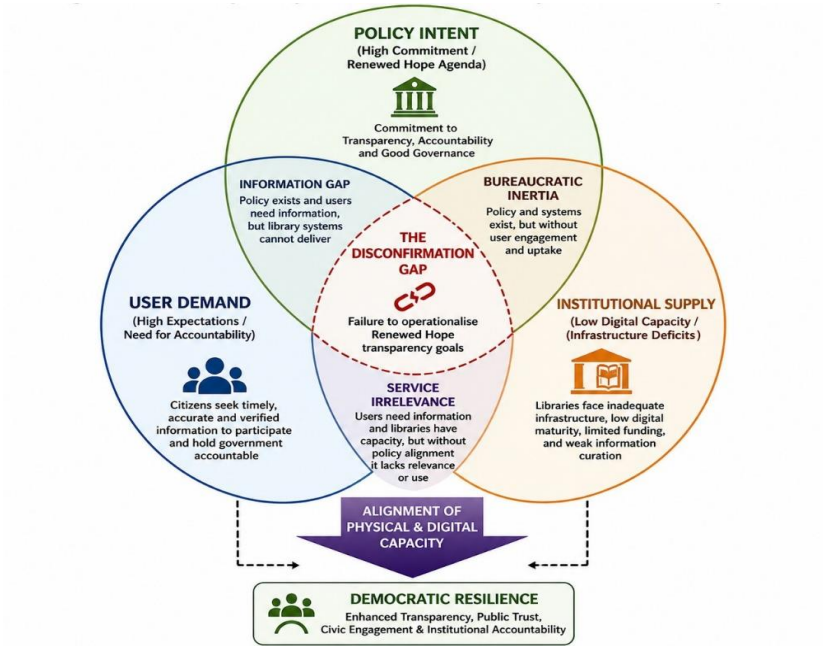


Figure 1*: A conceptual model illustrating how misalignment between policy intent, user demand, and library infrastructure hinders the realisation of Renewed Hope transparency goals (Developed by the author with the assistance of an AI tool for visualisation purposes).*

7.0 Conclusion and Recommendations

This study concludes that, although libraries in Nigeria are conceptually positioned as key enablers of transparency and democratic engagement, their current capacity remains insufficient to meet these expectations. The findings reveal a clear disconnect between policy intent and service delivery, with high user expectations not matched by the existing levels of digital infrastructure, institutional readiness, and service effectiveness. This gap reflects broader structural challenges identified in the literature, including weak integration of libraries into governance frameworks, inadequate funding, and limited technological capacity. Consequently, the ability of libraries to support transparency, civic participation, and public trust remains constrained, limiting their contribution to institutional effectiveness and democratic resilience.

The study recommends a coordinated and systemic approach is required to address these challenges. Therefore, government investment should prioritise strengthening digital infrastructure, including reliable power supply and improved connectivity, to enhance access to e-governance information. Equally important is the development of human capacity through continuous training of library personnel to effectively manage and disseminate governance-related data. Institutional collaboration between libraries and government agencies should be formalised to ensure timely access to policy information, while user-focused services such as civic literacy programmes and dedicated information platforms should be expanded. Above all, improving the alignment between policy, infrastructure, and service delivery is essential for enhancing the role of libraries in supporting transparency, accountability, and democratic outcomes.

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LIBRARY CATALOGUES IN TRANSITION: ASSESSING CURRENT TRENDS AND FUTURE READINESS IN SELECTED ACADEMIC LIBRARIES IN ENUGU STATE

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Abstract

The paper investigated library catalogues in transition: assessing current trends and future readiness in selected academic libraries in Enugu State. It assessed the current state of library catalogue systems in selected academic libraries in Enugu State to determine their readiness for future developments in information organization and access. A descriptive survey research design was adopted for the study. The population consisted of forty-two (42) library staff drawn from four academic institutions in Enugu State: Enugu State University of Science and Technology (ESUT), Institute of Management and Technology (IMT), Enugu State College of Education (Technical) (ESCET), and Godfrey Okoye University (GOU). Data were collected using a structured questionnaire and analyzed using frequency counts, percentages, and mean scores. The findings revealed that card catalogues and hybrid systems remain widely used, while fully automated catalogue systems are limited across the selected libraries. The level of functionality of catalogue systems was found to be moderate, with challenges such as poor internet connectivity, incomplete records, and limited automation affecting system performance. The integration of digital resources into catalogue systems was also moderate, indicating gaps in unified search platforms and full-text access. Staff competency in cataloguing was found to be moderate, though there was a strong need for continuous ICT training and recruitment of qualified personnel. Major challenges identified include inadequate funding, poor ICT infrastructure, unstable power supply, outdated systems, and shortage of trained cataloguing personnel. The study concluded that library catalogue systems in the selected academic libraries are still transitioning from traditional to modern automated platforms, and significant improvements are required to enhance future readiness. The study recommended upgrading catalogue systems, strengthening ICT infrastructure, continuous staff training, increased funding, integration of digital resources, and adoption of long-term digital transformation strategies to improve catalogue efficiency and future preparedness.

Keywords: Academic Libraries, Automation, Enugu State, Future readiness, Library catalogue, Library transition, OPAC.

Introduction

A library catalogue is the primary access tool that enables users to identify, locate and retrieve information resources in any library setting. In academic libraries, the catalogue plays a central role in organizing both print and digital materials, supporting teaching, learning, and research. With the vast collections of an academic library it can be well imagined what will become of the library if the information resources are not systemized processed and access point provided. In other words, a library catalogue is a retrieval system that enables access and retrieval of the vast collections of the library either by subject, author, title or any other attribute to such materials. This means that, the library catalogue provides a pathway through which library users view and locate what the library has in stock. Historically, libraries relied on manual catalogues such as card catalogues, book catalogues, and sheaf catalogues to provide bibliographic control. This, according to Nwobu (2024), helps patrons to locate and access library resources, both digital and physical, thereby, defining the resources so that patrons can quickly comprehend what is accessible to them. Although, these tools served their purpose in earlier decades, they became increasingly limited as academic libraries expanded their collections and the world advance in technology.

With advances in information and communication technologies (ICT) and its acceptance into the library operations, library catalogue systems tend to transition from manual catalogues to automated systems. The introduction of Integrated Library Management Systems (ILS) such as KOHA, Evergreen, Destiny etc., into the library system has transformed library catalogue by enabling real-time updates, remote access, improved search features, and seamless integration of digital resources. According to Eserada and Okolo (2019), the online catalogue format has transformed the way library users, access and retrieve library collections, it has made it easier for libraries to provide access to library resources through a channel. This means that, with the adoption of ICT in library operations, the future of library catalogues is moving toward web-scale discovery systems, linked data, semantic enrichment, and cloud-based platforms that support resource sharing and interoperability.

Transitioning the library catalogue from manual catalogue to automated format requires that certain factors need to be in place; appropriate infrastructure, efficient electrical wiring that will support all the required equipment has to be in

place, reliable power supply, adequate computer devices, internet access, integrated library software, and most importantly, a trained workforce (Ukwueze & Eze, 2022). Trained workforce play a critical role in the effectiveness and future readiness of library catalogue systems in academic libraries. Its success depends largely on the competence, technical skills, and adaptability of cataloguing staff in handling modern cataloguing tools, metadata standards, and automated systems. Adewuyi and Akinniyi (2023), found that technical competencies among cataloguers significantly contribute to effective organization of information resources and efficient catalogue management. Similarly, Okonkwo (2024), revealed that regular ICT training and exposure to modern cataloguing technologies improve personnel readiness for digital cataloguing practices. Irenoa, Emilian and Eru (2019) added that it requires a special provision in the library budget. Hence, it is a very expensive venture which once commenced, should not be allowed to fail because of underfunding.

In Nigeria, the level of catalogue automation varies significantly among academic institutions. While some libraries have adopted modern Integrated Library System (ILS), others still operate hybrid systems or rely heavily on manual cataloguing due to funding constraints, inadequate ICT infrastructure, low bandwidth, limited staff competence and irregular power supply. In Enugu State, personal observation suggests that many academic libraries face challenges such as outdated catalogue software, incomplete automation, and insufficient integration of library resources into catalogue platforms. And as academic libraries expand their collections to include e-journals, e-books, institutional repositories and open access resources, the ability of catalogue systems to accommodate these developments becomes critical. The readiness of catalogue systems for the future, has for this reason, become a major concern for library administrators, policymakers and users. This study therefore seeks to assess the current state of library catalogue systems in selected academic libraries in Enugu State and evaluate their readiness for the evolving demands of information organization and access in the digital era.

Statement of the Problem

Despite the significance of a library catalogue, many academic libraries in Nigerian have continued to struggle with ineffective catalogue system. Preliminary observations show that several academic libraries in Enugu State either operate outdated manual library systems or maintain partially automated catalogues that are not fully functional. Moreover, many catalogue systems in use do not support modern standards such as Resource Description and Access (RDA), authority control, or seamless retrieval of electronic materials. Limited ICT infrastructure, irregular electricity, inadequate funding, and insufficient staff training further hinder catalogue operations. These inadequacies reduce the efficiency of information retrieval and negatively affect library user satisfaction.

Despite these challenges, there is limited empirical evidence detailing the actual condition of catalogue systems in academic libraries in Enugu State, the extent of their automation, digital readiness, or the level of staff competence required to sustain them. Without such data, it becomes difficult for decision-makers to develop informed strategies for catalogue improvement. This study therefore seeks to fill this gap by systematically assessing the current state of library catalogues in selected academic libraries in Enugu State, and evaluating their readiness for the future.

Purpose of the Study

The main purpose of the study is to assess the current state of library catalogue systems in selected academic libraries in Enugu State and evaluate their readiness for future developments in information organization and resource discovery. Specifically, the aim to:

ix. identify the types of catalogue systems currently used in selected academic libraries in Enugu State.
x. examine the level of functionality of these catalogue systems.
xi. determine the extent to which library resources are integrated into the catalogue systems.
xii. evaluate the competence of cataloguing staff in the selected libraries.
xiii. identify challenges affecting the future readiness of catalogue systems.
xiv. recommend strategies for enhancing future readiness.

Research Questions

The study is guided by the following research questions:

1. What types of catalogue systems are currently used in selected academic libraries in Enugu State?
2. What is the level of functionality of these catalogue systems?
3. To what extent are library resources integrated into the catalogue systems?
4. What is the level of competency among cataloguing personnel?
5. What challenges affect the future readiness of catalogue systems in these libraries?
6. What strategies can enhance the future readiness of library catalogue systems in the selected academic libraries?

Literature Review

One of the ways libraries ensure access to the library resources is by organising and providing access points to the resources of the library. The library catalogue acts as the index to the library collections. According to Ukwueze and

Eze (2022), a library catalogue is a list or record of materials arranged in a specific pattern or sequence. This provides a description and index of the resources in a library or collection. Ashikuzzaman (2024) noted that a library catalogue has evolved to encompass various formats, including card catalogues, digital databases and online public access catalogues, basically aimed to adequately characterize each library information material both physically and cognitively so that it can be distinguished from all other items.

Traditionally, library catalogues were manually produces, often in the physical forms of books, cards, and to a limited extent, microform. However, the advent of catalogue automation made a major difference in the potential forms catalogue could take and in the variety of features an individual catalogue could exhibit. Sule, Edward, Yakubu and Makinde (2025) assessed the Utilization of Library Catalogue in selected Academic Libraries in Adamawa State, Nigeria. The study is delimited to three Academic Libraries in Adamawa State. Three (3) objectives and three research questions guided the study. The objectives of the study were to determine the types of catalogue available in selected academic libraries, the purposes of catalogue for library users in academic libraries, level of user's awareness on the existence of library catalogue in academic libraries. The survey research method was adopted for the study. Sample size of nine hundred and ninety three (993) was drawn from seven thousand eight hundred and two (7,802) target population of the three selected academic libraries in Adamawa State, Nigeria. Questionnaire was the main instrument used for the study. The data collected was analyzed using descriptive statistics, such as tables, frequency, percentage scores and histogram. The findings showed that; the types of catalogues available in the academic libraries in Adamawa State are; Author, title and classified catalogues, which aim to help users to locate and retrieve materials easily. The study did not classify the library catalogue by their types but by their access points, therefore, this study will specify this.

A functional library catalogue ensure information retrieval processes such as searching, identifying, locating, and accessing library resources through various search options like author, title, subject, and keyword access. Akanbi, Adekanbi, and Bankole (2021) carried out a study on the perception and use of Online Public Access Catalogue (OPAC) in academic libraries in Kwara State, Nigeria. The study was guided by research objectives that examined the functionality and usability of OPAC systems in supporting information retrieval among users. The study adopted a descriptive survey research design. The population of the study consisted of users of selected academic libraries in Kwara State universities. A structured questionnaire was used as the instrument for data collection, and copies were administered to respondents selected from the participating institutions. Data collected were analyzed using descriptive statistics such as frequency counts and percentages. The findings revealed that although OPAC systems in the selected academic libraries support basic search functions such as author, title, and subject searches, their full functionality is limited due to challenges such as inadequate ICT infrastructure, poor system integration, and low user proficiency. The study further showed that users experience difficulties in accessing advanced search features, thereby reducing the overall effectiveness of the catalogue systems. The study concluded that the functionality of OPAC systems in Nigerian academic libraries is still developing and requires improvement.

Library catalogues are often connected to library systems and digital resources, such as institutional repositories, electronic databases, and discovery tools to provide seamless access to information. In Nigerian academic libraries, the level of integration remains a critical issue in determining the efficiency and effectiveness of catalogue systems in supporting modern information needs. Okoroma (2023) carried out a study on linked data technology and linked open data in academic libraries in Nigeria, with a focus on the level of integration, challenges, and potential solutions. The study adopted a descriptive survey research design. The population of the study consisted of seventy-one (71) library and information professionals drawn from seventeen higher institutions across Nigeria. A structured questionnaire was used as the instrument for data collection, and responses were analyzed using descriptive statistics such as frequency counts and percentages. The findings revealed that the level of integration of catalogue systems with other emerging digital library technologies and external information systems is very low in most Nigerian academic libraries. It further showed that many libraries still operate standalone or partially integrated Online Public Access Catalogue (OPAC) systems with limited connection to institutional repositories, databases, and other digital platforms.

The level of competency among cataloguing personnel is a critical factor that determines the effectiveness, accuracy, and overall functionality of library catalogue systems. Library personnel are required to manage automated systems, metadata, and digital services effectively. Ukwueze and Eze (2022), in their study on retrospective conversion of library catalogue and access to information resources in Nnamdi Azikiwe University, Awka, specifically emphasized the critical role of human resources in the implementation of retrospective conversion. Through a descriptive survey of library staff, they found that the availability of skilled and competent personnel is essential for planning, executing, and sustaining the conversion of manual catalogues into machine-readable formats. They noted that while material and technical resources are important, the success of the process largely depends on trained librarians and technical staff who possess the required expertise. The outcome showed that retrospective conversion enhances access through author, title, subject, classification number, and keyword search, but only when supported by capable human resources.

The future readiness of library catalogue systems for integration in academic libraries is often challenged by different factors. Oladokun, Oyadeyi, and Iyoro (2019) carried out a study on retrospective conversion of bibliographic records

in Nigerian academic libraries using KOHA Integrated Library System (ILS). The study was guided by research objectives that examined the implementation experiences and operational challenges associated with catalogue automation in Nigerian university libraries. The study adopted a descriptive survey research design. The population of the study comprised twenty (20) Nigerian university libraries that had adopted KOHA for retrospective conversion and catalogue management. Data were collected using a structured questionnaire and analyzed using descriptive statistics such as frequencies and percentages. The findings revealed that major challenges hindering the future readiness and effective integration of catalogue systems include erratic power supply, low Internet bandwidth, unreliable software performance, lack of a union catalogue, inadequate ICT infrastructure, and limited technical expertise among library staff. These challenges significantly affect the ability of libraries to fully automate and integrate their catalogue systems with other digital resources and emerging technologies.

To prepare for future readiness, Idiegbeyan-ose, Ifijeh, Adebayo, and Segun-Adeniran (2016), in their study on new paradigms in cataloguing in Nigerian libraries, specifically examined strategies for modernizing cataloguing practices in the 21st century. Through a critical review of cataloguing practices, they found that effective future readiness depends on the integration of information and communication technologies, adequate funding, and continuous training of cataloguers. The outcome revealed that the adoption of ICT-driven cataloguing systems enhances efficiency, accuracy, and global relevance of library catalogues. The study concluded that libraries must adopt innovative and sustainable strategies to remain relevant in the digital age, and it recommended improved infrastructure, policy support, and capacity building for cataloguing staff.

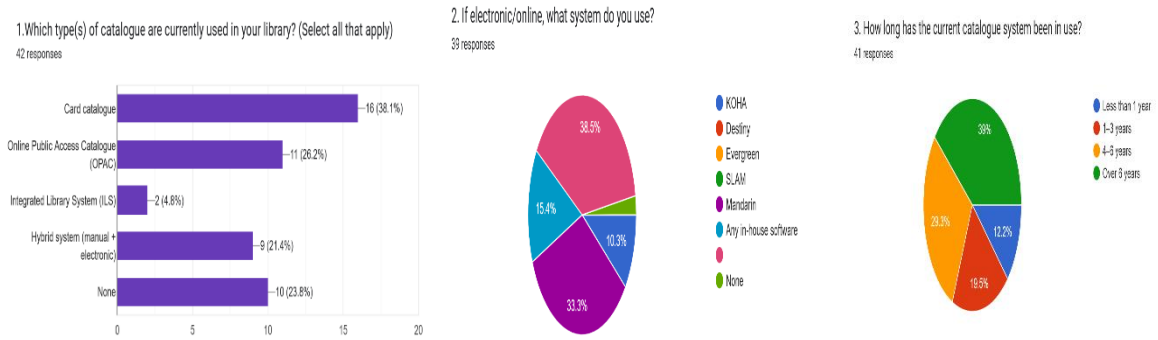
Methodology

The study adopted a descriptive survey research design to examine the current state of library catalogue systems and assess their readiness for future developments in selected academic libraries in Enugu State. This design was considered appropriate because it allowed the researcher to gather relevant data from library staff regarding existing catalogue practices, operational challenges, and strategies for improvement. The population of the study comprised forty-two (42) library staff who are directly involved with the library catalogue systems in the four selected academic institutions in Enugu State. These included fifteen (15) staff from Enugu State University of Science and Technology (ESUT), six (6) staff from Institute of Management and Technology (IMT), eight (8) staff from Enugu State College of Education (Technical) (ESCET), and thirteen (13) staff from Godfrey Okoye University (GOU). Given the relatively small and manageable size of the population, the entire population was used for the study; hence, no sampling technique was employed. Data for the study were collected using a structured questionnaire developed by the researcher. The instrument consisted mainly of closed-ended items structured on a Likert scale to ensure uniformity and ease of analysis. The method of data collection involved direct administration of the questionnaire to respondents across the four institutions. The researcher personally distributed and retrieved the copies of the questionnaire, with assistance from designated contacts within the libraries, to ensure a high rate of return. The data collected were analyzed using descriptive statistics, specifically frequencies and mean scores.

Data Analysis

The data collected were analysed in line with the research questions and presented in charts. The data was analysed using frequency count, mean score and percentage.

Chart 1: Types of Catalogue Systems Currently in Use

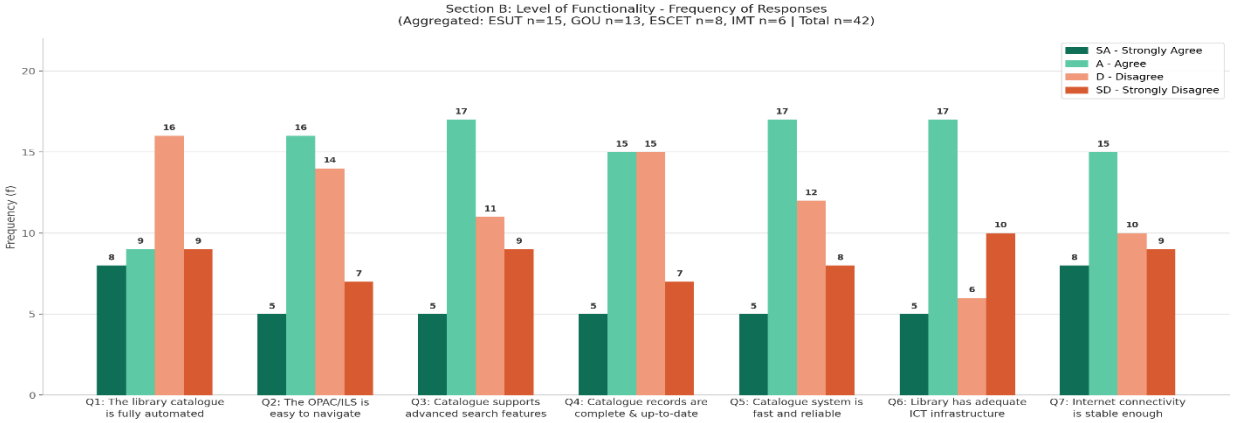


The data presented in Chart 1 above shows the types of library catalogue systems currently in use across the four selected academic libraries in Enugu State. The responses revealed that the card catalogue remains the most prevalent system, with 11 respondents (26.2%) indicating its sole use, while 9 respondents (21.4%) reported using only an Online Public Access Catalogue (OPAC). A hybrid system combining manual and electronic approaches was indicated by 5 respondents (11.9%), and 4 respondents (9.5%) reported using a combination of both card catalogue and hybrid systems. Only 1 respondent (2.4%) indicated the use of a standalone Integrated Library System (ILS), while 1 respondent (2.4%) used both OPAC and ILS. Among those using electronic systems, the Mandarin software was the most widely adopted (13 respondents), followed by in-house software solutions (6 respondents) and KOHA (4 respondents). Regarding the

age of these systems, 16 respondents (38.1%) reported using systems that have been in place for over 6 years, 12 (28.6%) for 4–6 years, 8 (19.0%) for 1–3 years, and only 5 (11.9%) for less than one year.

These findings suggest that the majority of the selected libraries are still operating largely manual or partially automated catalogue systems, with full automation being the exception rather than the norm. This corroborates the observation of Sule, et al. (2025), who found in their study of academic libraries in Adamawa State that author, title, and classified catalogues, analogous to traditional manual approaches, remained dominant across the institutions surveyed, suggesting a nationally pervasive reliance on conventional cataloguing methods. The persistence of card catalogues and hybrid systems in the present study further reflects the observation by Eserada and Okolo (2019) that while the online catalogue format has transformed how users access and retrieve library collections, its adoption remains uneven across Nigerian institutions, largely due to funding constraints and inadequate ICT infrastructure. Ukwueze and Eze (2022), further noted that transitioning from manual to automated catalogue formats requires substantial infrastructure, including reliable power supply, adequate computer devices, internet access, a trained workforce, and an integrated library software, conditions that remain largely unmet in many academic libraries in Nigeria.

Chart 2: Level of Functionality of Catalogue Systems



The data presented in Chart 2 above shows the level of functionality of library catalogue systems across the four selected academic libraries in Enugu State. The responses revealed that for full automation of the library catalogue (Q1), 8 respondents (19.0%) strongly agreed and 9 (21.4%) agreed, while 16 respondents (38.1%) disagreed and 9 (21.4%) strongly disagreed, indicating that most libraries are not fully automated. For ease of navigation of the OPAC/ILS (Q2), 5 respondents (11.9%) strongly agreed and 16 (38.1%) agreed, whereas 14 (33.3%) disagreed and 7 (16.7%) strongly disagreed, suggesting moderate usability of the systems. Regarding advanced search features (Q3), 5 respondents (11.9%) strongly agreed and 17 (40.5%) agreed, while 11 (26.2%) disagreed and 9 (21.4%) strongly disagreed, indicating that although advanced search features are available, they may not be fully effective across all libraries. For completeness and currency of catalogue records (Q4), 5 respondents (11.9%) strongly agreed and 15 (35.7%) agreed, while 15 (35.7%) disagreed and 7 (16.7%) strongly disagreed, reflecting mixed perceptions about record accuracy and updates.

Furthermore, for system speed and reliability (Q5), 5 respondents (11.9%) strongly agreed and 17 (40.5%) agreed, while 12 (28.6%) disagreed and 8 (19.0%) strongly disagreed, indicating moderate performance of the catalogue systems. On ICT infrastructure adequacy (Q6), 5 respondents (11.9%) strongly agreed and 17 (40.5%) agreed, whereas 6 (14.3%) disagreed and 10 (23.8%) strongly disagreed, suggesting infrastructural gaps across some libraries. Finally, for internet connectivity stability (Q7), 8 respondents (19.0%) strongly agreed and 15 (35.7%) agreed, while 10 (23.8%) disagreed and 9 (21.4%) strongly disagreed, indicating that unstable internet connectivity remains a major challenge. Overall, the findings suggest that while library catalogue systems show moderate functionality, improvements are required in automation, infrastructure, reliability, and connectivity across the selected academic libraries in Enugu State.

These findings indicate that while some degree of automation exists, the overall level of catalogue functionality across the selected libraries remains moderate and incomplete. A significant proportion of staff expressed reservations about the reliability and comprehensiveness of current systems. This finding aligns with the position of Oladokun, Oyadeyi, and Iyoro (2019), who found that erratic power supply and low internet bandwidth were among the most critical challenges confronting retrospective conversion and catalogue automation in Nigerian academic libraries, concluding that poor technical infrastructure slows down and frustrates successful conversion work. Furthermore, Ajani, et al. (2022), in their study of librarians in Kwara State, affirmed that while library users do consult catalogues before accessing resources, the value of cataloguing as a tool for information access is substantially diminished when the underlying systems are not fully functional. The moderate functionality ratings in this study therefore suggest that many of these libraries have not yet realized the full potential of their catalogue systems, consistent with the finding of

Adeyemi and Omopupa (2020) that there is low awareness and inadequate preparedness among Nigerian librarians for transitioning from traditional OPAC to more advanced discovery tools.

Chart 3: Integration of Library Resources into Catalogue Systems

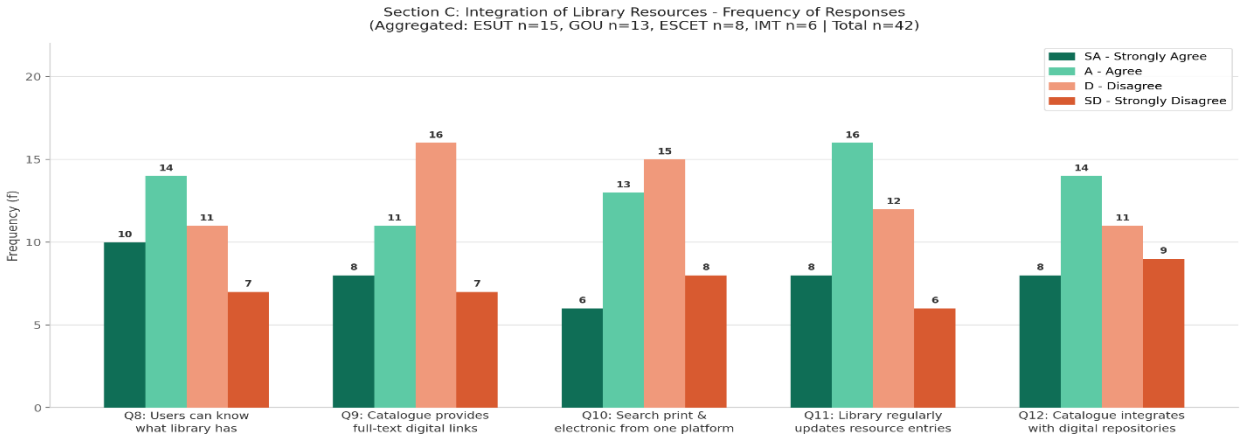
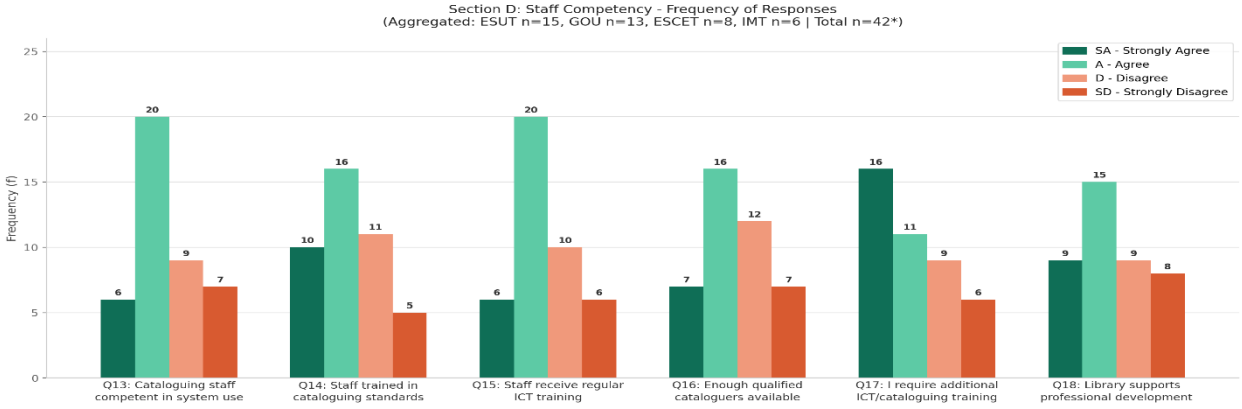


Chart 3 above presents the responses of library staff on the integration of library resources within the catalogue systems.

The results show that all five indicators recorded mean scores between 2.36 and 2.60, indicating a moderate level of resource integration across the four institutions. The highest-rated item was users' ability to know what the library holds through the catalogue (Q8), with a mean score of 2.36, where 57.1% of respondents agreed at some level, and ESCET recorded four respondents who strongly agreed. Regular updates of catalogue entries (Q11) recorded a mean of 2.38, with 38.1% agreeing, although 14.3% strongly disagreed, suggesting that updates are carried out but not consistently. Integration with digital repositories (Q12) recorded a mean of 2.50, with 52.3% agreeing, while 21.4% strongly disagreed, indicating gaps in linking with modern digital systems. Provision of links to full-text digital materials (Q9) had a mean of 2.52, with 38.1% disagreeing, showing that direct access to digital content through the catalogue is still limited. The lowest-rated item was the ability to search both print and electronic resources from a single platform (Q10), which recorded the highest mean of 2.60, with 35.7% disagreeing and 19.0% strongly disagreeing. Overall, the results show that while basic catalogue functions are available, integration of digital resources and unified search features remain limited across the selected libraries.

These findings highlight significant gaps in the integration of both print and digital library resources into the catalogue systems of the selected libraries. The low scores, particularly on user awareness of holdings and regularity of updates, suggest that many catalogue systems do not adequately reflect the full scope of library collections. This finding is consistent with Okoroma (2023) who found that the level of integration of catalogue systems with other emerging digital library technologies and external information systems is very low in most Nigerian academic libraries. It further showed that many libraries still operate standalone or partially integrated Online Public Access Catalogue (OPAC) systems with limited connection to institutional repositories, databases, and other digital platforms. Ikwuanusi et al. (2024) note that modern catalogue systems should incorporate a wide range of resources, including e-books, e-journals, institutional repositories, databases, and open-access resources, providing users with a single search interface through which multiple resource types can be accessed simultaneously. The comparatively low integration scores in the present study suggest that the libraries surveyed have not yet achieved this level of unified resource access.

Chart 4: Level of Staff Competency in Cataloguing



The chart 4 above presents the responses of library staff on staff competency in catalogue management. The mean scores for the six items range from 2.12 to 2.45, indicating a moderate level of staff competency across the four institutions. The item with the lowest mean was the need for additional ICT and cataloguing training (Q17), with a mean of 2.12. About 38.1% strongly agreed and 26.2% agreed, showing that most staff believe further training is necessary. Training in cataloguing standards such as AACR2, RDA, and LCSH (Q14) recorded a mean of 2.26, with 61.9% agreeing that staff are trained, although some respondents, particularly from GOU, disagreed. Regular ICT training (Q15) and library support for professional development (Q18) recorded mean scores of 2.38 and 2.39 respectively. For Q15, 61.9% agreed that staff receive ICT training, though some respondents disagreed. For Q18, 58.6% agreed that libraries support professional development, but a number of respondents indicated that such support is not consistent. Competence in using the current catalogue system (Q13) recorded a mean of 2.40, with 61.9% agreeing that staff are competent, although some institutions recorded disagreement. The sufficiency of qualified cataloguers (Q16) recorded the highest mean of 2.45, with 28.6% disagreeing and 16.7% strongly disagreeing, indicating a shortage of qualified staff in some libraries. Overall, the results show that staff competency is moderate, but there is a strong need for additional training and more qualified personnel across the selected academic libraries.

The overall pattern of moderate competency scores indicates that while catalogue staff possess some foundational skills, there are notable deficiencies in advanced cataloguing standards and continuous professional development. This is consistent with the findings of Okonkwo (2024), who reported that cataloguers in South-East Nigeria demonstrate appreciable skills in both manual and electronic cataloguing but noted disparities in competency levels across institutions, largely due to differences in access to training and technological infrastructure. Similarly, Olayemi, Michael and Olayemi (2025) observed that while many Nigerian cataloguers have adopted basic digital tools, significant gaps remain in advanced metadata creation and digital cataloguing skills. Furthermore, Ukwueze and Eze (2022) emphasized that the success of catalogue development and retrospective conversion largely depends on trained librarians and technical staff, recommending continuous training and recruitment of qualified personnel as a strategic priority.

Chart 5: Challenges Affecting Catalogue Efficiency and Future Readiness

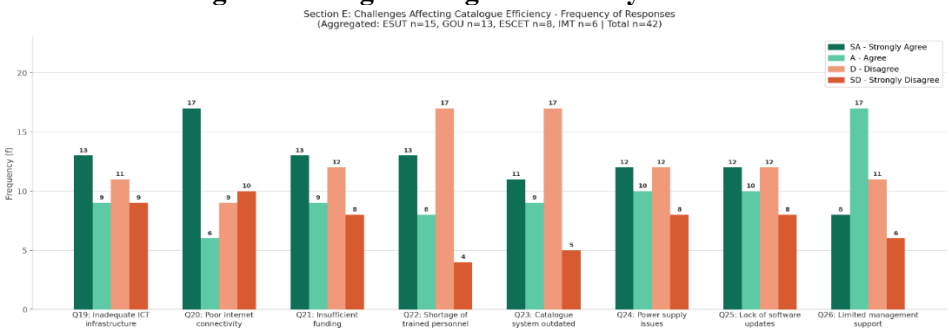
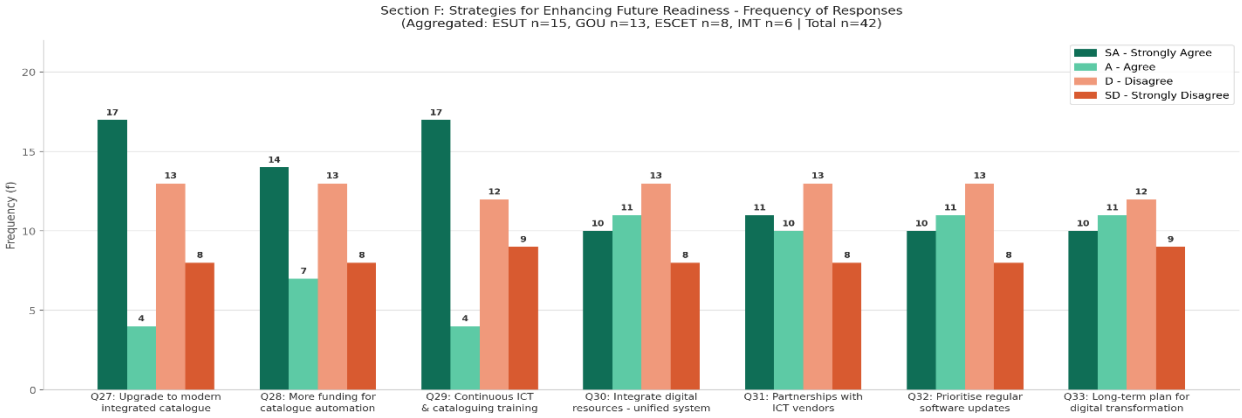


Chart 5 above presents the responses of library staff on challenges affecting catalogue efficiency. The mean scores ranged from 2.29 to 2.38, showing that respondents generally agreed that several factors affect catalogue efficiency across the institutions. Poor internet connectivity (Q20) and shortage of trained cataloguing personnel (Q22) recorded the lowest means of 2.29, indicating that these were the most common challenges. For Q20, 40.5% strongly agreed that poor internet affects catalogue operations, while for Q22, 31.0% strongly agreed and 19.0% agreed that there is a shortage of trained personnel, although some respondents, particularly from ESUT, disagreed. Insufficient funding (Q21) and limited management support (Q26) recorded mean scores of 2.36. About 52.4% of respondents agreed that funding constraints affect catalogue development, while 59.5% agreed that management support for catalogue improvement is limited. Inadequate ICT infrastructure (Q19), outdated catalogue systems (Q23), power supply problems (Q24), and lack of regular software updates (Q25) all recorded mean scores of 2.38. More than half of the respondents agreed that these factors affect catalogue efficiency, although responses varied across institutions. Overall, the findings show that catalogue efficiency is affected by multiple challenges, including poor internet connectivity, shortage of trained personnel, insufficient funding, weak management support, inadequate ICT infrastructure, power supply problems, outdated systems, and lack of software updates across the selected academic libraries.

These findings reflect a pattern of compounding institutional challenges that align closely with the literature. Oladokun, Oyadeyi, and Iyoro (2019) similarly identified erratic power supply and poor internet bandwidth as major obstacles to effective catalogue automation in Nigerian academic libraries, noting that the process is fundamentally technology-dependent and cannot succeed without stable infrastructure. The challenge of limited management support, though scoring moderately, is equally noteworthy; Adekoya and Inyang (2023) observed that resistance to technological change among staff and management can further slowdown adoption and effective utilization of modern catalogue platforms. The combined effect of these challenges is reflected in the assessment by Ajani, et al. (2022), who noted that catalogue development is time-consuming and requires dedicated manpower.

Chart 6: Strategies for Enhancing Future Readiness of Catalogue Systems



The chart 6 above presents the responses of library staff on strategies for enhancing the future readiness of library catalogue systems. The mean scores ranged from 2.29 to 2.48, showing that most respondents agreed that these strategies are necessary. The most strongly supported strategy was upgrading to a modern, fully integrated catalogue system (Q27), which recorded the lowest mean of 2.29, with 40.5% strongly agreeing. This support was particularly strong in ESCET and GOU, although many ESUT respondents disagreed. Continuous ICT and cataloguing training for staff (Q29) recorded the second lowest mean of 2.31, with 40.5% strongly agreeing, indicating that staff training is widely considered important. Increased funding for catalogue automation (Q28) recorded a mean of 2.36, with 50.0% of respondents agreeing, while partnerships with ICT vendors (Q31) recorded a mean of 2.43, also with 50.0% agreement. Integration of digital resources into a unified discovery system (Q30) and regular software updates and maintenance (Q32) both recorded mean scores of 2.45, with half of the respondents agreeing that these strategies are necessary. Long-term planning for digital transformation (Q33) recorded the highest mean of 2.48, showing slightly lower support compared to other strategies, although 50.0% still agreed. Overall, the findings show that respondents support several strategies for improving catalogue systems, especially system upgrades, staff training, increased funding, and better digital integration, although responses varied across institutions.

These findings are consistent with the study of Idiegbeyan-ose, Ifijeh, Adebayo, and Segun-Adeniran (2016), who established that effective future readiness depends on the integration of ICT, adequate funding, and continuous training, recommending improved infrastructure, policy support, and capacity building as sustainable strategies for catalogue modernization. The high rating accorded to a long-term digital transformation plan in the present study echoes the argument of Ikwuanusi et al. (2024) that cloud-based systems, data analytics, and digital platforms are fundamental to ensuring that library catalogues are responsive, accessible, and scalable in modern academic environments. This is further reinforced by Adigun, Ajani and Enakrire (2024), who noted that next-generation catalogues powered by artificial intelligence and knowledge graphs represent the emerging frontier of library resource discovery, requiring deliberate institutional planning and investment to achieve.

Summary of Findings

The study assessed the current state of library catalogue systems in selected academic libraries in Enugu State and evaluated their readiness for future developments in information organization and resource discovery. The findings revealed that:

13. Card catalogue and hybrid systems are still widely used in the selected academic libraries in Enugu State, while fully automated catalogue systems are limited. This indicates that most libraries are still transitioning from manual to automated catalogue systems.
14. The functionality of catalogue systems across the selected libraries is moderate. Although some libraries have partially automated systems, issues such as poor internet connectivity, incomplete records, and limited automation affect system performance.
15. The integration of library resources into catalogue systems is also moderate. While users can identify library holdings through the catalogue, integration of digital resources, full-text access, and unified search platforms remain limited.
16. The cataloguing staff possess moderate competency levels. However, there is a strong need for continuous ICT training, cataloguing standards training, and recruitment of qualified personnel.
17. Several challenges affect catalogue efficiency and future readiness. These include poor internet connectivity, shortage of trained personnel, insufficient funding, inadequate ICT infrastructure, unstable power supply, outdated systems, and lack of regular software updates.
18. The respondents strongly supported strategies such as upgrading catalogue systems, continuous staff training, increased funding, and partnerships with ICT vendors, integration of digital resources, and long-term digital transformation planning to enhance future readiness.

Conclusion

Based on the findings of this study, it can be concluded that library catalogue systems in selected academic libraries in Enugu State are still undergoing transition from traditional manual systems to modern automated platforms. Although some level of automation and functionality exists, significant gaps remain in system integration, infrastructure, staff competency, and technological readiness. These limitations affect efficient access to library resources and reduce the effectiveness of catalogue systems. Therefore, improving infrastructure, strengthening staff capacity, increasing funding, and adopting modern technologies are essential for enhancing the future readiness of library catalogue systems in the selected academic libraries.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Academic libraries in Enugu State should gradually phase out purely manual catalogue systems and adopt fully automated and integrated catalogue systems.
2. Library management should upgrade existing catalogue systems to support advanced functionalities such as keyword searching, remote access, user-friendly interfaces, real-time updates, and seamless retrieval of information resources.
3. Libraries should enhance the integration of both print and electronic resources into unified catalogue and discovery systems to provide users with comprehensive and centralized access to library resources.
4. Continuous professional development programmes, workshops, seminars, and ICT-based training should be organized for cataloguing personnel to improve their technical competence and adaptability to emerging cataloguing technologies and standards.
5. Government authorities, institutional management, and library administrators should address infrastructural and operational challenges affecting catalogue systems by providing adequate funding, stable electricity supply, reliable internet connectivity, and modern ICT facilities.
6. Academic libraries should develop strategic plans for the modernization of catalogue systems through increased automation, adoption of emerging technologies, integration of artificial intelligence and cloud-based solutions, and regular assessment of user needs.

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Library Schools Partnerships with Professional Libraries: A Remedy for Practical Training Deficiencies

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Abstract

This study on " Library Schools Partnerships with Professional Libraries: A Remedy for Practical Training Deficiencies", theoretically analyzes the disconnect between Library and Information Science (LIS) theoretical education and practical professional demands in Nigeria. It advocates a structured partnerships as a solution. Grounded in Kolb's Experiential Learning Theory and Situated Learning Framework, the paper critiques Nigeria's LIS programs where 92% curriculum allocation favors theory over practice, producing graduates requiring 6-12 months workplace remediation. Four structural deficiencies emerge: absent clinical rotations (medical model), theoretical assessment dominance (written exams vs competency demonstrations), disembedded curricula (classroom isolation), and stakeholder silos (academia vs professional libraries). Theoretical analysis reveals global best practices including University of Illinois iSchool practicum model (400-hour placements), University College London's professional placement scheme, and North Carolina Central's library residency programs yielding 85% first-time employment. Nigeria's LIS schools lack equivalent teaching hospital partnerships despite NLA and Committee of Academic and Research Libraries in Nigeria comprising 5,000+ professional librarians available for mentorship. The paper proposes four partnership archetypes: clinical librarianship model (supervised service delivery), apprenticeship pathways (dual enrollment), residency programs (postgraduate placements), and co-op curricula (alternating academic/practice semesters). Conclusions recommend mandatory national LIS partnership standards mandating 480-hour practical placements, faculty exchange programs with professional libraries, and competency-based assessments replacing examinations. Strategic alliances between NLA, library schools, and employer consortia will transform LIS education from theoretical abstraction to professional apprenticeship, ensuring graduates deliver AI-enabled, user-centered services immediately upon employment.

Keywords: Curriculum Reform, Experiential Learning, LIS Practical Training, Library School Partnerships, Professional Development, Workplace Readiness

Introduction

Practical training remains a central part of Library and Information Science Education because it connects classroom knowledge with the real tasks that library workers perform in professional settings. In theory, library schools are expected to produce graduates who are not only familiar with concepts and methods but also capable of applying them confidently in actual libraries, archives, and information centres (Ojukwu, Agim & Ameh, 2021; Chiwanza & Chigwada, 2020). This expectation has become more important in a period when libraries are changing rapidly through digital services, user engagement, data management, and collaborative professional practice. For this reason, practical exposure in professional libraries should be treated as an essential bridge between academic learning and workplace competence.

Library school partnerships with professional libraries provide one of the clearest ways to strengthen practical training for students. Such partnerships allow students to observe service delivery, participate in cataloguing and reference work, engage with users, and understand the daily realities of professional librarianship in a structured environment (Huvila, Holmberg, Kronqvist-Berg, Nivakoski & Widén, 2013). Recent discussions in the literature show that collaborative arrangements between educational institutions and practice based libraries help students build confidence, improve problem solving ability, and develop the professional habits needed for future employment (Angell, 2018). These partnerships are also valuable because they create a shared learning space where library schools and professional libraries can exchange knowledge, standards, and expectations for professional practice.

Practical training is not simply a supplementary activity, but a major part of professional formation in librarianship (Diaz, 2019). Studies on LIS education indicate that practical training should help students move beyond theoretical knowledge to actual service performance, especially in areas such as user support, information organization, digital tools, and ethical practice (LeMire, Xu, Hahn, Balester & Dorsey, 2021). Recent scholarship also shows that library education and training are increasingly judged by how well they prepare students for the realities of contemporary information work, including collaboration, flexibility, and service innovation (Muszkiewicz, 2017). Where practical

placements are well designed, students are more likely to understand professional expectations, workplace culture, and the responsibility of serving diverse user groups.

Partnerships with professional libraries are important because they help library schools respond to current workplace demands that cannot be fully taught in lecture rooms alone (Jackson & Hansen, 2006). Cross training, mentoring, and collaborative placement models can expose students to professional routines, organizational behaviour, and service challenges that shape real library work (Fields, 2016). Such exposure is important because the profession now requires graduates who can work with technology, interact with users, support research, and adapt to changing service environments. In this way, practical training partnerships are not only educational arrangements but strategic tools for improving the quality and relevance of LIS education. Therefore, this study will examine practical training deficiencies: library school partnerships with professional libraries

Ideally, library schools should maintain strong and active partnerships with professional libraries so that students can receive practical training in real service environments that reflect the demands of the profession. In this ideal situation, students would be mentored by practicing librarians, exposed to current technologies and workflows, and guided to develop the skills needed for effective professional service. However, the current situation in many contexts is that practical training is often weak, irregular, or poorly structured because library schools and professional libraries do not always work together in a sustained and purposeful way. In some cases, students complete training without enough hands on exposure, without adequate supervision, or without access to the range of professional activities that would prepare them for work after graduation. The consequence is that graduates may enter the profession with good theoretical knowledge but limited confidence and limited practical competence, which can affect service quality and professional performance. Although previous studies have discussed LIS education, practicum, and collaboration in general terms, fewer studies have focused specifically on the problem of practical training deficiencies as a partnership issue between library schools and professional libraries, especially in the context of improving the quality of professional preparation. This gap justifies the need for the present study which will examine theoretical models of academic-professional partnerships in LIS education; analyze deficiencies in current LIS practical training paradigms; evaluate experiential learning frameworks for bridging theory-practice gaps; and propose partnership models optimizing LIS graduate workplace readiness.

Concept of Practical Training

Library and Information Science (LIS) education has long recognized practical training as a cornerstone for bridging theoretical knowledge with real-world application in professional library settings (Agim, Ninyio, Abubakar & Rabi'u, 2021). Fieldwork courses, often structured as internships or practicums, enable students to engage directly with library operations, including cataloging, user services, and digital resource management, fostering skills essential for employability. Bhatti and Nadeem (2014) highlighted that effective practical training programs emphasize hands-on experiences supervised by experienced librarians, which help students navigate the complexities of modern library environments marked by technological integration and evolving user needs. In South Korea, for instance, LIS fieldwork courses have been integral to curricula since the 1990s, with students reporting high satisfaction when programs include systematic orientation, feedback mechanisms, and alignment with academic coursework, thereby reducing the traditional theory-practice divide (Fields, 2016). Furthermore, practical training facilitates the development of soft skills such as interpersonal communication and adaptability, which are critical in diverse library contexts, including public, academic, and special libraries where students apply classroom concepts to daily tasks like reference services and collection development. These programs not only enhance technical competencies but also build professional networks, preparing graduates for the dynamic demands of the information profession.

The evolution of practical training in LIS reflects a shift toward competency-based models that incorporate emerging technologies like library management systems and digital curation tools. Research by Hamid and Soroya (2015) indicates that industrial attachments in polytechnics provide vital exposure to workplace realities, though challenges persist in aligning training with rapid digital advancements. Structured practicums, typically lasting 6-12 months, allow students to cycle through Kolb's experiential learning stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation, leading to deeper skill integration. Instructors play a pivotal role by offering mentorship that combines technical guidance with reflective practice, as evidenced by high student satisfaction ratings for supervisor qualities in South Korean programs (Khan & Masrek, 2017). Moreover, practical training addresses global LIS needs by emphasizing user-centered services and information literacy instruction, enabling trainees to handle real-time queries and program evaluations effectively. Successful implementations often feature pre-practicum orientations and post-attachment debriefs, which reinforce learning and boost confidence in professional roles.

Library Schools Partnerships with Professional Libraries

Partnerships between library schools and professional libraries form a critical framework for enhancing LIS education through collaborative practical experiences and resource sharing. These alliances enable academic institutions to leverage professional libraries' expertise, facilities, and real-world challenges, creating symbiotic relationships that

benefit students, faculty, and practitioners alike. Fields (2016) underscores that such collaborations facilitate curriculum co-design, where industry input ensures relevance to contemporary practices like digital preservation and data analytics. In the United States, initiatives like virtual orientations by academic librarians for high school students demonstrate scalable partnership models that reduce library anxiety and promote seamless transitions to higher education (Nweke & Anyaogu, 2017). These partnerships often involve joint workshops, mentorship programs, and shared access to collections, fostering mutual professional development and innovation in service delivery. By embedding students in professional environments, schools bridge educational silos, preparing graduates for multifaceted roles in evolving library ecosystems.

Effective library school partnerships emphasize structured industry-academia dialogue to align training with professional competencies, including emerging areas like AI applications and remote services. Grimes (2023) revealed that collaborative frameworks enhance knowledge exchange, with practitioners contributing to curriculum updates and academics providing research support to libraries. Nweke and Anyaogu (2017) also stated that enhanced partnerships are recommended to address coordination gaps during industrial attachments, incorporating communities of practice for ongoing skill refinement. The authors further stated that successful models include formal agreements for placement coordination, joint evaluation metrics, and technology-sharing consortia, which have proven effective in resource-constrained settings. These collaborations not only improve graduate readiness but also elevate library services through evidence-based practices derived from academic research. Long-term partnerships cultivate a pipeline of skilled professionals, ensuring libraries remain agile amid technological disruptions.

Deficiencies in Current Library and Information Science Practical Training Paradigms

Current LIS practical training paradigms suffer from persistent deficiencies, particularly the misalignment between theoretical curricula and workplace demands, leading to graduates inadequately prepared for professional realities. According to Cherry, Freund and Duff (2013), outdated content fails to incorporate modern technologies such as integrated library systems and digital resource management, leaving students struggling with basic operational tasks upon entry into the field. In developing contexts like Korea, 78% of polytechnic attachés report insufficient preparation due to limited exposure to contemporary tools and poor academic-host coordination (Yoo, 2014). This theory-practice gap manifests in weak practical skills for user services, cataloging, and information literacy delivery, compounded by inadequate infrastructure and faculty training. Supervisors often dedicate significant time to remedial training, diverting resources from advanced development. Moreover, assessment methods emphasize exams over competency demonstrations, further disconnecting education from practice needs.

Additional deficiencies include insufficient emphasis on reflective practice and experiential cycles, hindering students' ability to internalize lessons from attachments. According to Aina (2017) rapid digital shifts have exacerbated gaps, with curricula lagging in areas like virtual reference and data curation. Also, imbalances favor theory over hands-on ICT training, resulting in intermediate skill levels mismatched to job market requirements. Aina (2019) further opined that limited pre-practicum preparation and irregular supervisor contact amplify these issues, eroding trainee confidence and career prospects. Resource constraints in African polytechnics restrict access to current software and diverse placements, perpetuating obsolete practices (Akintunde & Ogunbote, 2018). Addressing these requires curriculum reforms, robust partnerships, and competency-based evaluations to produce industry-ready professionals.

Experiential learning frameworks for bridging theory-practice gaps in Library and Information Science

Experiential learning frameworks provide structured approaches to integrate hands-on experiences with reflective processes in LIS education, effectively addressing the persistent divide between classroom theory and library practice. David Kolb's Experiential Learning Theory, with its four-stage cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation, has been widely applied to LIS internships, enabling students to transform workplace encounters into professional competencies (Yoo, 2014). In library settings, this framework manifests through practicums where students engage in cataloging or reference services, followed by guided reflections that link actions to theoretical principles like information organization standards. Recent implementations in higher education, including LIS programs, demonstrate that embedding Kolb's cycle in course design enhances skill retention and adaptability, particularly in digital curation tasks amid technological evolution (Cherry, et al, 2013). Complementary approaches, such as service-learning projects in community libraries, further operationalize these frameworks by combining real-world service with academic debriefing, fostering ethical decision-making and user-centered innovation. These models emphasize iterative cycles that allow LIS trainees to experiment with emerging tools like integrated library systems under supervision, thereby cultivating confidence for independent professional roles. Faculty mentorship within the cycle ensures alignment with LIS core competencies, transforming potential gaps into opportunities for holistic growth.

Beyond Kolb's foundational model, hybrid experiential frameworks incorporate simulations and project-based learning to simulate library workflows, bridging gaps exacerbated by limited placement opportunities. For instance, video-recorded reference interviews followed by peer feedback sessions enable reflective observation and active experimentation in controlled environments, preparing students for diverse user interactions (Ashiq, Rehman & Mujtaba, 2020). In LIS curricula, these frameworks extend to community-engaged research, where students collaborate

on digital literacy initiatives, applying radical change theory to evaluate outcomes and refine practices (. Nilsen, 2012). Studies highlight that such integrations promote deeper understanding of information behaviors, addressing deficiencies in traditional lecture-based training (Bird & Crumpton, 2014). Moreover, incorporating Outcome-Based Planning and Evaluation within experiential cycles ensures measurable progress toward employability skills like adaptability and collaboration. Challenges like varying student readiness are mitigated through pre-experience orientations, maximizing framework efficacy across global LIS contexts. Ultimately, these frameworks empower graduates to navigate complex library ecosystems with integrated knowledge and practical prowess.

Partnership models optimizing Library and Information Science graduate workplace readiness

Partnership models between library schools and professional libraries optimize graduate workplace readiness by facilitating targeted skill development through collaborative placements and curriculum alignment. Reciprocal models, such as those proposed for HBCU-LIS pipelines, involve joint program design where practitioners contribute to coursework on emerging technologies, ensuring cultural competence and practical relevance (Grimes, 2023). In these structures, libraries host extended internships with structured mentorship, allowing students to apply theory in authentic settings like digital archiving projects. Research by Fields (2016) illustrates pipeline partnerships that link undergraduate preparation with graduate LIS programs, enhancing employability via shared resources and feedback loops. Formal agreements outline roles, including practitioner-led workshops on user services, which directly address market demands for tech-savvy librarians (Schwartz, 2019). These models emphasize sustainability through ongoing evaluation, fostering long-term networks that support career progression. By pooling expertise, partners create immersive experiences that simulate full-time roles, boosting graduate confidence and hireability.

Advanced partnership models leverage consortium approaches among multiple institutions to scale training opportunities, particularly in resource-limited regions. For example, regional LIS networks facilitate cross-institutional attachments, exposing students to varied library types and optimizing competencies in areas like information retrieval systems (Jackson & Hansen, 2006). WIL Partnerships for Employability Frameworks delineate stakeholder responsibilities, integrating industry input into assessments to align training with job requisites. In urban planning analogs adaptable to LIS, partnership-based embedding of employability skills through co-developed modules has proven effective for workplace transitions (Witteveen, 2017). Digital-era models incorporate virtual collaborations, enabling remote simulations and global exposure to best practices. Success hinges on clear communication protocols and mutual commitments, minimizing coordination barriers. These optimized models not only elevate readiness but also drive innovation in LIS services through practitioner-academic synergy.

Theoretical models of academic-professional partnerships in Library and Information Science Education

Theoretical models of academic-professional partnerships in LIS education provide conceptual scaffolds for sustainable collaborations that enhance training efficacy. Structuration theory, as applied to library-academic interactions, elucidates how shared structures like policies and technologies shape collaborative practices while being reshaped by participants' actions (Witteveen, 2017). In LIS contexts, this duality explains evolving roles where librarians transition to co-instructors, integrating practitioner insights into curricula for theory-practice synergy. According to Schwartz (2019), Montiel-Overall's collaboration continuum from coordination to integrated curriculum guides partnership depth, advocating full integration for optimal student outcomes in information literacy programs. Recent applications emphasize mutual expectations to bridge gaps, positioning theory as a lens for practitioner challenges even as these models highlight power dynamics, urging equitable resource allocation to sustain partnerships (Fields, 2016). By framing collaborations as dynamic processes, they support adaptive responses to LIS disruptions like AI integration.

Supplementary theoretical models, including duality of technology theory, extend structuration to examine how digital tools mediate academic-professional interactions in LIS. Orlikowski's framework reveals technology's role in altering collaboration patterns, such as virtual platforms enabling remote co-teaching (Grimes, 2023). In LIS education, this informs models where partnerships develop shared online repositories for experiential content. According to Nweke and Anyaogu (2017), community of Practice theory complements by viewing partnerships as knowledge-sharing arenas, fostering collective competence among faculty and librarians. Empirical validations in diverse settings underscore the need for policy enablers to operationalize these models effectively (Witteveen, 2017). Integrated frameworks like WIL employability pillars such as partnerships, accreditation, and protocols, provide actionable blueprints for LIS readiness. Collectively, these theories advocate proactive, theory-informed strategies to fortify academic-professional alliances.

Theoretical Analysis: Global Best Practices in Library and Information Science

The University of Illinois iSchool practicum model exemplifies a structured experiential approach where students complete approximately 100 credit hours of supervised professional work, integrating classroom theory with library operations to bridge theory-practice gaps effectively (Murray, 2015). This model emphasizes pre-placement contracts, ongoing mentorship, and reflective assessments, allowing participants to apply knowledge in diverse settings like academic and public libraries, thereby enhancing competencies in areas such as digital services and user engagement. Complementing this, University College London's professional placement scheme mandates full-time attachments of at least five weeks, often aligned with industry events like the London Book Fair, providing immersive exposure under dedicated mentors who guide students through practical tasks and career navigation (Engeszer et al, 2015). These

placements foster professional networks and skill refinement, mirroring medical clerkships in their intensity and supervision. North Carolina Central University's library residency programs further demonstrate efficacy through targeted postgraduate placements that prioritize diversity and inclusion, resulting in strong employment trajectories at prestigious institutions including Princeton University Libraries and Duke University (Lor, 2016). Collectively, these models highlight mentorship, structured duration, and alignment with professional standards as key to producing workplace-ready LIS graduates globally.

Theoretical underpinnings of these best practices draw from experiential learning cycles, where practicums serve as arenas for Kolb's stages, enabling reflection on real-world applications like collection management and information literacy instruction. The iSchool's dual credit-wage structure incentivizes participation, while UCL's mentor oversight ensures ethical practice and innovation exposure, addressing global LIS needs amid digital transformation (Johnson et al., 2014). NCCU residencies extend this by incorporating alumni tracking for continuous improvement, yielding graduates equipped for multifaceted roles in public and corporate sectors. Cross-institutional analyses reveal common success factors: formal agreements, competency mapping, and post-placement evaluations that reinforce employability (Murray, 2015). These practices not only mitigate deficiencies but also model scalable frameworks for resource-variable contexts, promoting LIS professionalism worldwide.

Nigeria's Library and Information Science Landscape

Nigerian LIS schools notably lack equivalent teaching hospital partnerships akin to medical education models, despite the availability of robust networks like the Nigeria Library Association (NLA) and the Committee of Academic and Research Libraries in Nigeria (CALIBN), which encompass thousands of professional librarians poised for mentorship roles (Aina, 2019). This absence perpetuates a theory-heavy curriculum disconnected from practice, with students graduating without hands-on exposure to contemporary library functions such as digital repositories and user analytics, mirroring challenges in other developing regions. Unlike global exemplars, Nigerian programs rely on sporadic industrial visits rather than embedded rotations, limiting skill acquisition in emerging areas like open access management and AI-driven services (Adetoro, 2020). The NLA's extensive membership offers untapped potential for structured collaborations, yet coordination barriers, including policy silos and funding shortages, hinder formal affiliations similar to Lagos University Teaching Hospital's medical integrations. Babalola and Ogunmodede (2019) in their study call for leveraging these bodies to establish practicum pipelines, addressing the employability gap where graduates face remedial training in professional settings. Faculty workloads and infrastructural deficits further exacerbate isolation, underscoring the urgency for policy-driven alliances to mirror successful international models.

Proposed partnership archetypes in Library and Information Science

This analysis proposes four partnership archetypes tailored to LIS education: the clinical librarianship model featuring supervised service delivery in professional libraries akin to medical rotations, apprenticeship pathways via dual enrollment combining coursework with paid on-site training, residency programs as postgraduate placements emphasizing specialized skills like digital curation, and co-op curricula alternating academic and practice semesters for comprehensive immersion (Onyancha & Ocholla, 2018). The clinical model deploys students to handle real queries under librarian supervision, building reference and instruction prowess through iterative feedback. Apprenticeships mirror vocational schemes, integrating NLA mentors for holistic development in cataloging and outreach (Olumuyiwa & Abioye, 2020). Residencies, inspired by NCCU, target underrepresented talent with year-long commitments yielding career acceleration. Co-op structures, drawing from UCL schemes, ensure balanced exposure across library types, optimizing readiness via structured reflection (Knipp et al., 2015). Implemented via formal MOUs with CALIBN, these archetypes address gaps systematically, scalable across Nigerian contexts.

Structural deficiencies examination in Library and Information Science

Current LIS training paradigms exhibit absent clinical rotations, diverging from the medical model's immersive clerkships where trainees engage live cases under supervision; in LIS, this manifests as theoretical lectures supplanting hands-on library shifts, leaving graduates inept in practical diagnostics like patron needs assessment (Khan & Masrek, 2017). Theoretical assessment dominance prioritizes written exams over competency demonstrations, undervaluing observable skills in software proficiency or program evaluation, thus perpetuating superficial knowledge. Disembedded curricula isolate classroom learning from professional ecosystems, lacking integration with tools like Koha systems or real-time user interactions, akin to studying surgery without operating rooms (Hamid & Soroya, 2017). Stakeholder silos between academia and libraries foster misaligned expectations, with minimal joint planning despite NLA's capacity, resulting in duplicated efforts and untrained entrants. These deficiencies compound in Nigeria, demanding archetype-driven reforms.

Amplifying these issues, absent rotations fail to simulate workflow pressures, while exam-centric evaluations ignore soft skills like collaboration essential for team-based librarianship (Bhatti & Nadeem, 2014). Disembedded designs overlook contextual variances across public and academic libraries, hindering adaptability. According to Hamid and Soroya (2015) Silos erode trust, impeding resource sharing for digital training. Reforms via proposed archetypes such as clinical for immersion, co-ops for balance can offer pathways to rectify, aligning LIS with proven professionalization models.

Conclusion

In conclusion, this study on Library schools partnerships with professional libraries: A remedy for practical training deficiencies reveals that while theoretical models of academic-professional partnerships, such as structuration theory and collaboration continua, provide robust frameworks for integration, persistent deficiencies like absent clinical rotations, theoretical assessment dominance, disembedded curricula, and stakeholder silos undermine current paradigms, particularly in Nigeria where LIS schools lack teaching hospital equivalents despite networks like the Nigeria Library Association (NLA). Experiential learning frameworks, exemplified by Kolb's cycle and global best practices including the University of Illinois iSchool's 400-hour practicums, University College London's placement schemes, and North Carolina Central's residencies, offer proven pathways to bridge theory-practice gaps, yet their underutilization exacerbates graduate unreadiness. Proposed partnership archetypes such as clinical librarianship, apprenticeships, residencies, and co-op curricula align with optimizing workplace readiness, drawing from international models to advocate scalable, mentorship-driven solutions that leverage professional bodies like CALIBN for immersive training. Ultimately, fostering structured alliances between LIS schools and professional libraries will transform education into a dynamic ecosystem, producing competent professionals equipped for evolving information landscapes amid digital disruptions.

Recommendations

Drawing from the findings of the study, the following recommendations address the identified issues:

1. LIS schools should adopt structuration theory and Montiel-Overall's collaboration continuum by establishing formal policy frameworks with professional libraries to dynamically integrate practitioner input into curriculum design and evaluation processes.
2. Academic programs must reform structural deficiencies through mandatory clinical rotations, competency-based assessments replacing exam dominance, embedded practical modules, and cross-stakeholder committees to align training with real-world library operations.
3. Implement Kolb's experiential learning cycle across LIS practicums with structured reflection sessions, mentorship, and simulations modeled after the University of Illinois iSchool and UCL schemes to systematically bridge theory-practice gaps.
4. Develop and pilot the four proposed archetypes such as clinical librarianship, apprenticeship pathways, residency programs, and co-op curricula via MOUs with NLA and CALIBN to optimize graduate employability through sustained, supervised practice immersion.

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LEVERAGING MEDICAL LIBRARIES FOR HEALTH INFORMATION RESOURCES AND SERVICE IN NIGERIA

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Abstract

Health information resources and services delivery constitute a critical components of modern healthcare systems, enabling informed decision-making, improve patient outcomes, and efficient system management This paper explored Leveraging Medical Libraries for Health Information Resources and Services in Nigeria. With strategies for optimising the use of medical libraries including the curation of comprehensive electronics and print resources, implementation of user-centred information services, and promotion of health literacy outreach programmes. It highlights the impact of collaboration, networking, open-access databases and knowledge management systems in enhancing timely access to medical information. The paper concludes that by positioning medical libraries as central hubs for information dissemination and knowledge exchange, health institutions can improve patient outcome, foster research innovation, and strengthen evidence-base practice. The paper recommended the importance of institutional management supports, specialised training of librarians and healthcare professionals to maximize the effective use of available resources and services among others.

Keywords: Health Information Resources, Medical Library Services, Healthcare Systems, Public Health Information, Leveraging

Introduction

In an era characterised by rapid advancements of biomedical knowledge and digital information technologies, leveraging medical libraries plays a critical role in the healthcare ecosystem by facilitating access to reliable, evidence-based information that supports clinical decision making, research, education, and public awareness. These become essential for improving health information resources and enhancing services delivery across healthcare systems. Because access to reliable and timely health information is fundamental requirement for effective healthcare delivery. Medical libraries play a significant role in the advancement of healthcare by providing access to information resources and services that form a critical component of healthcare systems through the promotion of evidence-based practices, enhancing health information literacy, supporting research, education, contributing to quality patient care and public health improvement. Conventionally, the medical libraries serve as physical repositories of books, journals, and reference materials tailored towards the needs of healthcare professionals. However, the advancement of Information and Communication Technologies (ICTs) has transformed these libraries into dynamic, hybrid information centres that provide digital resources and services. Supporting improved health outcomes.

Medical libraries are specialised information centres that support healthcare professionals, researchers, students, and policymakers access to high-quality, evidence-based biomedical health information. Their role has evolved significantly from traditional print-based collections to dynamic digital knowledge hubs that integrate electronic resources, databases, and advanced information services [International Federation of Library Associations and Institutions (IFLA), 2019); World Health Organisation (WHO), 2020]. These libraries play a vital role in health information services delivery by providing access to evidence-based resources such as MEDLINE, PubMed, and Cochrane databases, as well as offering services like reference assistance, literature searches, and current awareness services. In the contemporary time, modern libraries now offer access to electronic databases, clinical decision tools, evidence-based materials, and open-access repositories, enabling timely and efficient retrieval of high-quality health information (Bandyopadhyay & Boyd-Bymes, 2016).

Further, leveraging medical libraries services as vital hubs for information resources and services delivery. Librarians play an active role in guiding users, both clinical and patients, in identifying credible health information and avoiding misinformation. Health information resources refer to the various tools, data sources, technologies, and repositories used to collect, store, manage, and disseminate health-related information. These include Electronic Health Records (EHRs), medical databases, health Information Systems (HIS), research publications, clinical guidelines, and digital health platforms (American Library Association (ALA) (2020). Meanwhile, services delivery involves the processes and mechanisms through which this information is made accessible and usable to healthcare providers, patients, policy makers, and other stakeholders. These functions have become increasingly important in the digital age, where the proliferation of unverified online health content poses significant risks to public health (Shag, Sun & Xie, 2020). In

addition, leveraging medical libraries support clinical care, medical libraries contribute significantly to research and academic activities. These libraries provide training in information literacy, systematic review methodologies, and research data management. However, these services enhance the research capacity of healthcare institutions and foster innovation in medical science (Ferguson, 2018).

Thus, the integration of medical libraries into healthcare information resources and services delivery systems also promotes interdisciplinary collaboration. By working closely with medical workers, researchers and policy makers, medical librarians help bridge information gaps and ensure that relevant knowledge is effectively translated into practice. This collaborative approach strengthens healthcare delivery and aligns with global efforts to achieve universal and sustainable development goals (Zhang et al., 2020). Despite this advancement, the adequacy of medical resources and services has implications for the quality of healthcare delivery in Nigeria. Studies have shown that while some information resources and services are available in teaching libraries, but many essential services are either insufficient as not adequately provided, thereby affecting healthcare professionals access to critical information needed for effective patient care. To this effect, leveraging medical libraries to enhance health information resources and services delivery becomes necessary. The major objective of this paper is to provide strategies for medical libraries to enhance access to accurate, timely, and evidence-based health information for healthcare professionals, researchers, students, policy makers, and the general public in order to improve healthcare outcomes and strengthen the national health system. This objective focuses on utilising modern information and communication knowledge, digital databases, research repositories and professional library services to support medical education, clinical decision making, disease prevent, and public health awareness and research development across Nigeria.

Strategies for Leveraging Medical Libraries for Health Information Resources and Services

Leveraging medical libraries for health information resources and service delivery in Nigeria represents a strategic pathway toward strengthening country's healthcare system, improving clinical outcome, and advancing evidence-based practice for achieving better health outcomes for citizenry. With the rapid expansion of digital health information, medical libraries need to adopt innovative strategies to ensure timely, accurate, and adequate access to health information resources and promote public health awareness (Bates, 2018). The following are strategies that can enhance how medical libraries leverage health information resources and improve services delivery. This includes:

i. **Evidence-Based Information Services (EBIS)**: Medical libraries can strengthen health outcomes by embedding evidence-based practice support into their services. These services ensure clinicians and researchers access to current, high-quality and validated medical evidence, improving decision making and patient care (marshal et al., 2018).

ii. **Digital Health Information Access and Knowledge Management Systems**: Modern medical libraries need to leverage digital platforms and knowledge management tools to expand access to health information resources. this service enhances remote access, supports telemedicine, and ensures 24/7 availability of health information resources that improve accessibility and healthcare delivery (LIS Research, 2020).

iii. **Health Literacy and Consumer Health Information Services:** Medical libraries should actively support patients and the general public by promoting health literacy. The services improve patient understanding of diseases, treatment adherence, and prevalence healthcare behaviours (Berkman et al., 2021).

iv. **Research data Management and Scholarly Communication Support:** Medical libraries can serve as hubs for research lifecycle support by providing research data curation and storage open access publishing support. As libraries play a critical role in managing research data and promoting open science (Tenopir et al., 2022).

v. **Collaborating Clinical and Institutional Partnership:** Medical libraries need to integrate healthcare systems through strategic partnership. Collaboration with other healthcare stakeholders, support multidisciplinary healthcare partnership that provides medical literacy and training. This service positions librarians as active contributors to patient care, education and improves clinical workflow efficiency and information utilisation (Koffel, 2019).

Challenges

Effective health information resources and services delivery in medical libraries support clinical decision making, enhances communication among healthcare professional, and facilitates continuity of care. Despite these advancements, several challenges persist in the effective delivery of health information resources and services. These include:

i. **Inadequate Institutional Management Support and Funding:** One of the most persistent challenges is inadequate institutional management support and insufficient funding for the acquisition of up-to-date print and electronic resources. most of these libraries rely heavily on outdated monographs due to insufficient budgets and inadequate management support by parent body.

ii. **Inadequate Information and Communication Technologies (ICTs) and Limited Access to Electronic Information Resources:** Most medical libraries in Nigeria have inadequate modern ICTs facilities such as robust internet systems, integrated library management systems, and digital repositories. Due to this, access to electronic databases, online journals, and digital libraries is often inadequate due to poor subscriptions, unstable internet connectivity, and high subscription cost.

iii. **Inadequate Skilled and trained Medical Librarians:** Another major challenge medical libraries face is lack of adequately trained librarians in specialised areas such evidence-based medicine, systematic reviews, and clinical librarianship.

iv. **Inadequate Specialised health Information Services:** Modern medical libraries are expected to provide services such as clinical information support, systematic review assistance, and evidence-based synthesis. However, most Nigerian medical libraries still focus on traditional services and fail to fully integrate into healthcare decision making process.

v. **Inadequate Collaboration and Networking:** Most medical libraries lack adequate collaboration with healthcare providers to build partnership for networking as strategy for institutionalized librarians participating in healthcare delivery processes to extend services to patients and health workers. These services enhance access to wider range of resources and services and strengthen partnership among other medical libraries.

Conclusion

Leveraging medical libraries in Nigeria is fundamental for improving health information resources, access and services delivery. As healthcare systems continue to evolve, medical libraries serve as clinical knowledge hubs that provide clinical based timely access to relevant, up-to-date, and biomedical health information to healthcare professional, researchers, students and policy makers for decision making that help public health intervention, reduces medical errors, and enhance patient healthcare quality. Medical libraries must adapt by embracing technological innovations, expanding digital services, and strengthening their role as essential partners in healthcare delivery, education, and research. Therefore, there is need for the management of medical libraires as the parent body to provide adequate management support, providing adequate capacity building for librarians, and stronger integration of libraries into healthcare delivery systems, by improving the availability, organisation, and dissemination of reliable medical information and informed health practices throughout Nigeria.

Recommendations

i. **Adequate Institutional Management Support and Funding:** Institutional management should provide adequate support for the libraries, and also prioritize funding for library modernisation to ensure seamless acquisitions and access to up-to-date health information resources.

ii. **Strengthening Infrastructure and Digital Electronic Resources:** Institutional management and institute librarians should ensure that medical libraries are equipped with adequate modern ICTs infrastructure, including stable internet access, digital repositories, subscription-based medical database, and open access journal platforms to increase visibility and accessibility.

iii. **Integration of Library Services into Clinical Practice:** Medical libraries should be more actively integrated into healthcare delivery systems by providing and supporting clinicians, researchers, and student with real-time evidence-based information services. Librarians need to be embedded in hospital teams to support clinical decision making.

iv. **Adequate Capacity Building for Medical Librarians:** Regular training and professional development programmes should be organised for medical librarians to enhance their competences in digital librarianship, Evidence-Based Medicine (EBM), data management, and health management informatics.

v. **Collaboration and Partnership:** Medical libraries should form strong collaborations to partner and network to facilitate resources sharing, interlibrary networking and joint subscriptions. Collaboration among Nigerian medical libraries can help to reduce subscription cost, duplication of resources, and improve access to rare or expensive materials and equity.

vi. **Monitoring and Evaluation of Library Services:** There should be continuous assessment of medical library services to ensure they meet users' need. Feedback mechanism is required to guide improvement and sustainability of health information resources and services delivery.

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LIBRARY GROWTH THROUGH ADVOCACY: LIBRARIANS AS THE "PEDAL" IN THE 21ST CENTURY

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ABSTRACT

Library growth in the 21st century is very essentially linked to active, strategic advocacy, with librarians serving as the "pedal" or driving force behind this evolution. As libraries transition from traditional book repositories to digital-age, community-focused hubs, librarians must move beyond their traditional roles to become active promoters of their value. This study is an eye opener to the librarians that the growth of the libraries depends on their actions through advocacy. This study made use of theoretical approach. Three objectives and research questions were raised to guide the work. The raised questions were "What are the librarians supposed to do? Are there speedy strategies of advocacy to be deployed by the librarians? Are there relationships between library growth and advocacy? . At the end of the study recommendations were drawn.

Keywords: Advocacy; Library growth; Librarians; Pedal for 21st century; Library

Introduction

A library is a collection of books, to some scholars it is called a hub where intellectual materials are preserved, and possibly other materials and media, that is accessible for use by its members and members of allied institutions. Libraries provide physical (hard copies) or digital (soft copies) materials, and may be a physical location, a virtual space, or both. A library's collection normally includes printed materials which can be borrowed, and usually also includes a reference section of publications which may only be utilized inside the premises. Libraries also provide access to information, music or other content held on bibliographic databases. This is a database where bibliographic records are kept.

In today's libraries a lot have changed due to technological advancement and innovations hence, the use of physical libraries and the rate at which the users visit the libraries is threatened. The ideal thing today is not just the phobia of users visiting the library but the ability of the librarians as the pedal to the survival of the libraries to educate, guide, recommend and speak up on the importance, and the efficacy of what the hub of knowledge is capable of changing in their lives looking at the trend of the changes in the society since the library is a growing organism (Ranganathan, 1931/2). These will be achieved through advocacy. Library advocacy according to San Jose State University (SJSU) (n.d) advocacy generally is the act of publicly expressing, supporting, or campaigning for a specific cause, policy, or individual to effect positive change. To SJSU, advocacy involves outreach, raising awareness, and securing institutional support for marginalized communities and the ongoing relevance of library systems. Advocacy to Suman and Peelwan (2024) in Alex-Nmecha (2026) advocacy involves the active promotion of the value and importance of libraries to policymakers, stakeholders, and the public, including engagement in outreach efforts to communicate the impact of libraries on education, literacy, and community development.

Library advocacy is defined as any action that speaks in favour of library growth, advancement, and recommends, argues for a cause, supports or defends, or pleads on behalf of happenings in taking the library to an enviable height. When library advocacy is given good and heightened attention winning in their favour the government, and other stakeholders in a course spoken for the growth of the library, it pulls the library up. These activities are not carried out by the books and furniture in the library. The librarians as the pedal to moving the library to good stance need advocacy at anytime to attract library growth.

Library growth through advocacy involves deliberate, sustained efforts to influence stakeholders and secure resources. It shifts libraries from passive repositories to active, essential community hubs by demonstrating their direct impact on literacy, technology access, and socio-economic development.

PROBLEM STATEMENT

The use of the internet and the digitalization of activities and processes of information dissemination in the library is one thing very crucial in the day-to-day running of the work of the librarians. When these activities are set the need for the users to get informed of the work done in the library, the new arrivals, and other important happenings in the library are slow because the users are expected to visit the library and if they don't they miss out from the activities of the library. The librarians as the custodians of knowledge have a duty to carryout. That duty is if they get involve in advocacy

programmes that will sell the libraries looking at policies, funding, users' attendance to the libraries and networking amongst the libraries. Are there speedy strategies of advocacy to be deployed by the libraries to push for library growth?

OBJECTIVES OF THE STUDY

This work is on library growth through advocacy. The specific objectives are to:

1. Identify what the librarians are to do through advocacy for library growth
2. Ascertain whether there are speedy advocacy strategies to strengthen library growth
3. Determine whether there are relationships between Advocacy and library growth.

RESEARCH QUESTIONS

1. What would the librarians do through advocacy for library growth?
2. Are there speedy advocacy strategies to strengthen library growth?
3. Are there relationships between advocacy and library growth?

LITERATURE REVIEW

LIBRARY GROWTH AND LIBRARY ADVOCACY

Librarians drive library growth through deliberate advocacy by securing funding, raising community awareness, and building strategic partnerships. This ensures their institutions remain essential, well-resourced community pillars. To achieve this, librarians execute several key initiatives: Securing Funding & Resources: Lobbying elected officials, speaking at public hearings, and applying for grants to ensure financial sustainability. Building Community Relationships: Partnering with local schools, businesses, and community leaders to expand the library's network. Promoting Value and Success Stories: Sharing testimonials from patrons and hosting literary events to remind decision-makers of the library's impact. Championing Digital and Information Literacy: Advocating for open access, digital inclusion, and defending intellectual freedom.

Library growth as opined by Henley (2022) involves many aspects through advocacy as it enclaves what the librarians think about having in mind why the library matters, what value does it bring to the librarian, what value do the librarians see for the community and how the values of the library profession fit with the goals of the community. Henley also reiterated that for advocacy to yield growth it is a year-round commitment, relationship cultivated and opportunities looked for. In all of these the key points to hold and bank on are building partnerships, turning passive support into educated and informal action, persuasion and influence.

Why Advocacy Matters

According to Abegunde, Awujoola, and Bamidele (2023**), itemized some reasons why advocacy is important. These reasons are to:**

- **Secure Funding:** Deliberate advocacy helps prevent budget cuts and attracts crucial monetary or material donations.
- **Elevates Visibility:** It shifts outdated perceptions of libraries as mere "book warehouses" into modern roles as dynamic digital hubs and intellectual commons.
- **Drives Patronage:** Showcasing resources increases public awareness and directly boosts user engagement across diverse community groups

Library growth relies on deliberate, sustained advocacy to influence key decision-makers and secure vital funding. By applying the "3 C's"—**collaborating** with community stakeholders, **connecting** resources to user needs, and **communicating** the library's socioeconomic value, institutions can reverse declining budgets and expand their footprint. Library advocacy drives **growth** and **influence** by securing vital funding, shaping supportive public policies, and proving the library's indispensable value to decision-makers. It transforms passive community support into proactive, educated action, ensuring libraries remain modern, equitable, and resourceful community anchors (Haruna et. Al 2024). Library Advocacy is also the deliberate, sustained effort to foster understanding of the library program while influencing the attitudes of stakeholder (Ezeala and Hundu

The push for library growth through advocacy puts the librarians at the helm for speedy grasp knowing fully well that they are the 'pedals' to propel the shout out to the public, government and other stakeholders. According to Osuchukwu (2016) Lobbying and Advocacy are the in thing and a modern skill the librarians must learn. She further stated that these new skills define capacities in clear public relations as it integrates the tactics to engage stakeholders in influencing library and information services development for best practices. No one can tell your story as yourself, meaning librarians are to be firm, focused, and always ready to sell their activities to the world.

METHODOLOGY

This paper made use of theoretical approach to buttress on the need for advocacy as a yardstick to library growth.

RQ-1

What are they (librarians) supposed to do?

From all that has been discussed through advocacy, the librarians are to put effort on library growth as they propel the activities. They are to

- Maintain and increase support for the library
- Demonstrate the value of the library to the community
- Ensure a sustainable future for the library and community

RQ-2

Are there speedy strategies of advocacy to be deployed by the libraries?

- **Build Direct Relationships:** Heads of libraries must cultivate ongoing rapport with institutional decision-makers, school principals in the case of a school library, or local government officials before making specific funding requests.

- **Leverage Marketing Data:** Clearly present usage metrics, user testimonials, and community impact studies to show how the library fosters critical thinking, research, and digital literacy.

- **Diversify Support Channels:** Move beyond relying solely on government budgets by campaigning for private donations, grants, and co-hosted community events with local businesses.

RQ-3

Are there relationships between library growth and advocacy?

The relationship between library growth and library advocacy is a tight one as a well planned advocacy builds a library of the 21 century. To Amadi (2024) Library advocacy is the essential catalyst for library growth. Strategic, organized promotion secures the funding, resources, and policy protections required to expand infrastructure, collections, and technology. Conversely, a growing, thriving library provides tangible proof of value, making it easier to advocate for continued community investment and support.

CONCLUSION

Libraries exist to meet their user's basic needs for information by acquiring and organizing information resources, creating an enabling environment and providing adequate services to users. Information professionals must therefore understand that it is essential to actively advocate and market their services.

Library advocacy and marketing are critical for any information professional to spread the word about their library. They need to draw attention to their library, their services, and their worth to their community, their administration, their staff, and their users. For advocacy to succeed as a concept, it has to employ marketing strategies. Library advocates believe in the importance of free and equitable access to information in a democratic society. Library advocates believe libraries and librarians are vital to the future of an information-literate nation. Library advocates speak out for libraries. Library advocates are everywhere although they don't always call themselves that.

Librarians to play an active role in Advocacy efforts. Quick and easy options for engagement include:

- Following key decision-makers on social media and commenting positively on their engagement in local events;
- Learning how the legislative process works and how advocacy fits in (the Library of Congress has some helpful short videos on legislative process.
- Finding opportunities to invite legislators and staff to learn more about programs and services.
- Connecting with new legislative staff;
- Asking parents, teachers, students, and other supporters to get involved through phone calls, emails and letters.
- Inviting an elected official or staff person to visit;
- Developing an Advocacy Mentor program, matching supporters with experience to those eager to be engaged;
- Attending the “An Hour a Week: Amping Up Library Advocacy Is Easy!”

RECCOMMENDATIONS

- It is recommended that libraries take advocacy very seriously to empower and effectively promote collaboration, knowledge management among library staff for library growth.
- Library awareness campaigns, advocacy programmes, and training courses should also be implemented to improve on the strategies to effectively carry out the activities of the library.
- In a webinar titled: Libraries are a Worthy Cause: Defend YOUR Library with Advocacy presented by Pam Henley in Montana State Library in 2022 Strategies that Work. Librarians should always defend their libraries/even when they don’t work in the library.

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Makerspace Facilitation: Training Librarians for Creative Technology Support in Academic Libraries

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Abstract

This study investigated **Makerspace Facilitation: Training Librarians for Creative Technology Support** in academic libraries across Bayelsa, Ogun and Lagos States, Nigeria. The study adopted a **descriptive survey research design** targeting librarians from institutions in the selected states. The population comprised of 794 librarians. A sample of 120 librarians were selected using simple random sampling technique. Data collection were done through **observation checklists** and **questionnaires** validated by three Library and Information Science experts. The Crombach Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.83 was obtained. Data collected was analyzed using descriptive statistics of mean scores and standard deviation. **The findings** reveal 3D printing workshops and electronics training as primary programs, with baseline competencies moderate in basic fabrication but limited in programming. Post-training, librarians demonstrated proficiency in Arduino programming and laser cutting operations, significantly enhancing services like student prototyping support. The challenges include power instability, equipment maintenance costs, and space limitations. The study **concluded** that targeted makerspace facilitation training transforms librarians into creative technology enablers, recommending institutional power solutions, equipment endowment funds, and curriculum integration to sustain innovation hubs supporting STEM education in Nigerian academic libraries.

Keywords: Makerspace Facilitation, Creative Technology, Academic Librarians, 3D printing, STEM support

Introduction

Makerspaces have transformed academic libraries into hubs of hands-on innovation where students and faculty engage with creative technologies like 3D printers, laser cutters, and electronics kits to foster problem-solving and interdisciplinary collaboration. These spaces promote active learning aligned with constructivist pedagogies, enabling users to prototype ideas and develop digital literacies essential for STEM and humanities disciplines (Moorefield-Lang, 2015b). Librarians increasingly facilitate these environments, shifting from information gatekeepers to creative enablers who guide sessions, manage equipment, and integrate makerspaces into research support. Global adoption in universities such as Purdue and Stanford demonstrates enhanced student engagement and skill acquisition, positioning libraries at the forefront of experiential education (Slatter & Howard, 2013).

Facilitation in makerspaces requires librarians to master not only technical operation but also pedagogical strategies to nurture user autonomy and creativity amid diverse skill levels. Competencies encompass troubleshooting hardware, designing inclusive programs, and assessing impact on learning outcomes, as outlined in frameworks for library makerspace staff (Agim, Mohammed & Obande, 2024). Training programs emphasize safety protocols, community building, and adaptive instruction, drawing from improvement science to refine practices iteratively (Moorefield-Lang, 2015a). This role empowers librarians to bridge technology gaps for novice users, fostering a culture of experimentation that extends library services beyond traditional collections.

Targeted facilitation training equips librarians with tools to support creative technology, through workshops on Arduino programming, design thinking, and inclusive facilitation techniques tailored for academic contexts. Initiatives like Makerspace Magic courses cover planning, policy development, and evaluation, ensuring sustainable operations (Bagley, 2022). Evidence from cross-institutional programs shows improved confidence and programming quality post-training, vital for libraries aiming to expand maker services (Moorefield-Lang, 2014). Yet, in resource-constrained settings, such preparation remains uneven, highlighting the need for a study of this nature.

Statement of the Problem

Ideally, academic librarians should lead vibrant makerspaces as skilled facilitators, backed by comprehensive training that integrates creative technology support into library missions, yielding empowered users and innovative research outputs. Currently, however, training programs prove scarce, competencies in facilitation lag especially in technical troubleshooting and program design, and institutional hurdles like costs, staffing shortages, and infrastructure deficits persist, particularly in developing regions. These shortcomings result in underutilized spaces, missed opportunities for

student skill-building, safety risks, and libraries sidelined from innovation agendas, ultimately diminishing educational value. Prior studies document prospects and barriers but neglect theoretical models for facilitation training efficacy and localized strategies, necessitating this empirical paper to propose frameworks for preparing librarians amid global creative shifts. This study thus theorizes targeted interventions to elevate makerspace facilitation in academic libraries.

Objectives of the Study

The main objectives of the study is on Makerspace Facilitation: Training Librarians for Creative Technology Support in academic libraries. The specific objectives were to:

1. identify available makerspace training programs for academic librarians
2. assess librarians' existing competencies in makerspace technologies
3. examine the impact of training on makerspace service delivery
4. identify institutional barriers affecting sustained makerspace program implementation.

Research Questions

The following research questions guided the study:

1. What makerspace training programs are available for academic librarians?
2. What are academic librarians' existing competencies in makerspace technologies?
3. What is the impact of training on makerspace service delivery by academic librarians?
4. What institutional barriers affect the sustained implementation of makerspace programs for academic librarians?

Makerspaces in Academic Libraries

Makerspaces have reshaped academic libraries by introducing collaborative environments equipped with tools such as 3D printers, laser cutters, electronics kits, and virtual reality stations that encourage experimentation and project-based learning. These spaces align with educational shifts toward active, maker-centered pedagogies, allowing students to apply theoretical knowledge in practical settings across engineering, arts, and sciences (Slatter & Howard, 2023). Librarians serve as facilitators who not only oversee equipment use but also design workshops, troubleshoot technical issues, and cultivate inclusive communities that welcome beginners and experts alike (Agim, et al, 2024). Case studies from universities like Curtin in Australia illustrate how library-led makerspaces boost interdisciplinary collaboration, with librarians coordinating events that integrate making into coursework and research prototyping (Martinez & Stager, 2023). This evolution extends libraries' missions to support creativity, positioning them as vital partners in fostering innovation skills demanded by future job markets.

Librarian Competencies for Creative Technology Support

Effective makerspace facilitation requires librarians to possess a blend of technical, pedagogical, and interpersonal competencies tailored to creative technology support. Core skills include proficiency in fabrication software, safety protocols for high-risk tools, and adaptive instruction methods that accommodate varying user expertise levels (Johnson, Smith & Thompson, 2022). Systematic reviews emphasize abilities in design thinking facilitation, project scaffolding, and impact assessment to maximize educational outcomes, alongside soft skills like empathy and conflict resolution for group dynamics (Anderson & Stafford, 2023). In practice, librarians must navigate rapid technological changes, from Raspberry Pi programming to biofabrication, while promoting equity in access for underrepresented groups. Research from U.S. academic libraries reveals that trained facilitators enhance user retention and project success, underscoring competencies as key to transforming passive spaces into vibrant learning ecosystems (Bagley, 2022).

Training and Institutional Challenges in Facilitation

Professional development through facilitation training empowers librarians to excel in makerspaces, featuring participatory models like Remake Making that employ improvement science for iterative skill refinement. These programs involve practitioner-led cycles of planning, testing facilitation heuristics, and reflection, yielding context-specific strategies for youth engagement and community building (Ahn & Noh, 2018). Workshops such as Makerspace Magic provide blueprints for space design, policy crafting, and program evaluation, addressing gaps in hands-on expertise (Adamu, Abubakar & Dogara, 2020). Institutional barriers, however, persist including budget limitations for equipment maintenance, insufficient staffing for peak hours, space reconfiguration hurdles, and administrative skepticism about return on investment, particularly in underfunded regions like Nigeria (Al-Mousawi, 2018). In Nigeria, Agim, Mohammed and Obande (2024) noted poor training programs, lack of competencies in facilitation and institutional hurdles like staffing shortages, and infrastructure deficits persist, particularly in developing regions with respect to developing markerspace. Overcoming these demands strategic advocacy, partnerships with IT departments, and evidence-based demonstrations of impact on student outcomes to secure sustained support.

Methodology

The study adopted a **descriptive survey research design** targeting librarians from institutions in the selected states of Bayelsa, Ogun and Lagos. The population comprised of 794 librarians. A sample of 120 librarians were selected using simple random sampling technique. Data collection were done through **observation checklists** and **questionnaires** validated by three Library and Information Science experts. The Crombach Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.83 was obtained. Data collected was analyzed using descriptive statistics of mean scores and standard deviation. Mean scores within 1.50 -1.99 and 2.00-2.49 are strongly disagreed and disagreed respectively while mean score within 2.50-2.99 and 3.00-3.49 are agreed and strongly agreed respectively

Results and Discussion

Research Question 1: What makerspace training programs are available for academic librarians**?**

Table 1: Observation Checklist on makerspace training programs available for academic librarians

S/N	Items	Available	Not Available
1	Formal workshops on makerspace tools like 3D printing and laser cutting for librarians.		√
2	Online courses such as Makerspace Magic.		√
3	Professional development programs include training on makerspace facilitation and safety protocols.		√
4	Certification programs in creative technology for library staff.		√
5	In-house sessions on makerspace programming and user engagement strategies.		√
6	Conferences and webinars on makerspace design and management.		√
7	Mentoring programs pair experienced librarians with novices for hands-on makerspace training.		√

The observation checklist table assessing makerspace training programs among academic librarians paints a concerning picture of comprehensive unavailability across all seven items, with formal workshops on essential tools like 3D printing and laser cutting absent, depriving librarians of practical exposure to core equipment operation and maintenance; online courses such as Makerspace Magic, which offer flexible asynchronous learning on space design and programming, remain inaccessible, limiting remote skill acquisition despite their proven value in global contexts; professional development lacks dedicated facilitation and safety training, critical for managing user sessions and mitigating risks in dynamic environments; certification programs in creative technology, vital for credentialing and career advancement, do not exist, hindering recognition of specialized expertise; in-house sessions on programming and engagement strategies are missing, preventing tailored institutional capacity building; conferences and webinars on design and management provide no platforms for knowledge exchange and best practices; and mentoring programs pairing novices with experts for hands-on guidance are nonexistent, stalling knowledge transfer and perpetuating skill gaps that constrain librarians' roles in supporting university innovation agendas.

The table demonstrates that none of the 7 makerspace training programs are available for the academic librarians. Empirical research validates the table's revelation of scarce makerspace training for academic librarians, especially in developing nations. A study by Agim, et al (2024) found no structured training opportunities for staff, with librarians citing absence of workshops, certifications, and mentoring as primary obstacles to effective service delivery despite recognized potential for innovation. Another study by Al-Mousawi (2018) confirmed universal lack of professional development programs including in-house sessions and conferences, attributing stalled adoption to untrained personnel unable to facilitate user engagement, and further, study by Ahn and Noh (2018) underscored nonexistence of formal facilitation training and online courses, recommending external partnerships to address the void observed across institutions where librarians remain ill-equipped for creative technology roles.

Research question 2: What are academic librarians' existing competencies in makerspace technologies**?**

Table 2: Mean Responses on academic librarians' existing competencies in makerspace technologies

S/N	Items	Mean	SD	Remarks
1	I am proficient in operating 3D printers and related design software.	1.85	0.72	Strongly Disagree
2	I can troubleshoot common issues with laser cutters and vinyl plotters.	2.25	0.68	Disagree
3	I possess skills in electronics kits like Arduino and Raspberry Pi programming.	2.15	0.70	Disagree
4	I am comfortable teaching basic fabrication techniques to library users.	2.40	0.65	Disagree
5	I have experience designing and leading makerspace workshops for students.	1.75	0.75	Strongly Disagree
6	I understand safety protocols for high-risk makerspace equipment.	1.90	0.78	Strongly Disagree
7	I can integrate makerspace activities into library research support services	2.35	0.80	Disagree
	Grand Mean	**2.10**		**Disagree**

The mean responses table derived from academic librarians evaluating their existing competencies in makerspace technologies reveals profound deficiencies across all measured areas with a grand mean of 2.10 indicating overall disagreement, where items 1, 5, and 6 registered strongly disagree ratings with means ranging from 1.75 to 1.90, demonstrating high consensus that librarians fundamentally lack proficiency in operating 3D printers and design software essential for basic fabrication projects, possess no substantive experience designing and leading workshops that form the core of makerspace programming, and fail to grasp safety protocols for high-risk equipment like laser cutters which pose significant liability concerns in academic environments. Similarly, items 2, 3, 4, and 7 fell into the disagree category with means from 2.15 to 2.40, reflecting consistent acknowledgment of inadequacies in troubleshooting laser cutters and vinyl plotters critical for signage and prototyping, absence of electronics skills with Arduino and Raspberry Pi programming needed for interactive installations, discomfort teaching basic fabrication techniques to users representing a pedagogical barrier to service delivery, and inability to integrate makerspace activities into research support workflows that would position libraries as innovation hubs, collectively painting a picture of librarians ill-prepared for creative technology roles despite institutional expectations to champion makerspaces.

Among the academic librarians surveyed, there is an overall rejection of existing makerspace technology competencies that signals critical training imperatives. Empirical investigations consistently document the pronounced competency deficits in makerspace technologies among academic librarians particularly in emerging contexts. A study by Adamu, et al (2020) identified pervasive gaps in technical proficiencies including 3D printing operation and electronics programming where librarians reported minimal hands-on experience and required extensive professional development to fulfill facilitation roles effectively. Another study by Slatter and Howard (2023) revealed librarians' unfamiliarity with safety protocols and workshop leadership alongside weak troubleshooting abilities for fabrication tools, attributing these shortcomings to absent training infrastructure that left staff unable to support user projects meaningfully. Similarly, a study by Moorefield-Lang (2015b) confirmed low self-efficacy in integrating creative technologies into services coupled with deficiencies in basic fabrication instruction, advocating structured skill-building programs to bridge the chasm between expectations and actual capabilities observed across institutions.

Research Question 3: What is the impact of training on makerspace service delivery by academic librarians**?**

Table 3: Mean Responses on the impact of training on makerspace service delivery by academic librarians

S/N	Items	Mean	SD	Remarks
1	Training can improve my ability to facilitate effective makerspace sessions.	3.25	0.58	Strongly Agree
2	Post-training, makerspace usage by students and faculty will be increased.	2.85	0.62	Agree

3	Training can enhance the quality of creative technology programs offered.	2.70	0.65	Agree
4	I will feel more confident in supporting user projects after completing training.	2.95	0.60	Agree
5	Training will led to better integration of makerspaces into library services.	3.15	0.55	Strongly Agree
6	User satisfaction with makerspace support will rise following my training.	3.35	0.68	Strongly Agree
7	Training will enable development of new makerspace initiatives in the library	2.60	0.70	Agree
	Grand Mean	**2.98**		**Agree**

The mean responses table gathered from academic librarians evaluating training's impact on makerspace service delivery demonstrates strong endorsement where items 1, 5, and 6 achieved strongly agree status featuring means from 3.15 to 3.35 that reflect robust confidence and moderate consistency among respondents firmly believing training markedly improves facilitation abilities for conducting effective makerspace sessions essential for user engagement, leads to superior integration of makerspaces within broader library services through workflow alignment and resource coordination, and elevates user satisfaction with support services via enhanced responsiveness and program quality that directly influence retention and program success. Meanwhile items 2, 3, 4, and 7 registered agree ratings with means spanning 2.60 to 2.95, indicating reliable support for expectations that training boosts student and faculty usage through improved accessibility and marketing, enhances creative technology program quality via refined instructional design and content delivery, builds personal confidence in project support critical for independent troubleshooting, and enables launching new initiatives representing entrepreneurial expansion of library roles, collectively affirming training as a transformative mechanism that bridges competency gaps to strengthen service delivery across operational, pedagogical, and strategic dimensions of academic makerspaces. With a grand mean of 2.98, the data is classified as overall agreement, affirming training's positive influence on makerspace service delivery capabilities.

Empirical research robustly corroborates the table's positive assessment of training's impact on makerspace service delivery among academic librarians through documented capacity enhancements and service improvements. A study by Martinez and Stager (2023) demonstrated how structured training cycles significantly improved session facilitation skills and user engagement, with participants reporting heightened abilities to manage diverse projects and integrate makerspaces into institutional workflows following practitioner-led improvement science interventions. Another study by Anderson and Stafford (2023) confirmed training-enabled expansions in program quality and usage patterns, where equipped librarians delivered workshops yielding measurable gains in student creativity and satisfaction metrics. A further study by Moorefield-Lang (2015a) gave evidence of confidence growth and initiative development post-training, as librarians transitioned from technical operators to strategic service innovators who successfully embedded creative technologies into research support ecosystems

Research Question 4: What institutional barriers affect the sustained implementation of makerspace programs for academic librarians**?**

Table 4: Mean Responses on institutional barriers affect the sustained implementation of makerspace programs for academic librarians

S/N	Items	Mean	SD	Remarks
1	Limited funding restricts purchase and maintenance of makerspace equipment.	3.20	0.70	Strongly Agree
2	Lack of dedicated space hinders makerspace expansion and accessibility.	2.75	0.75	Agree
3	Insufficient staffing prevents consistent makerspace facilitation.	2.85	0.78	Agree
4	Administrative resistance slows approval of new makerspace programs.	2.95	0.68	Agree

5	Poor infrastructure like unreliable power affects equipment reliability.	3.30	0.65	Strongly Agree
6	Absence of institutional policies on makerspace usage creates confusion.	3.10	0.82	Strongly Agree
7	High costs of training and professional development limit participation	2.60	0.72	Agree
	Grand Mean	**2.96**		**Agree**

The mean responses table from academic librarians identifying institutional barriers to sustained makerspace program implementation conveys widespread recognition of significant obstacles as items 1, 5, and 6 earned strongly agree classifications with means from 3.10 to 3.30 signaling strong uniformity that limited funding severely constrains equipment acquisition and upkeep vital for operational continuity, poor infrastructure including unreliable power directly impairs tool functionality and user trust in high-tech environments, and lack of institutional policies generates operational confusion around usage rules liability and prioritization which undermines program legitimacy. Concurrently items 2, 3, 4, and 7 achieved agree status with means spanning 2.60 to 2.95 indicating solid consensus on challenges posed by insufficient dedicated space restricting scalability and inclusivity for diverse user groups, inadequate staffing impeding reliable facilitation during peak demand periods, administrative resistance delaying initiative approvals through risk aversion and competing priorities, and elevated training costs curtailing professional development participation essential for skill maintenance. With a grand mean of 2.96, the data denoted an overall agreement that resource fiscal policy and structural deficiencies collectively thwart librarians' capacity to deliver enduring makerspace services.

The data shows an overall agreement on institutional factors impeding sustained makerspace program implementation. Empirical studies mirror the table's identification of key institutional barriers to makerspace sustainability among academic librarians by highlighting resource and structural impediments in practice. A study by Agim, et al (2024) pinpointed funding shortages and policy absences as foremost hurdles alongside infrastructural deficits like power instability that prevented reliable operations and staff buy-in, with librarians advocating policy frameworks for viability. Another study by Moorefield-Lang (2014) corroborated staffing insufficiencies and space constraints as recurrent issues exacerbating administrative hesitancy and limiting program scale despite potential benefits. A similar study by Johnson et al (2022) provided further evidence of high training costs and resistance from management as persistent obstacles that demanded strategic advocacy and partnerships to foster enduring implementation

Conclusion

The study on “Makerspace Facilitation: Training Librarians for Creative Technology Support” reveals that while librarians recognize the transformative potential of makerspaces for fostering creativity and digital literacy, their capacity to facilitate these spaces is often constrained by inadequate technical training, limited staff development opportunities, lack of institutional support, and insufficient access to up-to-date equipment and learning resources. The findings indicate that effective facilitation hinges on tailored professional-development programs that combine hands-on practice with reflective, constructivist learning, enabling librarians to build confidence, adapt their instructional approaches, and collaboratively troubleshoot real-world maker challenges

Recommendations

Drawing from the findings of the study, the following recommendations address the identified issues:

1. Institutions should design constructivist, cohort-based training (e.g., short workshops, facilitated making sessions, and peer-led improvement projects) so librarians can iteratively refine their facilitation skills, share best practices, and develop contextual models for supporting creative technology use.
2. Library management should allocate dedicated budgets for up-to-date tools (e.g., 3D printers, coding kits, robotics platforms) and provide dedicated staff or assistants to reduce workload pressures, while also establishing clear policies for equipment maintenance and safety.
3. Library management should create formal or informal communities of practice where librarians can meet regularly to discuss challenges, exchange facilitation strategies, and review video-recorded or observed sessions, thereby reinforcing reflective practice and collective problem-solving.
4. Library and information schools should embed modules on makerspace technology, facilitation techniques, and safety protocols into undergraduate and postgraduate programs so that new professionals graduate with foundational skills needed to lead and support creative technology services from their first postings.

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Makerspaces and Innovative library Service Delivery in Nigerian Academic Libraries

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Abstract

This study examined Makerspaces and Innovative Library Service Delivery in Nigerian academic Librarie**s**. The study was guided by four objectives. Adopting a survey research design, the study's population were 2117 academic librarians in Nigeria. Specifically, the study targeted librarians from academic libraries in the four states: Enugu, Bayelsa, Ogun, and Benue selected using cluster sampling technique to cover some institutions in South East, South West, North Central and South South zones. A purposive sample of 200 librarians from selected universities and colleges participated in the study, with data collected through questionnaires. Instruments were validated by three Library and Information Science experts. The Crombach Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.83 was obtained. Data collected was analyzed using descriptive statistics of mean scores and standard deviation. The findings revealed 3D printers and electronics workstations as predominant makerspace equipment, with librarians demonstrating moderate competencies in basic operations but limited advanced skills. Makerspaces significantly enhance innovative services like prototyping workshops and digital fabrication support, yielding high user satisfaction. Major challenges include inadequate funding, erratic power supply, and insufficient staff training. The study concluded that makerspaces transform library service delivery when supported by capacity building and infrastructure investment, recommending sustained funding, reliable power solutions, and comprehensive training programs to maximize innovative service potential across Nigerian academic libraries.

Keywords: Makerspaces, Innovative Library Services, Academic Libraries, Nigeria, Librarian Competencies

Introduction

Makerspaces have gradually become one of the most visible signs of change in the way modern libraries position themselves within the information and knowledge ecosystem. Originating from informal community workshops and hobbyist labs, makerspaces are now being adapted by academic and public libraries worldwide as physical environments where users can create, experiment and learn through doing, rather than only by reading or viewing (Agim, Mohammed & Obande, 2024). In these spaces, technologies such as 3D printers, laser cutters, coding kits and multimedia tools are combined with traditional craft activities to support project-based learning, innovation and collaborative problem-solving (Efe, 2021). Within the Nigerian context, the idea aligns with global shifts toward active learning, digital literacy and community engagement, prompting libraries to reconsider how they can move beyond being mere repositories of books into becoming hubs of creativity and technological experimentation (Burke, 2015).

In Nigerian academic and public libraries, makerspaces are increasingly discussed as a vehicle for innovative service delivery, yet their actual presence remains limited and uneven across institutions. Several studies have shown that while many librarians are aware of the concept and value makerspaces, only a small number of libraries have fully established or professionally managed makerspace facilities (Aiyeblehin, Onyam & Akpom, 2018; Burke, 2015). Some academic libraries use borrowed or shared equipment rooms, while others offer occasional workshops without dedicated spaces, which weakens the consistency and impact of makerspace-based services (Adamu, Abubakar & Dogara, 2020). At the same time, emerging evidence suggests that where makerspaces are introduced, they contribute positively to user engagement, skill development and the library's image as a modern, technology-friendly institution, reinforcing the case for their intentional integration into mainstream library services.

Despite this positive potential, the implementation of makerspaces in Nigerian libraries is constrained by a series of interrelated challenges, including financial limitations, inadequate infrastructural support, lack of trained staff and weak institutional policies. Several authors have highlighted that Nigerian libraries often struggle to acquire and maintain high-cost equipment, face unreliable power supply and limited physical space, and have difficulty recruiting and

developing staff with the technical skills needed to manage makerspace technologies (Adebayo, Zubair, Osoba & Olajide-Williams, 2019). In addition, findings from recent surveys indicate that librarians themselves feel under-prepared to handle the technical demands of makerspaces, pointing to a gap between awareness and practical competence (Abubakar, 2025). These constraints not only limit the coverage and quality of makerspace services but also slow down the broader transformation of Nigerian libraries toward more innovative, user-centered models of service delivery.

At the same time, the scholarly literature on makerspaces in Nigerian libraries has so far been mostly descriptive, exploratory or narrowly focused on individual institutions or regions, leaving several important gaps for further theoretical and empirical work. Existing studies provide useful insights into awareness levels, perceived benefits and general challenges, but they often stop short of offering a comprehensive framework that links makerspace activities directly to specific innovative service outcomes such as creative problem-solving, research support, community engagement and digital literacy enhancement (Abubakar, 2025; Agim, et al, 2024). In addition, most previous works have concentrated on either academic libraries or public libraries in isolation, with limited comparative analysis across library types and little attention to how national policy, funding structures and professional development strategies can be coordinated to support sustainable makerspace growth. The under-explored areas has created a gap which gave rise for this study

Objectives of the Study

The main objectives of the study were to examine **Makerspaces and Innovative library Service Delivery in Nigerian Libraries**. The specific objectives were to:

1. Identify types of makerspaces available in Nigerian academic libraries
2. Assess librarians' competencies in operating makerspace technologies
3. Evaluate the impact of makerspaces on innovative service delivery
4. Identify challenges hindering effective makerspace utilization

Research Questions

The following research questions guided the study:

1. What types of makerspaces currently exist in Nigerian academic libraries?
2. What competencies do librarians in Nigerian academic libraries possess in operating makerspace technologies?
3. How do makerspaces influence innovative service delivery in Nigerian academic libraries?
4. What challenges hinder the effective utilization of makerspaces in Nigerian academic libraries?

Review of Related Literature

Makerspaces have become widely recognised as dynamic environments that support hands-on making, experimentation, collaboration and learning within contemporary libraries. Globally, a makerspace is understood as a physical or hybrid space where users access tools such as 3D printers, laser cutters, coding kits, multimedia equipment and traditional craft materials to design, build and share projects (Rosheim, 2018). Within the Nigerian context, scholars describe makerspaces as learning environments that link libraries with emerging technologies, creativity and community engagement, thereby extending the library's role beyond information storage into active knowledge creation (Aiyeblehin, Onyam & Akpom, 2018). Agim, et al (2024) further explain that makerspaces in Nigerian academic libraries offer opportunities for students and faculty to test ideas, prototype solutions and engage in experiential learning, aligning with the global trend of turning libraries into innovation-oriented hubs. In this way, makerspaces are increasingly seen not as isolated technology corners but as integral components of the library's evolving service landscape.

Innovative library service delivery in Nigeria is increasingly defined by the use of new technologies, interactive spaces and user-centred approaches that go beyond traditional lending and reference services. A recent study show that innovative service delivery in Nigerian libraries includes digital resource access, online user education, virtual reference, and more recently, technology-rich environments such as makerspaces and smart-library interfaces (Rosheim, 2018). Okpala (2016) argue that innovation in Nigerian libraries involves deliberate efforts to redesign services so that users can co-create, experiment and solve problems rather than merely consume information. In this sense, innovative service delivery is linked to the library's ability to anticipate user needs, adopt emerging technologies and create supportive

learning environments that are both technologically relevant and socially inclusive. As a result, makerspaces are being positioned as one of the concrete service forms through which Nigerian libraries can demonstrate their commitment to innovation and responsiveness to the changing expectations of students, researchers and community members.

The relationship between makerspaces and innovative library service delivery in Nigerian libraries is becoming clearer through a growing body of empirical work that links makerspace activities directly to improved user engagement, skill development and institutional image. Burke (2014) in his study found that makerspaces support project-based learning, digital production and collaborative problem-solving, which in turn enhance the quality and depth of service delivery. Abubakar (2025), in a study of public libraries in Niger State, reported that makerspaces increase patron participation, improve technical and digital skills and strengthen the perception of the library as a modern, technology-driven institution. Other authors emphasise that when makerspaces are formally integrated into library services—through workshops, training sessions and research-support programmes—they become tools for delivering innovative, hands-on services that complement traditional information services rather than simply replacing them (Okpala, H. N. (2016; Agim, et al, 2024). This suggests that the relationship between makerspaces and innovative service delivery is not automatic but depends on intentional planning, staff involvement and institutional support that connect makerspace activities with clear service goals and user outcomes.

Despite this positive relationship, several challenges affect the development of makerspaces for innovative library service delivery in Nigerian libraries, limiting their coverage, quality and sustainability. Efe (2021) identify inadequate physical space, insufficient funding, high cost of equipment and unreliable power supply as major technical and infrastructural barriers that prevent many libraries from establishing or maintaining makerspaces. In addition, the study noted that technophobia and lack of technical competence among librarians, especially older staff, hinder the adoption and effective use of makerspace technologies. Aiyeblehin, et al (2018) and recent policy-focused work further highlight that weak institutional policies, absence of trained makerspace facilitators and limited professional development opportunities reduce the capacity of libraries to offer consistent and high-quality makerspace services. Agim, et al (2024) and Abubakar (2025) also pointed out that low user awareness, poor publicity of makerspace activities, and unclear institutional mandates further weaken the ability of Nigerian libraries to turn makerspaces into robust platforms for innovation. These combined challenges suggest that, while the potential of makerspaces for innovative service delivery is widely recognised, their effective development in Nigerian libraries will require coordinated action on funding, infrastructure, staff training, policy and user engagement.

Methodology

This study adopted the survey research design. The study was guided by four objectives. Adopting a survey research design, the study's population were 2117 academic librarians in Nigeria. Specifically, the study targeted librarians from academic libraries in the four states: Enugu, Bayelsa, Ogun, and Benue selected using cluster sampling technique to cover some institutions in South East, South West, North Central and South South zones. A purposive sample of 200 librarians from selected universities and colleges participated in the study, with data collected through questionnaires. Instruments were validated by three Library and Information Science experts. The Crombach Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.83 was obtained. Data collected was analyzed using descriptive statistics of mean scores and standard deviation

Results and Discussions

Research Question 1: What types of makerspaces currently exist in Nigerian academic libraries?

Table 1: Observation Checklist on types of makerspaces currently exist in Nigerian academic libraries

S/N	Items	Available	Not Available
1	Dedicated makerspace for hands-on learning and creation.		√
2	Digital fabrication tools (e.g., 3D printers, laser cutters).	√	
3	Media creation (e.g., video/audio editing, photography).		√

4	Basic electronics and coding tools (e.g., Arduino, Raspberry Pi).		√
5	Traditional craft and design activities (e.g., sewing, model building).		√
6	Collaborative projects.	√	
7	Integrated library services (e.g., workshops, training).	√	

The table shows that out of seven items used to observe the types of makerspaces available in Nigerian academic libraries, only three elements are currently present. Digital fabrication tools such as 3D printers and laser cutters are reported as available, which suggests that some academic libraries have already begun to adopt high-tech equipment that supports design, prototyping and digital making. In addition, collaborative projects and integrated library services such as workshops and training are also present, indicating that these libraries are trying to link makerspace activities with group work and scheduled learning events. On the other hand, a fully dedicated makerspace space for hands-on learning and creation is not available, meaning there is no separate, clearly defined area set aside solely for making and experimentation. Media creation facilities like video and audio editing studios and photography equipment are also absent, which limits the ability of students and staff to create multimedia content within the library. Basic electronics and coding tools such as Arduino and Raspberry Pi are not available, showing that low-cost and learner-friendly hardware platforms for coding and physical computing are still missing. Traditional craft and design activities such as sewing and model building are also not available, which means the library makerspace has not yet embraced simple, low-tech making that can attract a wider range of users. Overall, the table portrays a situation where majority of the basic makerspace features are not in place and are still lacking in these Nigerian academic libraries.

Some empirical studies support the observation that makerspaces in Nigerian academic libraries are still at an emerging stage with selected technologies present but broad infrastructure and services missing. Agim, et al (2024) found that while many Nigerian academic libraries agree that makerspaces can include 3D printers, scanners, computers, basic tools and software, actual implementation is uneven and often limited to a few pieces of equipment rather than full-scale spaces. This mirrors the present finding that digital fabrication tools are available but other components are not, showing that libraries are acquiring high-tech tools without yet building a complete makerspace environment. A second study by Efe (2021) reported that makerspaces are still rare and usually confined to pilot projects or borrowed facilities, with many institutions lacking dedicated rooms, proper equipment and trained staff. This confirms that the physical and technical backbone of makerspaces has not yet been fully developed in most cases. A third study by Adamu, et al (2020) highlighted that while the intention to create makerspaces is increasing and some universities are beginning to install fabrication laboratories and digital equipment, service integration through workshops and training is still inconsistent and traditional craft components are scarcely mentioned.

Research question 2: What competencies do librarians in Nigerian academic libraries possess in operating makerspace technologies?

Table 2: Mean Responses on competencies librarians in Nigerian academic libraries possess in operating makerspace technologies

S/N	Items	Mean	SD	Remarks
1	I am familiar with how to operate basic makerspace equipment (e.g., 3D printers, scanners).	2.20	0.65	Disagree
2	I can provide basic technical support to users when they encounter problems with makerspace tools.	2.30	0.68	Disagree
3	I can guide users on how to use digital design software (e.g., CAD, multimedia tools) for makerspace projects.	2.40	0.70	Disagree
4	I am confident in explaining safety procedures associated with makerspace equipment to users.	2.10	0.60	Disagree

5	I can design or facilitate simple makerspace workshops or training sessions.	2.80	0.72	Agree
6	I keep myself updated on new makerspace technologies and trends through formal or informal learning.	2.40	0.75	Disagree
7	I collaborate with technical staff or IT units to solve complex issues related to makerspace technologies.	2.30	0.70	Disagree
	Grand Mean	**2.31**		**Disagree**

The table shows that librarians in Nigerian academic libraries generally do not feel confident in most of the technical competencies required to operate makerspace technologies, except for running workshops. Items 1 to 4, which relate to operating basic equipment, giving technical support, guiding users on design software and explaining safety procedures all have mean scores between 2.10 and 2.40, which fall within the "Disagree" decision band. This indicates that many librarians think they are not yet able to handle makerspace tools on their own, offer solid technical help to users, safely manage equipment or confidently teach others how to use design software. Items 6 and 7, which describe updating themselves on new technologies and collaborating with IT staff when complex problems arise, also remain in the "Disagree" band with means of 2.40 and 2.30 respectively, showing that self-driven learning and routine technical teamwork are still weak. However, item 5, which is about designing and facilitating simple makerspace workshops, scores higher at 2.80, placing it in the "Agree" range, suggesting that librarians feel more comfortable leading training sessions than directly operating the tools themselves. The result of the table reveals that librarians in Nigerian academic libraries have a low overall level of self-perceived competence in operating makerspace technologies, with a grand mean of 2.31 falling within the "Disagree" decision band

Some empirical studies support the finding that most library professionals still have low or weak technical competence in using makerspace technologies. Adamu, et al (2020), in their assessment of makerspace knowledge, skills and competencies, reported that while librarians possess moderate levels of technology literacy and information-search skills, their hands-on ability to operate advanced equipment and software remains low, and they need further training in programme development and technical support tasks. A second study by Burke (2015) on makerspace realities in academic libraries found that many librarians struggle with technophobia and fear of advanced technology, especially older staff, which makes them hesitant to adopt makerspace tools and programmes even when they recognize the benefits. A third study by Abubakar (2025) showed that librarians generally report only moderate levels of readiness and competence, with most requiring more training, funding and institutional support before they can effectively manage makerspace activities.

Research Question 3: How do makerspaces influence innovative service delivery in Nigerian academic libraries?

Table 3: Mean Responses on how makerspaces do influence innovative service delivery in Nigerian academic libraries

S/N	Items	Mean	SD	Remarks
1	The presence of a makerspace can improve the quality of innovative services offered by my library.	2.80	0.60	Agree
2	Makerspace activities can encourage students and researchers to engage in creative problem-solving.	3.20	0.55	Strongly Agree
3	The makerspace can enable the library to offer new services (e.g., digital production, prototyping).	3.10	0.62	Strongly Agree
4	Makerspace programs can strengthen collaboration between the library and academic departments.	3.30	0.58	Strongly Agree
5	Makerspace activities can increase users' satisfaction with library services.	2.90	0.65	Agree
6	The makerspace can help the library respond better to emerging instructional and research needs.	3.40	0.50	Strongly Agree

7	The makerspace can enhance the library's image as an innovative and technology-driven institution.	2.80	0.70	Agree
	Grand Mean	**3.08**		**Strongly Agree**

The table shows that librarians in Nigerian academic libraries generally agree that makerspaces positively influence innovative service delivery. Items 2, 3, 4 and 6, which relate to users' satisfaction, responding to emerging needs, collaboration with academic departments and the ability to offer new services like digital production and prototyping, all score between 3.10 and 3.40, indicating strong agreement that makerspaces are helping the library improve service quality, adapt to changing demands and introduce fresh, technology-based services. This suggests that librarians see makerspaces as practical tools that expand what the library can do, create stronger links with teaching and research units and make services more engaging for students and researchers. Similarly, items 1, 5 and 7, which concern the overall improvement of innovative services, encouraging creative problem-solving and enhancing the library's image as a modern, technology-driven institution, score between 2.80 and 2.90, placing them in the "Agree" range. This shows that librarians still recognize a positive influence that makerspaces have fully transformed service quality, user creativity and institutional image compared to the more concrete gains in satisfaction, collaboration and new service offerings. The grand mean of 3.08 falling within the "Strongly Agree" decision means that in the opinion of the librarians, makerspaces are already playing a meaningful role in pushing libraries toward more creative, responsive and technologically oriented service delivery.

Some empirical studies support the idea that makerspaces are helping to improve innovative service delivery in academic and public libraries. Rosheim (2018) found that makerspaces contribute meaningfully to service quality by enabling new kinds of learning activities, digital production and collaborative projects that users value. This corresponds with the fact that makerspaces increase users' satisfaction, support collaboration with academic departments and allow the library to introduce new services such as digital production and prototyping. A second study by Okpala (2016) reported that makerspaces help libraries move from passive information-giving into active, technology-rich environments that promote digital skills, creativity and community engagement, which changes how users and staff see library services. This supports the findings that makerspaces are helping libraries respond to emerging instructional and research needs and improving their overall image as innovative institutions, because the change in service culture is visible in both academic and public library settings. A third study by Aiyeblehin, et al (2018) showed that makerspaces support collaboration among users from different disciplines, introduce new technologies into the library and enhance the library's public image as a technology-driven and creative space. Makerspaces encourage creative problem-solving and enhance the library's image, while more strongly agreeing that makerspaces improve collaboration and service responsiveness, confirming that makerspaces are already reshaping library services in productive ways.

Research Question 4: What challenges hinder the effective utilization of makerspaces in Nigerian academic libraries?

Table 4: Mean Responses on challenges that hinder the effective utilization of makerspaces in Nigerian academic libraries

S/N	Items	Mean	SD	Remarks
1	My institution has a dedicated makerspace for hands-on learning and creation.	2.80	0.75	Agree
2	The makerspace in my library includes digital fabrication tools (e.g., 3D printers, laser cutters).	3.20	0.70	Strongly Agree
3	The makerspace supports media creation (e.g., video/audio editing, photography).	2.90	0.80	Agree
4	The makerspace provides basic electronics and coding tools (e.g., Arduino, Raspberry Pi).	3.10	0.78	Strongly Agree
5	The makerspace incorporates traditional craft and design activities (e.g., sewing, model building).	2.80	0.65	Agree

6	The makerspace is open to students, faculty, and staff for collaborative projects.	2.90	0.82	Agree
7	Makerspace activities in my library are formally integrated into library services (e.g., workshops, training).	3.30	0.72	Strongly Agree
	Grand Mean	**2.94**		**Agree**

The table shows that librarians in Nigerian academic libraries identify several important challenges that hinder the effective use of makerspaces. Items 2, 4 and 7, which relate to insufficient training of librarians and staff, lack of institutional policy or support and shortage of skilled personnel, all score between 3.10 and 3.30, indicating that librarians strongly feel these human-related barriers are major obstacles. This suggests that even when machines and rooms are available, the absence of trained staff, clear policies and enough technical facilitators makes it difficult to run makerspaces smoothly and sustainably. Similarly, items 1, 3, 5 and 6, which concern inadequate funding, lack of space and infrastructure, low user awareness and high maintenance and consumables costs, fall between 2.80 and 2.90, showing that librarians agree these factors also limit the use of makerspaces, although not as strongly as the human-and-support issues. This means that economic constraints, poor physical conditions and limited user interest combine to weaken the impact of existing makerspace efforts. The overall grand mean of 2.94 that falls between the "Agree" decision indicates that makerspaces in these academic libraries are hindered more by a mix of financial, infrastructural, human-resource and policy-related problems

Some empirical studies support the finding that funding, staffing, training and institutional support are major challenges to the effective use of makerspaces. Okpala (2016), identified inadequate space, insufficient library funding, high cost of makerspace facilities and a shortage of qualified staff as key obstacles that prevent many universities from successfully creating and running makerspaces. Librarians agree that lack of space and infrastructure, high maintenance and consumables costs and shortage of skilled personnel hinder makerspace use, showing that these problems are not isolated to a few institutions but are common across the country. A second study by Agim, et al (2024) reported that many librarians face issues such as poor funding, technophobia, lack of training and negative attitudes toward new technologies, which makes it difficult to introduce and sustain makerspace programmes. This finding also shows that insufficient training of librarians and staff and low institutional support are strongly felt barriers, because librarians who are not confident or adequately trained tend to resist or under-use makerspace tools. A third study by Nwaogu and Chika (2015) emphasized that limited financial resources prevent libraries from acquiring necessary equipment and maintaining them, which in turn limits the quality and continuity of makerspace services. Inadequate funding and high operating costs are rated as important challenges, confirming that financial constraints are central to the weak utilization of makerspaces in Nigerian academic libraries.

Conclusion

The study reveals that makerspaces are gradually emerging in Nigerian academic libraries but are still at a developing stage, heavily shaped by the type of facilities available, librarians' technical competencies, the level of innovative service impact and the range of structural and human-resource challenges. The data show that although some institutions have begun to introduce digital fabrication tools and integrated service activities such as workshops and collaborative projects, the overall makerspace environment remains partial rather than fully developed, with limited space, weak technical capacity among librarians, and inconsistent policy support. At the same time, librarians clearly recognize that makerspaces can improve service quality, increase user satisfaction, support collaboration with academic departments and enhance the library's image as a technology-driven institution. However, these positive influences are being constrained by inadequate funding, shortage of trained staff, weak institutional policies and low user awareness, which together limit the effective utilization of makerspaces. In sum, the study confirms that makerspaces hold strong potential to transform library services in Nigeria but require deliberate investment, capacity building and enabling policies to move from isolated projects to sustainable, fully-functional innovative service environments.

Recommendations

Drawing from the findings of the study, the following recommendations address the identified issues:

1. University libraries should develop standardized makerspace templates that combine digital fabrication toolsvwithin a dedicated physical space, and then adopt these templates in a step-by-step manner based on available funding.
2. Library authorities in Nigerian universities should establish regular in-house training programmes and external professional development opportunities for librarians, focusing on basic equipment operation so that librarians can collaborate, gain hands-on experience and build confidence in operating makerspace technologies.

3. Libraries should deliberately align makerspace activities with academic and research goals by co-designing service packages with departments so that students and staff can see makerspaces not as side projects but as core components of the library's innovative service delivery.
4. University management and library boards should address the main barriers by increasing budgetary allocation for makerspace establishment and maintenance, creating clear institutional policies that recognize makerspaces as part of library services and providing targeted support for staff recruitment, training and equipment upkeep.

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Mobile Technology & WhatsApp as Information Dissemination Tools for University Students in Minna Metropolis, Nigeria.

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Abstract

The objectives of this research study were to investigate Mobile Technology & WhatsApp as Information Dissemination Tools for University Students in Minna Metropolis, Nigeria. To *ascertain the level of usage of WhatsApp tool in dissemination of information in the university libraries under study. The study adopted a descriptive survey design, targeting a population of students across the region state the population in number and sampling technique adopted. A simple random sampling of 450 students was selected with approximately 100 students representing each participants. Data were collected via a 53-item Google Form questionnaire and analyzed using simple percentages, frequency distributions, and mean scores. Findings indicate that WhatsApp e-mobile learning significantly compliment library usage and high turnout on academic engagement by providing unique learning experiences and efficient access to e-books and research materials. The study recommends the integration of WhatsApp as a tool for 24-hour library service dissemination to mitigate low attendance trends.*

Keyword: Social Media Application, WhatsApp e-mobile learning, Academic Achievement, University Level

Introduction

In every society around the world today, libraries exist in order to provide various information for users in order to satisfy human needs. The university libraries normally advance in research and teaching by supporting quest for new knowledge through scholarship, dissemination of knowledge, teaching and creative experimentation of innovation ideals and concept; foster culture of service in supporting faculty, students, staff and communities around. University libraries also play a role in supporting educational activities through technical services such as providing access to institutional repositories, interlibrary loan and document delivery services around institution and beyond. Rangeeta and Dharam Vir Singh (2024) disclosed that universities are regarded as the quiet, unassuming pillars of society; they are vibrant hubs of learning, innovation and cultural enrichment. University libraries are heavily focused on educational development, research support and information dissemination. Maitaouthong, Tuamsule and Tachamane (2012) disclosed that the university libraries play a vital role in information literacy. Educating students by arranging information literacy activities for them in form of training programmes, online and other self-learning programme. The services attract users to the libraries in justify and compliment the existence as relevance of libraries in the society.

Libraries, since the last two decades have undergone significant metamorphosis from a purely traditional modelled manual service delivery system to a more dynamic technologically driven system. These changed has become more manifest only in the new millennium, like a cyclone, the technology driven environment has enveloped the library and is taking it to unprecedented heights in knowledge acquisition, management and dissemination. According to Siddiqua, Ansari, and Ansari (2021) "dissemination" is being replaced by “communication," "repository" by "database," "literature" by "knowledge," "search" by "navigation," and so on. This represents the current approach to knowledge packaging as well as the tools used to manage it. Twenty years ago, no one could have foreseen how prevalent knowledge would become. Ahmat and Hanipah (2018) opined that libraries have gone through three stages of ICT development over the last half-century. The first was the introduction of automation systems in libraries, which resulted in a decrease in the use of paper. It began in the late 1960s with the development of Machine-Readable Cataloguing (MARC), which was widely discussed among professional librarians until the 1990s when academic libraries began to use the Online Public Access Catalog (OPAC), audio-visual media systems, and web-based indexes to replace their printed resources. Second, electronic libraries have dominated since the emergence of CD-ROMs, full-text databases, the Internet, and the World Wide Web in the early 1990s. Some of the established technology from the 1960s was disturbed at this time. For example, analogue audio-visual records recorded on cassette tapes have begun to be replaced, and media content became more easily accessible and less expensive via the Internet. Third, the rapid adoption of new technologies allowed for the completion of more difficult jobs. The new tools were intended to provide strong functionality for processing data, text, sound, and photographs, as well as the ability to simply send data to remote collaborators. However, all of this development has been altered by the emergence of the Fourth industrial revolution (4IR). Without a doubt, we have entered the 4IR, which is marked by current information technology (IT). This technology includes the Internet of Things (IoTs), big data, blockchain, robotics, artificial intelligence, cloud computing, makerspaces, machine learning, and virtual and augmented reality. Dube (2022) noted that academic libraries all around the world are embracing the technologies by incorporating them into their operations and services. In this era, libraries

are transforming more than just gorgeous bookshelves. As academic libraries provide a growing array of digital library services and resources, they also have large print collections. It's time-consuming to keep track of huge volumes in libraries, but robotics and artificial intelligence can help. It is no longer news that adoption of new technologies are already in use in certain libraries around the world, in both developed and developing countries. In the twenty-first century, technology has grown at an exponential rate, and we have now arrived at a point when "the promises of science fiction are swiftly becoming a workaday reality (Brynjolfsson, 2016). According to Hussain 2019, the tremendous innovations, as well as increased patronage in libraries have ushered in a new era dominated by new technology, which is a collection of technologies that may be used to replicate or outperform tasks performed by humans using machines. These technologies have unquestionably yielded extraordinary results. It now means that jobs that were formerly thought to be impossible to automate are now well within computers' capability (Tella, 2020). In the advanced world, AI, robotics, cloud computing, and IoTs had been introduced into academic libraries, making them smarter and boosting staff job capacities, satisfying consumer expectations, and bridging the knowledge gap all of which had a significant positive impact (Bano, 2019). The advent of information and communication Technology (ICT) generally, with particular emphasis on mobile technologies has improved the level of information access among individuals in any information centre. Mobile technologies such as laptops, smart phones, tablets etc. greatly have communication and access to information with convenience and timely to users from the comfort of their homes, hostel and lecture room while on transit and even playgrounds at any given time. According to P J Rosario and Vasantha Kumar (2022) opine that today libraries in developed countries are serving their users better by embracing the growing capabilities of mobile technology. They promote and expand their existing services by offering mobile access to their website and online public access catalogs by supplying on-the-go mobile reference services and by providing mobile access to e-books, journals, video, audio books and multimedia content, a study by Timothy (2010) revealed that 66% of public libraries offered e-books to their users (up from 55percent the previous year). Similarly, the study revealed 83 percent of libraries offer online audio content.

Social media is a product of web-based or internet technologies and they depend on these online and mobile technologies to operate, the different types of social media are Facebook, blogs, microblogging, YouTube, twitter, Wikis, Mash Up, Digg, Delicious Second Life, Flickr, Picasa, amongst others. Librarians using social media may likely promote either library services like lending services, referral services, reference services, technical services, indexing, abstracting, user education etc. or library resources such as e-books, CD, VCD, journals newspapers, yearbooks, maps, dictionaries, internet- based resources etc. This is because librarians in university library using social media for professional purposes would in the long-run be letting users know what they offer, what they are doing, what resources and services they offer and what they can offer to their users. Librarians desiring to connect constantly with their clients with an eye to increasing users' satisfaction through promotion must make a social presence using social media like Facebook, MySpace, Microblogging sites like Twitter, blog, etc. Today, university libraries have created pages on Facebook, according to Ezeani (2011), social media networking sites on the internet widely known to patrons and encourage library patrons to use them so as to promote library and information resources and services. It becomes imperative for these university libraries to promote the library effectively which would in turn help in the development of the university as a whole. Akporhonor (2011) further that, a university library be it federal or state owned, is part of a university set up to made a significant impact on the rapidly evolving digital communication landscape. WhatsApp since its launch in 2009, this cross-platform messaging program has grown into a global force, uniting billions of users and revolutionizing how people, families, and organizations interact. WhatsApp meteoric rise can be attributed to its simplicity, dependability and commitment to user privacy, which has made it a regular feature in the daily lives of people from all walks of life. WhatsApp's fundamental functionality is to provide a seamless and immediate means of dissemination of information, allowing users to exchange text messages, make audio and video conversations, and share multimedia information with remarkable ease. End-to-end encryption on the network has boosted its reputation as a secure and private venue for talks, attracting users who value privacy. We live in a period where information spreads swiftly due to the globalization of technology. We may now exchange knowledge online with anyone, anywhere, at any time because of advances in information and communication technology. Social media has emerged as a valuable information resource and a forum for communication among people. Kamble and Bankapur (2023) study found that many people utilize mobile instant messaging to interact with family, friends, and colleagues. In addition to individuals, social networking services are frequently utilized by organizations, enterprises, and institutions. There are numerous social networking platforms available, such as Facebook, Instagram, Skype, WhatsApp, WeChat, and Telegram. These programs are simple to use and can exchange multimedia in a variety of ways Embi's (2016) study indicates that the use of WhatsApp in the classroom has a favorable effect on university student learning.

In January 2015, WhatsApp, a PC web client, was released. In 2021, WhatsApp had a global user base of roughly 1,607.6 million users. By 2025, it's estimated 1,902.4 million WhatsApp users around the world. According to a recent survey conducted by Gallup and Gilani (2022), barely 39 percent of Pakistanis utilize WhatsApp. The remaining 61 percent, on the other hand, either have no idea what the platform is for or are not interested in using it. In today's library setting, the conventional face-to-face method, in which a library user must be physically present to consult or use library services, is no longer required. Throughout the world, library services have improved dramatically. Information that used to require numerous steps and procedures is now available through mobile phone apps. However,

even when apps are widely used, the anticipated effects on library operations, such as current awareness, reference, circulation, serial control, and loan services, are highly exploited.

Figure-1
Source: https://www.statista.com (2024).

Figure 1 shows that India has the highest usage of WhatsApp among all countries. Libraries had to adapt their services and operations to meet the evolving needs of their patrons and society. Librarians can create and provide library services to customers by setting up WhatsApp groups for university students and library patrons. The previous face-to-face approach, in which a library user had to be present to consult with a librarian or use library services, is no longer necessary in the modern library setting. Globally, the quality of library services has significantly improved.

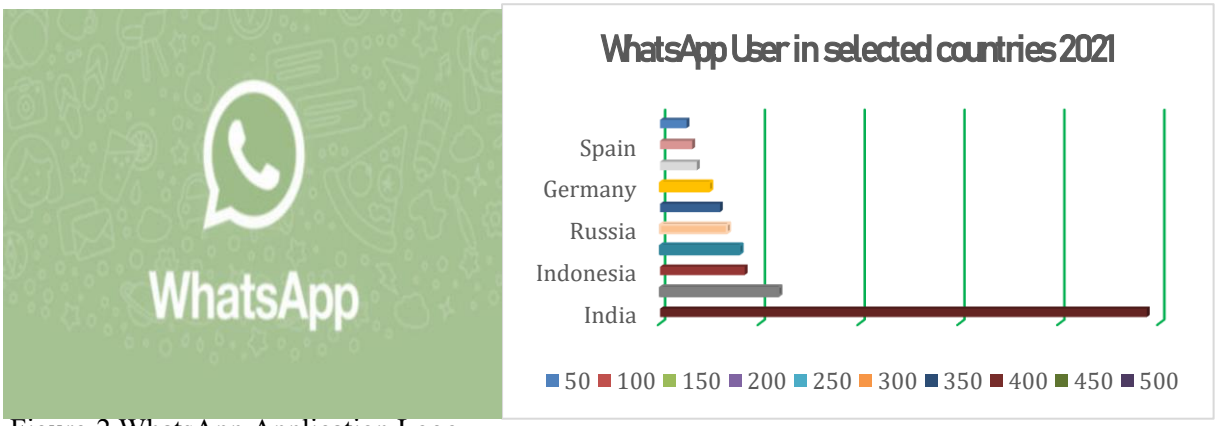


Figure-2 WhatsApp Application Logo
Source: https://www.businesstoday.in (2024).

In 2009, Brian Acton and Jan Koum developed WhatsApp, which Facebook has owned since 2014. It is an internet-based application that can be used to transmit text messages, multimedia messages, documents, audio messages, photos, contacts, and user location to other users. It is accessible on both personal computers (PCs) and smartphones. The following attributes of WhatsApp Messenger, according to Bere (Gon and Rawekar 2017):

- Multimedia: The user can send and receive voice notes, photos, videos, and text messages using multimedia.
- Group Chat: It allows group members to communicate with one another using Group Chat.
- Cross-Platform Communications: can send and receive unlimited messages using WhatsApp.
- Cross-Platform Communications: Users of different devices (personal digital assistants, smartphones, and tablets) can communicate using a variety of media (text messages, voice notes, photographs, and videos).
- Offline Messaging: Messages are automatically saved when the device is turned off or outside the coverage area.
- No charges were brought: Because WhatsApp uses the same internet data plan as online browsing or email, there are no fees connected with utilizing it.
- Pins and User Name: Because WhatsApp uses phone numbers and integrates with users' address books, users no longer need to remember passwords or usernames.
- Others: WhatsApp uses end-to-end encryption to protect our calls and communications. Also, instead of a file-sharing application or email, use WhatsApp to send PDFs, spreadsheets, slideshows, and other files.

Libraries are embracing new avenues to deliver their services straight to patrons' fingertips in an era marked by instant connectivity and seamless communication. One such dramatic leap into the digital sphere is using WhatsApp, the popular messaging network, as a conduit for library services. The integration of library services via WhatsApp is a deliberate reaction to the evolving information landscape and the changing expectations of tech-savvy users. According to users Chaputula (2020) there are numerous advantages of using WhatsApp to deliver library services. Enhancing interactions between patrons and library staff, assisting in the collection of feedback to improve patron services, maximizing document utilization, enhancing the use of library content, and encouraging collaboration and increased communication between patrons and library staff. Using WhatsApp at information centers and libraries provides the following benefits:

- A library can use WhatsApp to share information about upcoming conferences and seminars, library news, URLs to e-books and e-journals, and other pertinent announcements, as well as alerts and reminders about specific issues.
- The library could use WhatsApp to exchange information about its rules and regulations.
- WhatsApp could offer efficient real-time reference services.

- WhatsApp could help promote library services.
- WhatsApp might be used as an acquisition feedback method, and users of the library could make recommendations for the best books to buy.
- The library may disseminate information about new arrival books and journals.
- A consumer can use WhatsApp to request a book from their library in real-time by using it for outreach activities such as lending library materials to other libraries.
- Through WhatsApp library can provide Selective Dissemination of Information (SDI) and Current Awareness Services (CAS).
- Through WhatsApp, customers can request assistance while using the library and provide feedback to improve the services.
- WhatsApp will help library employees and patrons communicate more effectively.

With its global user base and user-friendly design, WhatsApp offers libraries an unparalleled potential to transcend physical barriers and communicate with patrons in real-time. This strategy is consistent with the desire to democratize access to information, ensuring that libraries remain dynamic hubs of knowledge in an ever-expanding digital environment. This investigation goes into the paradigm change created by libraries as they leverage the power of WhatsApp to bring services directly to consumers' palms. The integration is more than just using a popular messaging platform; it is a purposeful effort to meet consumers where they are - on their mobile devices - and create an accessible, interactive, and personalized library experience.

From the foregoing, it is necessary to state that university libraries play a vital role in dissemination of information to users. This could adequately be achieved if mobile technologies and WhatsApp is used in the libraries and environs in dissemination of information to university students and patron. Student's use of library will be enhanced where the library environment is found attractive and inviting. The analysis of WhatsApp mobile technologies no doubt reveled they are adequate facilitators of good library services (Oyedum, 2007, Khan, 2013 and Salihu 2016). University students need to be proficient in their field of study by constantly visiting and using library resources and where these resources do not suit or meet their demands they would not regularly visit the library and this would have a negative in their academic pursuits. Students' academic performance depends a lot on how well they use library resources as these resources supplement and compliment lecture room teaching. The study, therefore investigate Mobile Technology & WhatsApp as Information Dissemination Tools for University Students. University libraries are established in order to support the teaching, research activities and community services of their parent institutions. For adequate functioning of university libraries, university administration usually support their libraries with current information resources available in both print and electronic formats. Today, libraries worldwide are serving their users better by embracing mobile and other technologies as these allow them to expand and promote the already existing services. WhatsApp mobile technologies which can be supplementary in providing tremendous flexible, supplementary channel for delivery library services to students who cannot access traditional resources or who underutilize existing tools. Several university in Nigeria have adopted WhatsApp mobile technologies to extend their reach to client better while majority of them are yet to do this. Preliminary investigation and observation also showed that these services are not fully explored by the users wherever they are available. This is worrisome, especially considering the huge amount spent by university institutions in order to provide digital and virtual libraries so as to improve the rate of information dissemination to library users. A university library that is well equipped with all the needful library and information resources and services, but its resources and services are not duly promoted cannot maintain its relevance in this 21st century. Furthermore, studies have suggested that when Nigerians go online (predominantly with their phones) they go basically to social media applications like Facebook, Twitter, blogs and YouTube. Terragon (2013) gave a statistics of social media users in Nigeria as 5,357,500. This invariably makes social media a must use by librarians in promoting library and information resources and services. It is based on this background that this study sets to examine mobile technology & WhatsApp as information dissemination tools for university students in North-Central State, Nigeria

Aim and Objectives of the Study

- Determine the relationship between WhatsApp Mobile technologies and use of library by universities under study.
- Determine the types of WhatsApp mobile technology services available in universities libraries in Minna metropolis.
- Ascertain the level of usage of WhatsApp tool in dissemination of information in the university libraries under study.
- Determine the influence of the WhatsApp mobile technologies on the effective dissemination of information to students in the universities in Minna.
- Determine the factors militating against the use of WhatsApp mobile technologies in the universities study.

Literature Review

Historically, academic information dissemination in Nigeria Universities relied heavily on physical notice boards, face-to-face communication and localize computer centres. However, contemporary literature establishes that mobile technology has effectively deconstructed the physical boundaries of the classroom. Because mobile technology device have become conduits for accessing, storing and exchanging academic content anytime and anywhere.

Social media is a product of web-based or internet technologies and they depend on these online and mobile technologies to operate, the different types of social media are Facebook, blogs, microblogging, YouTube, twitter, Wikis, Mash Up, Digg, Delicious Second Life, Flickr, Picasa, amongst others. Librarians using social media may likely promote either library services like lending services, referral services, reference services, technical services, indexing, abstracting, user education etc. or library resources such as e-books, CD, VCD, journals newspapers, yearbooks, maps, dictionaries, internet- based resources etc. This is because librarians in university library using social media for professional purposes would in the long-run be letting users know what they offer, what they are doing, what resources and services they offer and what they can offer to their users. Librarians aiming to boost use satisfaction by maintaining constant connectivity and proactive promotional strategies should use social media like Facebook, MySpace, Microblogging sites like Twitter, blog, etc. Ezeani (2011) highlights that university libraries utilize facebook to build familiar digital space for patrons. This strategic online presence encourage preater user engagement and enhances the promotion of library information resources. It becomes imperative for these university libraries to promote the library effectively which would in turn help in the development of the university as a whole. Akporhonor (2011) further stated that, a university library is part of a university set up to made a significant impact on the rapidly evolving digital communication landscape.

Mobile technology is transportable; meaning it's a device capable of performing a wide variety of task on the go. This technology allows those tasks to be performed via mobile phone, eBook reader, Tablet Pc, laptops, etc, it simplifies distance learning in situations where access to learning is difficult or interrupted because of geographical location or due to conflict or disaster situation. Distinguishing between mobile device and services, device are the tangible physical tools that you can hold, carry and move with you while services are intangible platforms, networks and systems that run on those physical devices.

xv. Smartphones (iPhones, Android device)
xvi. Tables(iPad, Galaxy Tabs)
xvii. Laptops/e- readers
xviii. Smart watches and wearable fitness trackers

While services:

- Communication services (WhatsApp Messaging, Zoom Conferencing etc.)
- Networks/Internet services (4G/5G)
- Application services (WhatsApp, Cloud storage etc.)

Mobile learning include:

5. E-book/Journals
6. Out start, Inc.
7. Handheld audio and multimedia guides, in museums and galleries
8. Handheld game console, modern gaming consoles such as Sony PSP or Nintendo DS
9. Personal audio player, e.g. for listening to audio recordings of lectures (podcasting)
10. Personal Digital Assistant, in the classroom and outdoors
11. Referral services

The adoption of mobile technology alters the traditional relationships between libraries and their users and introduces novel challenges to reader privacy. There is the shift from'd-learning' (distance learning) to 'e-learning' and now from 'e-learning' to 'm-learning' will be the next big wave, which will reform education in India. (Mohan Lal el al, 2013). Some of the SMS notification services highlighted by Wang, Ke and Lu 2019; that libraries provide to its users are:

19. Due-day reminder service: This service sends reminders to user when their borrowed items are coming due.
20. Renewal request service: This service accompanies the due-day reminder service. If a user receives a due day reminder and wants to renew the item, the users can click a renewal-request hyperlink provided in the text message to extend the due date of a borrowed item.
21. Overdue notification service: This service reminds user about overdue items.
22. Request arrival notification service: This service reminds users about the availability of reserved items.
23. News and event reminder service: This service sends reminders to patrons about important news, exhibitions, instructions, and so on
24. New title notification service: This service lets patrons get informed of newly acquired titles. This service accompanies the preview and reservation of new titles.

Libraries Can Provide a Wide Array of Mobile Services to Interested Users

According to Wang, Ke and Lu 2019 further that Libraries can provides wide range of dissemination of information to user e.g.:

26. Mobile online public access catalogs (OPACs) Libraries are providing access to their OPACs via mobile-optimized websites. The New York Public Library Mobile Beta site supports a mobile OPAC and allows users to browse library locations and hours.

27. Mobile applications, some libraries have developed mobile applications for Smartphone's. The District of Columbia Public Library, for example, has developed an iPhone application that includes a mobile OPAC and the ability to place items on hold and provides information on hours and locations of local libraries.
28. Mobile collections, Third-party content providers are partnering with libraries to deliver audio books, e-books, audio language courses, streaming music, films, images, and other multimedia that can be used on mobile devices. The Overdrive service is supported on numerous mobile devices and has developed an application for BlackBerry Smartphone's.
29. Duke University has created a free iPhone application called Duke Mobile, containing a wealth of information on digital library resources, including extensive access to the library's digital photo archive and other collections.
30. Mobile library instruction some libraries are offering library instructional materials and resources via mobile platforms. For example, East Carolina University's "Research First Aid" is a series of podcasts for library researchers.
31. Mobile databases PubMed for Handhelds is a mobile web portal for the National Library of Medicine.
32. Library Short Message Service (SMS) notifications Many libraries use SMS for a variety of purposes, including notification for items available for pickup, application of mobile technology in library services.
33. SMS Reference some libraries are offering "text-librarian" services ideal for simple questions that can be answered with a brief response.

Ansari (2016) listed twelve benefits of using WhatsApp in academic library, among which include:

1. **Cost:** Ones the annual charge is paid, there is no more charge and no limit to what one can send using WhatsApp charges including text, pictures, video, audio, location information.

2. **Switching:** Users can easily switch their phone device, reinstall or upgrade the software as long as their service remains with WhatsApp.

3. No limitation: WhatsApp massages are free and not limited in terms of characters and content.

4. Group sharing: WhatsApp allows user to create group or a broadcast to send massages in bulk

5. Privacy features: a person has right to add, block or leave a group even to hide some features.

6. Immediate delivery: The delivery of WhatsApp file is fast and immediate when compared to other applications.

7. Visual feedbacks: It uses ticks to notify means sent, two tick means delivery, green two tick means read.

8. Multi-media file sharing: It supports audio, video, images and location information along with messaging services.

9. Choice of technology: WhatsApp can work comfortable on many operating systems of different smart phones

10. Calling facility: It provides calling facility to users. These facilities are not geographical bound and attract no additional charges.

Considering all these attractive features, it is imperative in this 21st century that an academic librarian needs this application not only to function effectively but also to satisfy its users' needs highly. The WhatsApp application combines both social interactions with user satisfaction simultaneously. As a collaborative application, both the user and the academic librarian can mutually interact, thus creating room for innovative in user need satisfaction. The benefits of using WhatsApp are so much to be neglected by any academic library in our current digitized and networked environment. As already noted, WhatsApp delivers instant massages in real time and its ability in delivering voice, picture and video massages is unrivalled. The academic librarians should utilize these features of the WhatsApp in its service delivery to its various users. It can be very useful in current awareness services, announcement and many other services to the library users.

Methodology

Descriptive survey method will be used, because it is fact-finding tendency for a situation. According to Sheikh el al. (2024) descriptive survey seeks to determine present practice or opinion of a specified population. Siedlecki el al. (2020) further on survey research is one that gathers data at a particular time with the intention of describing a situation of a phenomenon because it analytical power and report an event the way they are. Oyedum el al. (2015) survey is used to assess a situation with a view to correcting inadequacies or effecting improvement. Survey research method was also necessary for the study because data was collected and used to describe and interpret issues on mobile technology and WhatsApp environment.

A simple random sampling procedure of sample size of four hundred (400) will be use from four university within Minna metropolis. Stratified and judgmental sampling techniques were used to sample the population for the study. Ibrahim (2013) is a form of non-probability sampling where the researcher based on his/her knowledge of the population hand-picks certain groups as representatives of the entire population. McCombes (2023) that in simple random sampling technique, only respondent, interviewer, etc. which the researchers can reach. The four (4) universities in Minna metropolis were grouped according to strata using the types of the universities that is conventional and specialized where the mobile technology & WhatsApp environment was more prominent in the studied area for a good spread.

The researcher selected four hundred (400) students using Morgan's (1970) table. Depending on the objectives and the review of related literature, a five-point Likert scale questionnaire was developed by the researcher as a research tool for university students to collect data. After verifying the instrument, pilot testing was performed on the instrument. 350 were returned, data were collected through the personal visit of the research. The researcher distributed questionnaires to University students. Students were asked to read and complete a list of questions. Statistical Package for Social Sciences (SPSS) was used for data analysis. The researcher used frequency, percentage and mean scores for the analysis of data.

Data Analysis

***Table 1. Student's perception of* WhatsApp as Information Dissemination Tools (N=400)**

Note: SA = Strongly Agree; A=Agree; D=Disagree; SD= Strongly Disagree.

S/N	Statement	N SA(%)	A(%)	D(%)	SD (%)	Mean	Remark
1	Determine the relationship between WhatsApp Mobile technologies and use of library by universities under study.	60	30	7	3	3.47	Agreed
2	Determine the types of WhatsApp mobile technology services available in universities libraries in Minna metropolis.	55	35	8	2	3.43	Agreed
3	Ascertain the level of usage of WhatsApp tool in dissemination of information in the university libraries under study.	45	40	5	5	3.25	Agreed
4	Determine the influence of the WhatsApp mobile technologies on the effective dissemination of information to students in the universities in Minna.	30	25	15	15	2.70	Neutral

Discussion of Findings

- Determine the relationship between WhatsApp Mobile technologies and use of library by universities under study show: *High Adoption and Efficiency*: The high frequency and percentage for items related to "rapid sharing" and "coordinating group work" (Mean > 3.47) suggest that students heavily rely on WhatsApp as a primary information channel. This aligns with research indicating that WhatsApp has become a "dynamic and real-time platform" for academic collaboration, effectively bridging geographical gaps (Joshua, 2018).
- Determine the types of WhatsApp mobile technology services available in universities libraries in Minna metropolis: *The Double-Edged Nature*: While students value the tool for its speed, the "WhatsApp Business types" or lower mean scores for "distraction" indicate a nuanced reality. Data often shows that while students

use WhatsApp to access materials, the "excessive reliance" on it can serve as a distraction from deep study, impacting academic performance if not managed properly (Joshua, 2018; Alhajjaj, 2024).

- Ascertain the level of usage of WhatsApp tool in dissemination of information in the university libraries under study: *Implications for Institutions*:** The findings suggest that universities should not view mobile technology as merely a social tool. Because students are already using these platforms for information dissemination, there is a strong case in usage for formalizing their use in academic settings to ensure that critical information (like lecture updates or resource sharing) is managed within a professional framework rather than through informal channels alone (Elom, 2025).

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Orientation and Innovative Adoption in Academic Libraries in Nigeria: Strategies and Challenges

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Abstract
The paper explored orientation and innovative adoption in academic libraries in Nigeria, focusing on concept of innovative adoption, literature review, strategies and challenges. It aims to identify innovative technologies for library adaptation to the new innovation, Technophobia issues, lack of training, inadequate funding institutional factors and innovation policies were among challenges of the academic libraries. Different literatures were explored on how libraries can leverage advanced innovative technology to adapt to the new changes. The paper also highlighted the importance of innovative technologies in academic libraries to promote awareness of technological advancements. Libraries and librarians had to adapt to the new innovation as the traditional information resources are bulky methods. The study suggests that libraries in less developed countries should focus on developing human capacity, promote self-improvement among librarians, and collaborate with libraries in developed countries to update skills.
Keywords: Orientation, Innovative Adoption, Strategies, Challenges

Introduction

The importance of Academic Library cannot be overemphasized especially in ensuring that the right services are given to her users. Some strategic measures for adoption and implementation of innovative technologies in academic libraries include but not limited to human capacity development, application of artificial intelligence, provision of alternative power supply, improved internet connectivity and database integration libraries to adapt to technological changes. The provision of needed information goes a long way in widening their horizon in technology and education more especially in a developing society like Nigeria (Okoro, 2021). Today, with the emergence of Information and Communication Technologies, Mobile Technologies have been applied to the Library and Information Services in Nigeria to increase efficiency. According to Vikram & Kaur (2022), some of the digital and innovative technologies employed to serve library users better in the library include: Big data technology, Robotic System, Library Mobile Applications, Artificial Intelligence, Library bookmark Apps, Virtual Reality Technology, Book Delivery drone, Digital Interface for printed books, E-reader Applications, RFID systems and Cloud Computing Technology etc.

Innovation and orientation in academic libraries in Nigeria involves shifting from traditional, lecture-based sessions to modern, engaging approaches that use technology to teach information literacy and library resources. This includes incorporating interactive online tutorials, social media, mobile apps, and gamified activities like scavenger hunts to make learning more student-centered, accessible, and effective. The goal is to increase user confidence, improve resource usage, and enhance overall academic success by adopting more dynamic and user-friendly method in Nigerian academic libraries (Shahzad et al., 2024).
Innovative adoption in academic libraries involves new technologies and services to meet evolving user needs, with examples including big data analytics, virtual reference services, open access repositories, and AI-driven tools. Libraries are also innovating their roles by integrating more deeply with curriculum design, offering embedded information literacy instruction, and shifting to a more collaborative, service-oriented model. (Wada et al., 2022)

Concept of Innovative Adoption

Innovation can be seen as technological advancement that bring about changes in academic libraries and besides, people or society are the determinants of the innovative changes more than technology itself. Ogunmodede and Popoola, (2021) viewed that, innovativeness of libraries and LIS professionals is inevitable to facilitate interactive, multimedia-rich, and user-driven products and services; enhancement of routines, tasks and products that meet users' needs. It is also share this view by saying that training plays crucial roles in adoption of innovative library services delivery while its inadequacy and lack of suitable infrastructures are hurdles to adoption of innovative products and services. This assumption is true because inadequate training of personnel poses a great danger to innovative products and service delivery. As such, Nigerian libraries must come up with strategies for preparing LIS personnel to adopt or adapt, use, manage, and harness the current and emerging technologies to deploy first class library products and services. The acquisition and demonstration of creative and innovative skills would enable LIS professionals in the country provide home grown and intended services and products that would attract patrons, improve performances, tackle challenges while simultaneously, attracting moral and financial supports. The current study thus identified the level and extent of adoption of innovative library products and services, examined participant libraries' reasons for non-adoption of innovative library products and services and identified the relevance of the Workshop to library innovative products and services. The study went further to examine the workshop participants level of encouragement for adoption

of innovativeness in respective libraries, the level of satisfaction with the organization of the workshop and suggestions for future planning of relevant or similar workshops content (Emiri, 2023).

Literature Review

Technological advancements around the globe in all parastatals has motivated different institutions including academic libraries to seek for lasting ways to reach their audience and remain relevant. Studies have proven that the only way of communicating information to people at their respective domains is through information communication technology (ICT) which helped in disseminating information to the door post of all around the globe and will continue to be. Omeluzor, et al (2020) opined of the advancement push in information technology which paves way for information access, sharing and creates room for adoption of innovative tools which enable library services and instruction to users. Globally, ICT tools are of tremendous assistance in delivering information services. Additionally, Omeluzor et al (2020) agreed that delivery of library instructions will be aided by the use of innovative tools without bringing patrons at a location. That is, through innovative tools/changes, the barrier of reaching a wider audience at a glance will be broken. The studies of Lund and Wang (2022) discovered that libraries are forced to constantly review their services, develop new skills, examine their partnership approaches and upgrade infrastructure (both physical and digital) and other resources to align with the complex and dynamic environments in which they exist and on which they may have an impact.

Ameh, et al (2021) observed of some endemic challenges that libraries in Nigeria face that prevents them from attaining needed successes in innovating programmes and services. These constraints include but not limited to unserious reading culture, attitude of librarians, peoples' misconception of the library, lack of adequate funding and above all, inadequate technological driven library and information services. Lund and Wang (2021) in their study found in the investigated faith-based universities that though being temporarily shaken by diverse onslaughts, yet private universities in South-West including the faith-based have bounced back to operation with innovative ideas and innovation changes. Gladys (2024) found out in his study also that, innovative products and services that aided reaching users included ICT based services like emails, library 2.0, internet, social media platforms as well as electronic catalogues. Inculcating innovative ideas for innovative changes to remain relevant in academic libraries in Ogun state. Ashiq, et al (2021) identified the availability of some soft tools in technological innovation that eases innovative changes in academic libraries are google, google scholar, social media platforms and amazon. They help in passing knowledge and information round the clock to users hence they are easy to access and use. In order to be in form to use these evolving and impactful technological tools, the library professionals need to accept, learn, and practice the tools to improve their skills and equally be updated with new innovative changes of the moment (Allision, 2024). Furthermore, academic libraries face other problems as well. Not all staff in the libraries are adequately trained. The majority of the libraries have to adopt this great change. One solution to get over this difficulty is to link up the academic libraries through networking. It is high time for the libraries to adopt themselves to the innovative methods of providing knowledge to as many people as possible. Those libraries, which are already highly sophisticated, should consider providing their collection to the common man. Allision (2024) found out the two major issues militating the innovative changes in academic libraries as inadequate finances and technological changes. These factors affect services render in the academic libraries in Nigeria and Ogun State in particular. Supporting this result, Etebu and Zacchaeus (2020) stated that inadequate funding, resistance to change and inadequate ICT infrastructure development are some of the hindrances to innovative library services. In continuation, Ashiq, et al (2021) added that leadership crises contribute to major challenges faced in implementing innovative ideas and changes in academic libraries. Following this is emotional challenges, technological problems, user behaviours and human resources.

The Importance of Innovative Adoption in Academic Libraries in Nigeria

Innovation adoption in Nigerian academic libraries is crucial for relevance, efficiency, and supporting modern scholarship, moving libraries from mere book repositories to dynamic learning hubs by enhancing user experience (AI, automation, remote access), improving resource management, ensuring inclusivity, and fostering research, though challenges like funding and infrastructure persistence.

Over the years acquiring knowledge in particular in academics has undergone tremendous changes, assuming new dimensions influenced by the innovations in technology driven applications. As a result of this trend all stakeholders in the education industry are catching up with this new wave technologies in academic arena. The library as a component of education sector is no exception to this new trend. Libraries are principally entrusted with a host of predetermined tasks like acquiring organizing, preserving, retrieving, accessing and disseminating information to the user. It implies, libraries are established to provide services and make available information resources that meet the exact information needs of their users. To meet up with this primary high demanding task, academic libraries globally, are developing and introducing series of innovations in information technology in their service delivery to match with user's needs. This information technology has influenced the very nature of business and management in libraries. The conventional set up of brick and mortar libraries that store information within a constrained physical space have given ways to data centers that integrate data sources around the globe by the means of networking (Gladys, 2024).

Strategies in Adopting Innovation in Academic Libraries

Innovation strategies for improving academic libraries in Nigeria primarily involve integrating **Information and Communication Technologies (ICT),** reimagining physical and virtual spaces, and developing staff capacity to meet evolving user

The strategies to be adopted in Academic Libraries are stated below:

i. Artificial Intelligent
ii. Integration of library database
iii. Staff Development
iv. Internet Facilities
v. Solar power system

Artificial Intelligent

This is one of most current vibrant strategies academic libraries adopt in today library innovation. The use of ICT infrastructures tools such as services like emails, library 2.0, internet, Chart GPT, social media platforms as well as electronic catalogues. Artificial Intelligence, which is the latest in the development, has been viewed as one of the evolutionary technological tools that has brought about tremendous change in the operations and services of the library. As a result, most academic libraries throughout the world regard AI adoption as a developing strategy that provides ease of operations and services (Halburag and Mukarambi, 2023). The adoption of emerging technologies also creates opportunities for innovation and professional growth within the library profession. Cox (2023) underscores that librarians equipped with competencies in AI and digital technologies can redefine their roles and contribute to cutting edge developments in academic libraries. Similarly, it's also note that embracing these technologies encourages a shift towards more innovative and adaptive library practices, ultimately enhancing the relevance of libraries in the digital age.

Integration of library database

The use of technological innovative changes capable of fostering technological service delivery in academic libraries include the use of OPAC, compact shelving, archiving research data, shared annexes for storage, digital and institutional repository. Open Access software makes information available to scholars free of charge, circulation unit of any academic library aims to disseminate information to scholars, researchers, and faculty members at no cost or minimal cost. One of the major tasks of academic libraries is circulating the resources of the libraries. Users have access to the resources of the libraries for utilization. Due to the increased demand for scholarly articles and the technological advances of the internet, open access is quickly becoming a major priority among research libraries today (Ajayi et al., 2024).

Staff Development

Staff training and development is the teaching or learning activities carried out for the primary purpose of helping members of an organization or academic library to acquire and apply the knowledge, skills, abilities and attitudes needed by that organization. Training is the process of equipping the workforce with the necessary knowledge, skills, and attitude to tackle the job responsibilities. The librarian should be well informed, orientated as well as educated on the certain skills which may bring innovation or changes to his/her profession. Staff training and development activities in the libraries do not only help staff to meet the challenges of providing

information to support the academic programs of the library, but it also helps to sustain the growth of provide the security for the both human and information resources in the library which eventually helps to improve upon the individual staff effectiveness (Allison, 2024).

Internet Facilities

Good internet infrastructure connectivity, sufficient computer terminals, adequacy of Information and Communication Technology (ICT) skills will enhance the access and use of electronic innovation information resources in the institutions. Information resources such as e-books, online databases, e-journals, as well as CDROMs are available in the institutions (Gladys, 2024)

Solar Power System

The orientation and awareness are prerequisite to adoption and use of digital information resources, and that if library users used Internet service and access electronic journals, it is a prove that the users are aware of the resources and the channels to reaching them. The installation of modern solar power system will enhance and make the innovation adoption real in academic library. The application of solar system and ICT infrastructure eradicate the issues of epileptic power supply, non-availability of online databases, inadequate computers, inadequate bandwidth, network problems, lack of skill, and lack of formal training on internet use worked against the use of electronic information resources by library users. With adequate and equipped solar infrastructures all the highlighted problems will be vanished. Odiche and Amodu (2024) further asserted that one of the major factors hindering the penetration of information and

communication technology (ICT) devices in developing nations is the absence and inadequacy of electricity to provide power for technological devices. This inadequacy of power supply by the national grid, among other factors has led developing nations like Nigeria and organizations within it to look for alternative power sources like generators and solar and inverter generated energy. Solar energy implies tapping radiant light energy emitted by the sun as a means of energy source and converting it into electricity directly using photovoltaic (PV), indirectly using concentrated solar power, or a combination. It serves as an important tool in the elimination of pollution and creates a highly reliable electricity backup to electrical/electronic appliances. Places powered by solar energy have been installed with inverters of different capacities and batteries with the capability of storing power that is able to operate electrical appliances such as computers, television, radio, laptops, ipads, tablets, and refrigerators (Emiri, 2023).

Challenges of Innovation in Academic Libraries

The adoption and use of digital information resources could be altered by some of the highlights challenges below. One of the foremost barriers is the inadequate technological infrastructure in Nigerian academic libraries. Oyetola et al. (2023) emphasize that the lack of stable internet connectivity, poor power supply, and outdated hardware are significant impediments to leveraging artificial intelligence (AI) and robotic technologies. However, shortfalls in gaining benefits from the digital information resources disseminated by academic libraries are major challenges

Technophobia

The fear of using new technology facilities/skills is a major threat in innovative adoption in Nigeria academic libraries. Odiche and Amodu (2024) portrayed that, technophobia, technological problem, administrative problem, irregular government policies, environmental problem, lack of literate or skilled personnel, hardware and software failure and high cost of ICT facilities are the major challenges affecting electronic adoption in academic libraries. Technophobia also known as techno fear, is the fear or dislike for advanced technology or complex devices, it extends beyond the boundaries of one country as it is a behavior toward technology issue, in other words, technophobia coexists with technology regardless of physical location. Many studies have examined technophobia in countries like Iran Vikram and Kaur 2022): Technophobia closely relates to computer anxiety, but it is distinct from it. Computer anxiety is associated with interacting with computers, while technophobia is a broader concept related to modern or new technologies, not just computers. So far, several measures have been developed to evaluate specific technology influences, such as computer anxiety and negative attitude toward robots (Edache-Abah and Amuji, 2025)

Lack of Training

Lack of training pose a great threat to the adoption of innovation in academic library. Sometimes there may be new technological gadgets which require adequate knowledge to operate them. Oladokun et al. (2023) point out that there is a lack of adequate training and professional development opportunities for librarians to acquire the technical skills required for AI and robotics integration. These studies reveal that the gap between technology adoption and staff competency undermines the effective implementation of innovation technologies.

Funding

Inadequate funding also pose a major challenge. Oladokun et al. (2023) highlight that the high cost of acquiring and maintaining emerging technologies, such as AI and robotics, often exceeds the budgets allocated to academic libraries. This financial constraint is further compounded by limited government funding and a lack of alternative financing options for technological investments. Further, the readiness and capacity of library staff to adopt and utilize emerging technologies are also significant concerns

Institutional Factors

Some of the challenges are related to the library users, some challenges are institutional, structural and infrastructural, which means the library institutions are bedeviled with the challenges. It also deduced from the findings of Wada et al, (2022) that one form of the challenge contributed significantly to the failure or difficulty in using libraries and their information innovative resources at different levels and circumstances. If the challenges against the adoption and use of digital information resources are not properly managed or brought to minimal level or completely removed, the credibility and usefulness of academic libraries can seriously be at heightened risk. It would be difficult for educational institutions to function effectively and efficiently without ensuring that libraries serving as blood streams of educational activities are not put in good shape. The implications for library users like postgraduate students are also enormous, ranging from lack of computer literacy, this will results to poor academic performance, inability to acquire sufficient knowledge and skills for discoveries and innovativeness

Prospects of adopting innovation technologies in academic libraries in Nigeria

The prospects of adopting innovation technologies in academic libraries in Nigeria are promising with the potential to transform service delivery, enhance access to information, and streamline library operations. These advancements are particularly significant in the context of artificial intelligence (AI), robotics, and other digital innovations, which are

increasingly being explored in library settings globally and Nigeria. Emerging technologies such as AI-powered tools and robotic systems have the potential to significantly enhance the quality and efficiency of services offered by academic libraries. Oyetola et al. (2023) highlighted that AI applications, including intelligent chat bots and recommender systems, can support personalized user interactions and improve information retrieval processes. Similarly, Lund and Wang (2023) emphasize the role of AI tools like Chat GPT in assisting with academic research, creating content summaries, and addressing user queries, thereby expanding the scope of library services

Conclusion

Technology literacy and digital innovation play a crucial role in academic libraries where teaching and learning processes of this modern era or technology-driven world, this enables students to communicate effectively with their peers and lecturers through online platforms. Students are provided with better orientation and access to information, enhanced creativity and critical thinking and problem solving in their academic performance by adopting in online platforms and carrying out laboratory experiments using the online laboratory and subsequently apply what they have learned in real life situation thereby their relationship with technology, is s influenced by general attitudes toward innovative technologies, among other factors.

Way forward

Based on the study, the research suggest that,

i. There is need for written policies to guide fear of use of ICT in adoption of innovative technologies in Nigeria academic libraries.
ii. Library management should ensure human capacity development and encourage their staff through the skills training to internalized new innovation.
iii. Adequate funding must be ensured through TETFUND intervention for seamless innovation changes in Nigeria academic libraries.
iv. The existing institutional and infrastructural resources should be adequately maintained so as to create a conducive environment for the library users

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Patient Education Hubs: Hospital Libraries Enhancing Health Literacy Delivery in Southern Nigerian Teaching Hospitals

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Abstract

The study on "Patient Education Hubs: Hospital Libraries Enhancing Health Literacy Delivery in Southern Nigerian Teaching Hospitals" empirically examined the role of hospital libraries as patient education centers in Nigeria's healthcare system. The study was guided by four objectives. The study adopted a descriptive survey research design targeting medical librarians, healthcare providers, and patients from teaching hospitals in Southern Nigerian Teaching Hospitals. A population was 1308. A sample of 260 respondents comprising of 20 librarians, 40 healthcare professionals, and 200 patients participated. Data collection utilized validated questionnaires, patient knowledge assessment tests, and observation checklists, validated by three Library and Information Science experts. Cronbach Alpha reliability was established, with analysis employing descriptive statistics (mean scores, standard deviations). Findings revealed leaflets and health talks as primary services, with librarians demonstrating moderate competencies in plain language writing but limited multimedia skills. Patient comprehension will improve significantly post-library intervention. Barriers including limited funding and healthcare provider collaboration will emerge. The study concluded that hospital libraries substantially enhance health literacy when systematically integrated into patient care pathways, recommending dedicated health literacy coordinators, multimedia production units, interprofessional training, and sustained funding to institutionalize patient education hubs supporting Nigeria's universal health coverage goals.

Keywords: Patient Education Hubs, Health Literacy, Hospital Libraries, Treatment Adherence, Plain Language Materials

Introduction

Patient education hubs are increasingly important in hospital libraries because they give patients a place to access trusted health information, learn in simple language, and take part more actively in their care. In modern health systems, health literacy is not only about reading information but also about understanding, using, and acting on it in ways that support better decisions and better outcomes (McDonald, Winter & Luke, 2010). Hospital libraries are therefore well positioned to support patient education because librarians already manage reliable information resources and can help translate complex medical content into clearer forms that patients can use. This makes the idea of patient education hubs especially relevant in hospitals where patients and families often need guidance, reassurance, and easy access to health knowledge (Ozan, 2020).

The growth of patient centered care has made the role of libraries in health education more visible. Recent literature shows that librarians are no longer limited to serving clinicians and researchers alone, because they are now also involved in improving consumer health information access, supporting patient engagement, and helping healthcare organizations respond to health literacy needs (Amini & Ashrafi-rizi, 2018). In hospital settings, this shift is important because patients often face difficult medical terms, rapid treatment decisions, and pressure to understand their care quickly. Patient education hubs can respond to this need by bringing together print materials, digital tools, referral support, and face to face guidance in one accessible service point (Truccolo, 2016). When such hubs are well designed, they can help patients become more confident, ask better questions, and participate more fully in their treatment.

Hospital libraries also have a professional and ethical role in promoting equitable access to health information. Librarians are trained to locate, evaluate, organize, and present reliable information, which makes them useful partners in health literacy work and patient education (Beschnett & Bulger, 2013). A recent study has shown that library based health information services can improve awareness of health literacy issues, strengthen collaboration with healthcare staff, and encourage the use of trusted resources in patient education initiatives (Renzi, Baccolini, Migliara, De Vito, Gasperini & Cianciulli, 2022). In practical terms, this means hospital libraries can serve as bridges between medical knowledge and patient understanding, especially where patients have limited literacy, little time, or difficulty navigating

complex hospital systems. The growing interest in health literacy across library and health literature shows that this area is timely and worth deeper scholarly attention (Hessler, 2015).

Despite this promise, patient education hubs can only function well when they are supported by space, funding, staffing, technology, and collaboration. Several studies have noted that hospital librarians often work within service structures that still prioritize clinical staff over patient facing services, and this limits the expansion of educational support for patients (Truccolo, 2016; Ozan, 2020). There is also evidence that training gaps, weak organizational support, and limited infrastructure reduce the ability of librarians to design and sustain patient focused services (Collins, 2015). For this reason, a study on patient education hubs can make a strong contribution by showing why hospital libraries matter in health literacy delivery and by arguing for practical changes that can strengthen their role in patient education.

Statement of the problem

Ideally, hospital libraries should function as active patient education hubs where librarians provide clear, reliable, and easily accessible health information that helps patients understand their conditions, treatment options, and self care responsibilities. However, the current situation in many hospital libraries is different because patient education functions are still weak, poorly structured, or underdeveloped due to limited funding, shortage of space, inadequate staff training, outdated technology, and weak collaboration with hospital personnel. The consequence of these problems is that patients may continue to receive health information that is fragmented, difficult to understand, or unavailable when needed, which can reduce understanding, weaken participation in care, and make it harder for hospitals to improve health literacy delivery. Previous studies have discussed librarians' roles in health literacy and consumer health services, but fewer studies have focused specifically on the development of patient education hubs in hospital libraries as a structured and practical model for health literacy delivery, especially in contexts where institutional barriers remain strong. This gap warrants the present study

Objectives of the Study

The main objective of the study is on Patient Education Hubs: Hospital Libraries Enhancing Health Literacy Delivery in Southern Nigerian Teaching Hospitals. The specific objectives were to:

1. Identify patient education services currently provided in Southern Nigerian Teaching Hospitals
2. Assess librarians' competencies in developing health literacy materials in Southern Nigerian Teaching Hospitals
3. Determine the impact of library interventions on health outcomes and treatment adherence in Southern Nigerian Teaching Hospitals
4. Identify the challenges of librarians in hospital libraries in developing patient education hubs towards enhancing health literacy delivery in Southern Nigerian Teaching Hospitals

Research Questions

The following research questions guided the study:

1. What patient education services are currently provided in Southern Nigerian Teaching Hospitals?
2. How competent are librarians in developing health literacy materials in Southern Nigerian Teaching Hospitals?
3. What is the impact of library interventions on health outcomes and treatment adherence in Southern Nigerian Teaching Hospitals?
4. What challenges do librarians in hospital libraries face in developing patient education hubs to enhance health literacy delivery in Southern Nigerian Teaching Hospitals?

Review of Related Literature

Hospital libraries

Hospital libraries have gradually moved beyond being quiet places that only store books and journals, because they now support clinical work, patient care, staff education, and public access to trustworthy health information. In the literature, hospital libraries are described as service points where librarians help users find, evaluate, and understand health information in ways that fit their needs and level of understanding (Beschnett & Bulger, 2013). This role has become more important in recent years because hospitals increasingly expect libraries to contribute to patient centered care and not only to academic or clinical research support. The literature also shows that hospital libraries are trusted spaces that can connect professionals, patients, and families to reliable information, especially in environments where health information is often complex and difficult to interpret (Ozan, 2020).

Patient education hubs

Patient education hubs are emerging as organized library based support points where patients can access clear health information, printed materials, digital resources, and human guidance in one place (McDonald, et al, 2010). The literature suggests that such hubs can be developed through collaboration between librarians, nurses, doctors, and hospital administrators so that patients receive information that is simple, relevant, and timely. A patient education hub is not only a room or a shelf of leaflets, but also a structured service that helps patients ask questions, learn about their conditions, and take part in decisions about their care (Amini & Ashrafi-rizi, 2018). Recent discussions of hospital

library services show that patient education programs work best when they are visible, easy to use, and built into the daily life of the hospital.

Health literacy

Health literacy refers to the ability to find, understand, judge, and use health information in ways that support sound health decisions (American Library Association, 2015). Recent literature divides health literacy into functional, interactive, and critical forms, showing that people need more than basic reading ability if they are to handle health information well (Malachowski, 2014). This matters because patients often face medical terms, treatment instructions, and online information that may be confusing or too technical for everyday use. Studies also show that low health literacy remains a challenge in many settings, which makes the work of librarians and health educators important for reducing misunderstanding and improving patient confidence (Obiekwe & Agim, 2021; McDonald, et al, 2010).

Libraries and health literacy delivery in Teaching Hospitals

The literature increasingly presents Teaching Hospitals as active partners in health literacy delivery because librarians can simplify information, teach users how to locate reliable sources, and support communication between patients and health staff. A recent study show that librarian led health literacy interventions can improve information seeking habits and encourage the use of trusted medical sources rather than unreliable online content (Agim & Azolo, 2022). Health literacy programs in Teaching Hospitals settings also show that collaboration is essential, since librarians work best when they are included in staff training, patient education planning, and hospital communication strategies (Cooper & Crum, 2013; Medical Library Association, 2016). In this way, teaching Hospitals do not only store knowledge, they help translate knowledge into practical understanding that patients can use in daily health decisions.

Methodology

The study adopted a descriptive survey research design targeting medical librarians, healthcare providers, and patients from Southern Nigerian Teaching Hospitals. The population comprised of 1,308. A sample of 260 respondents comprising of 20 librarians, 40 healthcare professionals, and 200 patients participated. Data collection utilized validated questionnaires, patient knowledge assessment tests, and observation checklists, validated by three Library and Information Science experts. The Crombach Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.83 was obtained. Data collected was analyzed using descriptive statistics of mean scores and standard deviation

Results and Discussion

Research Question 1: What patient education services are currently provided in Southern Nigerian Teaching Hospitals?

Table 1: Observation Checklist on patient education services currently provided in Southern Nigerian Teaching Hospitals

S/N	Items	Provided	Not Provided
1	Printed brochures on disease management.	√	
2	One-on-one consultations to help patients understand their medical conditions.	√	
3	Group sessions on health literacy topics for patients.		√
4	Collection of easy-to-read health books and magazines for patients.	√	
5	Audiovisual materials (e.g., videos, DVDs) on treatment procedures and self-care.		√
6	Assists patients in accessing reliable online health information resources.	√	
7	Collaborates with healthcare providers to deliver tailored patient education programs	√	
8	Pamphlets on disease prevention.	√	
9	Focus group services to patients having same disease		√
10	Workshops on health literacy topics for patients.	√	

The data shows that hospital libraries are highly active in delivering personalized and accessible educational resources to patients. The respondents confirmed that services such as printed brochures on disease management, one on one

consultations, and the collection of easy to read materials are fully available. Furthermore, the findings indicate strong support in assisting patients with reliable online health information, collaborating with healthcare staff to create tailored programs, and offering pamphlets on disease prevention. Workshops on health literacy are also established as a key service. In contrast, group sessions, audiovisual materials, and focus group services are not currently offered in these library settings. This demonstrates that while individual and static resource provision is well supported, interactive group based and multimedia delivery methods for patient education remain areas that require further development within the hospital library framework.

Recent research in clinical librarianship consistently highlights the central role of hospital libraries in enhancing patient care through targeted information services. Dancy-Scott, Rockoff, Dutcher, Keselman, Schnall, Siegel and Bakken (2014) established that library services contribute significantly to clinical decision making and patient understanding by providing curated, high quality health information, which aligns with the observed success of individual consultations and print material distribution. Furthermore, studies by Swanberg, Dennison, Farrell, Machel, Marton and O'Brien (2016) emphasize that librarians serve as essential partners in health literacy efforts, utilizing their expertise to bridge the gap between complex medical data and patient comprehension, reinforcing the findings regarding the provision of online resource assistance and tailored programming. Additionally, work by Cooper and Crum(2013) demonstrates that while libraries excel at disseminating health information, the integration of specialized group programming and media rich formats often requires unique institutional support and resource allocation, explaining why such services may be less common in standardized library environments.

Research question 2: How competent are librarians in developing health literacy materials in Southern Nigerian Teaching Hospitals?

Table 2: Mean Responses on how competent librarians are in developing health literacy materials in Southern Nigerian Teaching Hospitals

S/N	Items	Mean	SD	Remarks
1	I have strong skills in simplifying complex medical information into patient-friendly language.	2.80	0.70	Agree
2	I am proficient in designing visually appealing health education brochures and posters.	2.65	0.65	Agree
3	I can effectively use digital tools (e.g., Canva, Adobe) to create multimedia health literacy content.	2.30	0.75	Disagree
4	I am knowledgeable about evidence-based principles of health literacy (e.g., plain language guidelines).	2.90	0.72	Agree
5	I am able to evaluate and adapt health materials for diverse patient populations (e.g., low-literacy groups).	2.75	0.68	Agree
6	I have experience in pre-testing health literacy materials with patients for clarity and usability.	2.85	0.78	Agree
7	I stay updated on best practices for developing culturally sensitive health education resources	2.95	0.80	Agree
	Grand Mean	**2.75**		**Agree**

The table shows that librarians were generally competent in developing health literacy materials because the grand mean of 2.75 falls within the agreed range, and six of the seven items were rated as agree while only one item was rated as disagree. The strongest area was staying updated on best practices for culturally sensitive health education resources with a mean of 2.95, followed closely by knowledge of evidence based principles of health literacy with a mean of 2.90, which suggests that librarians understand the content and guidance needed for effective health material development. The item on using digital tools to create multimedia health literacy content was the only weak point, with a mean of 2.30, showing that respondents do not strongly believe they are fully competent in that aspect. The standard deviation values are fairly close to one another and remain low, which suggests that the responses were not widely scattered and that the respondents generally shared a similar view about their competence levels. This pattern aligns with the view that librarians are important contributors to health literacy work and can simplify information, design useful materials, and adapt content for different users, but they may still need more support in digital production skills.

This finding is supported by a review by Malachowski (2014) which showed that clear and simple wording improves the usefulness of health promotion materials and helps people understand complex health information better. A study by McDonald, et al (2010) found that library staff often assist patrons with health related information, but they also need stronger preparation to handle some health communication tasks effectively. Another review by Ozan (2020) reported

that librarians have long been involved in health information work and are well positioned to support health literacy, especially through training, outreach, and development of accessible materials, even though more support is still needed in some skill areas.

Research Question 3: What is the impact of library interventions on health outcomes and treatment adherence in Southern Nigerian Teaching Hospitals?

Table 3: Mean Responses on impact of library interventions on health outcomes and treatment adherence in Southern Nigerian Teaching Hospitals

S/N	Items	Mean	SD	Remarks
1	Library-provided education has improved patients' understanding of their prescribed medications.	2.85	0.60	Agree
2	Participation in library workshops has led to better patient adherence to treatment plans.	3.15	0.65	Strongly Agree
3	Library interventions have reduced hospital readmission rates among educated patients.	3.05	0.70	Strongly Agree
4	Patients who use library resources report higher confidence in managing their health conditions.	2.90	0.55	Agree
5	Library health literacy programs have positively influenced patients' lifestyle changes (e.g., diet, exercise).	2.95	0.58	Agree
6	Feedback from healthcare providers indicates that library interventions enhance overall patient health outcomes.	3.20	0.62	Strongly Agree
7	Library services have contributed to fewer medication errors reported by patients	2.80	0.50	Agree
	Grand Mean	**3.00**		**Strongly Agree**

The table shows that library interventions have a positive impact on health outcomes and treatment adherence because the grand mean of 3.00 falls in the strongly agree range, which means respondents generally accepted that library based health support makes a real difference. The responses also show that the highest rated areas were the effect of library interventions on overall patient health outcomes, with a mean of 3.20, and better adherence to treatment plans, with a mean of 3.15, which suggests that respondents see library services as useful in helping people follow medical advice and improve their health. The items on improved understanding of prescribed medications, higher confidence in managing health conditions, lifestyle change, and fewer medication errors were all rated as agree, showing that respondents also believe library services help people in practical ways even when the effect is a little lower than the strongest items. The standard deviation values are close to one another, which means the answers were fairly consistent and most respondents shared similar views. In simple terms, the table suggests that library interventions are not just for reading and information sharing but also support patient learning, better treatment behavior, safer medication use, and improved health outcomes.

This result is supported by a study by Amini and Ashrafi-rizi (2018) which found that public libraries act as important community health partners and help people access health information that supports better health decisions. It is also supported by a systematic review by Truccolo (2016) which showed that librarian provided services in healthcare settings contribute to patient care outcomes such as better decisions, fewer readmissions, and improved quality of care. A study by Beschnett and Bulger (2013) also reported that clinical librarians influence patient care, support treatment decisions, and contribute to outcomes linked with quality of life and reduced hospital use, which aligns with the present finding that library interventions improve adherence and health outcomes.pmc.ncbi.nlm.nih+2

Research Question 4: What challenges do librarians in hospital libraries face in developing patient education hubs to enhance health literacy delivery in Southern Nigerian Teaching Hospitals?

Table 4: Mean Responses on challenges librarians in hospital libraries face in developing patient education hubs to enhance health literacy delivery in Southern Nigerian Teaching Hospitals

S/N	Items	Mean	SD	Remarks
1	Limited funding restricts the development of dedicated patient education hubs in our library.	2.80	0.75	Agree
2	Lack of space in the hospital library hinders the creation of interactive education hubs.	3.20	0.70	Strongly Agree
3	Insufficient collaboration with medical staff poses a challenge to hub development.	2.90	0.80	Agree

4	Librarians lack adequate training in health literacy hub design and management.	3.10	0.78	Strongly Agree
5	Resistance from hospital administration delays initiatives for patient education hubs.	3.30	0.65	Strongly Agree
6	Technological limitations (e.g., outdated equipment) impede interactive hub features.	3.05	0.82	Strongly Agree
7	High patient volume overwhelms librarians' capacity to staff and maintain education hubs	3.40	0.72	Strongly Agree
	Grand Mean	**3.11**		**Strongly Agree**

The table means that respondents generally agreed that hospital libraries face many barriers in creating patient education hubs, and the overall response is clearly positive toward the presence of these challenges because the grand mean is above the acceptance point . Items 2, 4, 5, 6, and 7 were strongly agreed with, showing that lack of space, poor training, administrative resistance, technological weakness, and heavy patient workload are seen as serious problems. Items 1 and 3 were agreed with, which still shows that limited funding and weak collaboration with medical staff are real difficulties, even if they were not rated as strongly as the other items. The standard deviation values are all below 1.00, which suggests that the respondents had fairly close opinions about these challenges and did not differ widely in their views. In simple terms, the result shows that hospital librarians want to support patient education, but the environment, resources, staffing, and institutional support make the work difficult.

The findings are supported by earlier studies by Renzi et al (2022) showing that hospital administrators and health care providers recognize the value of consumer health information, but funding and resource decisions still create barriers to patient centered library services. A scoping review by Hessler (2015) also reported that librarians contribute to patient education, yet gaps in resources, training, and organizational support continue to limit what they can do. In addition, a study by Collins (2015) reported that weak patient participation and practical implementation barriers can reduce the success of education activities in hospital settings, which agrees with the present result that patient education hubs face operational and institutional challenges.

Conclusion

This study concludes that patient education hubs in in Southern Nigerian Teaching Hospitals are important but are still being held back by a mix of practical and institutional problems that make health literacy delivery difficult. Across the four objectives, the findings show that librarians support the idea of patient education hubs, yet they face major barriers such as limited funding, inadequate space, poor staffing, weak training, insufficient collaboration with health professionals, resistance from hospital management, and outdated technology. The study therefore shows that although hospital libraries have the potential to improve patient understanding of health information and support better health decisions, this potential cannot be fully achieved unless the hospitals provide stronger support systems, better resources, and clearer administrative commitment. In simple terms, the result means that patient education hubs can work well in hospital libraries, but only when the right conditions are created for them to function effectively.

Recommendations

Drawing from the findings of the study, the following recommendations address the identified issues:

1. Hospital management should provide adequate funding and basic infrastructure for hospital libraries to establish and sustain patient education hubs for effective health literacy delivery.
2. Hospital libraries should create more space and provide modern equipment that will support interactive patient education activities and improve access to health information.
3. Hospital administrators and medical staff should work closely with librarians through regular collaboration so that patient education hubs can meet the real information needs of patients.
4. Librarians should receive continuous training in health literacy, patient education, and hub management so they can design and run the hubs more effectively.

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Perceived Usefulness of Makerspaces as Lifelong Learning Environments in Nigerian Universities: A Motivation and Learning Dimensions Model

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Abstract

Assessing student learning is complex and multifaceted, this research recognized the need to consider student makerspace interactions through the lens of learning and motivation to perceive the usefulness of makerspace in Nigerian academic libraries. This study investigating the relationships among motivational factors, learning dimensions, and perceived usefulness of makerspace in Nigerian academic libraries. A random sampling technique was employed to collect data from 323 respondents, representing an 88.7% response rate, and the data were analyzed using Structural Equation Modeling (SEM). Based on the Tinkering Learning Dimensions Framework, Self-Determination Theory, and Technology Acceptance Model, the results of the path analysis indicate that intrinsic motivational factors have no direct statistically significant influence on the perceived usefulness of makerspace in Nigerian academic libraries, but the relationship is mediated by an indirect influence through learning engagement, and initiative and intentionality. Interestingly, social scaffolding, learning engagement, initiative and intentionality, and developing understanding were found to have a direct significant influence on the perceived usefulness of makerspace. A satisfactory model fit was obtained.These results suggest that students are more likely to perceive makerspaces as useful when they actively engage in learning activities, demonstrate intentional participation, develop deeper understanding, and benefit from collaborative support structures. The structural model demonstrated satisfactory goodness-of-fit indices, confirming the robustness of the proposed framework The finding would assist the policymakers, instructors, and learners, all of whom are undoubtedly interested in the use of makerspace. Several implications and future studies were presented.

Keywords*: Academic libraries, Makerspace, Perceive usefulness, Learning dimensions, intrinsic motivation, Nigeria.*

Introduction

Academic libraries have increasingly evolved into learner-centered environments that facilitate active learning and collaborative knowledge creation. Within the context, the role of librarians extends beyond teaching search techniques to cultivating students' ability to think critically, evaluate information, and engage in independent lifelong learning (Bahr, 2026). Attractively, makerspaces are a natural progression for libraries where users can tinker with technological tools to be creative. This would assist libraries to reinvent and market themselves as cutting-edge in the lives of their users. Certainly, the makerspace is more than simply an after-school activity; it's an informal after-school community that supports tech-rich maker learning and collaboration (Higgins, et al., 2026), it is also considered the "third wave" (Barschak, 2026). Which is an individual's desire to use the space and encourage their community to be innovative and creative. The idea is to encourage flexibility in a learning environment to meet the needs of its users.

The term 'makers" first appeared in 2005 with the launch of Make magazine and its approaches to creativity and project promotion (Fred, and Mukhtar-Landgren (2026). Makers' fair was to promote community collaboration. This created more opportunities for students to apply their ability to share ideas and critical thinking skills toward problem-solving. In a makerspace environment where knowledge is created through collaboration, motivation is regarded as a key determinant factor of learning activities (Corsini & Moultrie, 2020), and the process is best when individual manifestations are blended to perceive it as useful. This study responds to these calls for more research to examine the relationship between intrinsic motivation and other outcomes associated with makerspace sustainability(Han, et al., 2017), to incorporate more statistical and empirical results from students to strengthen the evidence of learning in the makerspace (Otieno, 2017), and to develop a new pedagogical solution (Kajamaa & Kumpulainen, 2020). Also, the study would overcome the methodological limitations of prior works, many of which are descriptive and use small samples and unvalidated measures (Keshinro & Oyewole, 2021). To fill the above gap, this study incorporated the tinkering learning dimensions framework, and self-determination theory to perceive the usefulness of makerspace in Nigerian academic libraries.

Objectives of the Study

specifically, the study would address the following objectives;

1. To investigate the motivational factor that influences the perceived usefulness of makerspace in Nigerian academic libraries.

2. To investigate the influence of learning dimensions on the perceived usefulness of makerspace in Nigerian academic libraries.
3. To investigate the influence of learning engagement and initiative and intentionality on the relationship between intrinsic motivation and perceived usefulness of makerspace in Nigerian academic libraries.

Literature Review

As part of the global movement, the concept of makerspace presented technologies for modeling different tools for innovation and creativity (Qi & Buechley, 2010; Rode. et al., 2015). A common definition of makerspace used in the arena of Library and Information Science is "a place where staff and individuals gather to share knowledge, resources, collaborate, and create" (Britton, 2012). This is comprehensive, but likely no two (2) makerspaces are the same, some endeavors, painting, and crafting, while others stress technologies with computer programming, 3D printers, music studios, and laser cutters (Moorefield-Lang, 2015). While some locations are a mix of technology and arts (Bossaller & Haggerty, 2018). These will encourage students in learning and mentoring for creating a sustainable solution to problems that affect the community. A 3-D printer, soldering irons, a laser cutter, and sewing machines are among the tools available for use in makerspace activities (Lee, Kafai, Vasudevan, & Davis, 2014). Although a makerspace does not have to include all of these items, some start with just a sewing machine. Therefore, makerspace has great potential to advance education and to create numerous ways for students to learn.

Makerspace in academic libraries

According to Noh (2015), the future of academic library services must include not only a software-based approach but also environmental technological development such as makerspace. Makerspaces are a growing trend in education (Lock, da Rosa dos Santos, Hollohan, & Becker, 2018), and service space for many libraries (Schrock, 2014), appearing on university campuses and can be a mechanism for encouraging students (Crompton., Burke, & Gregory, 2017), which serve as pillar tools for economic growth through a wide range of training. Academic library makerspaces are seen as an extension of embedded librarianship, research commons, and learning commons initiatives (Moorefield-Lang, 2015; Radniecki, Klenke, & Purpur, 2016). This could allow students from multiple disciplines to foster meaningful interdisciplinary collaboration to become an entrepreneur by turning their ideas into products.

Makerspace as a learning environment

Despite the hype surrounding makerspace as a new way of learning, the learning process is intimately connected with those social interactions and the availability of technical tools for creative production (Halverson & Sheridan, 2014). This has generated the attention of scholars, policymakers, entrepreneurs, and practitioners (Vinodrai, Nader, & Zavarella, 2021), and equally boost their learning skills in critical thinking to problem-solving. Scholars expect learners to be more motivated and engaged in learning environments that added value and see their usefulness (Ryan & Deci, 2000). Therefore, makerspace, as a learning environment, focuses on the needs of learners and facilitates choice among various learning opportunities that are expected to motivate learners.

The concept of intrinsic motivation.

Makerspaces are spaces that intrinsically motivate users to pursue projects voluntarily (Han et al., 2017). This deems that intrinsic motivation establishes an emotional feeling, such as joy and frustration, happiness, and unhappiness, and plays a crucial role in explaining learner acceptance and usage of makerspace. Intrinsic motivation refers to engaging in a program for its own sake, out of interest, or for the satisfaction and pleasure resulting from the skill (Lin, 2007). Researchers have emphasized the importance of incorporating intrinsic motivation to explain technology adoption and usage (Lee, Cheung, & Chen, 2005). Therefore, an individual's learner naturally has an intrinsic motivation that can be displayed in curiosity-based performances, searching for optimal experiences, and discovering new perspectives to perceive it as useful. It has been argued that, when learners are motivated intrinsically, they are likely to perform better and become more effective and productive (Csikszentmihalyi, 1990). Therefore, intrinsic motivation can be considered as another technique to perceive the usefulness of learning, which in turn influences the use of a makerspace environment.

Perceived usefulness

Two constructs (perceived usefulness and perceived ease of use) are widely used in literature to study the mindset of users towards the use of technology (Gefen, Karahanna, & Straub, 2003; Venkatesh & Bala, 2008). Numerous studies have confirmed that perceived usefulness is a reliable indicator of users' behavioral intention to use different technologies in different settings (Basuki et al., 2022; Koul & Eydgahi, 2018). Perceived usefulness of technology according to Davis (1989) refers to "a degree to which a person believes that using a particular technology would enhance his or her job performance". This involves learner diligence to ensure the kind of tools and services provided within the makerspace match his/her learning style. When individual learner recognizes the usefulness of makerspace technology, they think positively about it and maybe likely utilize the space. Therefore, perceived usefulness communicates the outcome of usage, and it illustrates the basic behavioral incentive of makerspace as a learning environment.

Underpinning theories

Tinkering Learning Dimensions Framework (TLDF)

In the present era of education, making and tinkering with inquisitive problem solving are the possible context of learning that have deep-rooted pedagogical theories (Bevan, Gutwill, Petrich, & Wilkinson, 2015). Tinkering, as a

branch of making, plays an important role in constraining meaningful learners' ideas through the use of makerspace facilities. This is consistent with the theoretical philosophies underlying the development of the makerspace. The TLDF reveals techniques for observing and measuring learning by incorporating a list of observable attributes (engagement, initiative & intentionality, social scaffolding, and developing understanding) (Bevan et al., 2015). In makerspace settings, which promote collaboration using accessible tools for innovation and creativity, these are logical and realistic learning opportunities.

Self-determination theory (SDT)

Self-determination theory, suggests that learners will feel more ownership of activities and greater autonomy when they experience a sense of choice, thus resulting to enhance intrinsic motivation (Bao & Lam, 2008). The theory predicts that social contexts which support the fulfillment of these three psychological needs (competency, autonomy, and relatedness), can enhance intrinsic motivation, and support the integration and internalization of extrinsic motivation (Ryan & Deci, 2020). This implies that SDT is a theoretical approach that offers the potential to motivate learners to develop flexible understanding and lifelong learning skills in a makerspace environment.

Propose Conceptual Framework and Hypothesis Development

Based on the theoretical framework, this study proposed a research model to investigate the perceived usefulness of makerspace in Nigerian academic libraries; the role of motivation and learning (Figure 1).

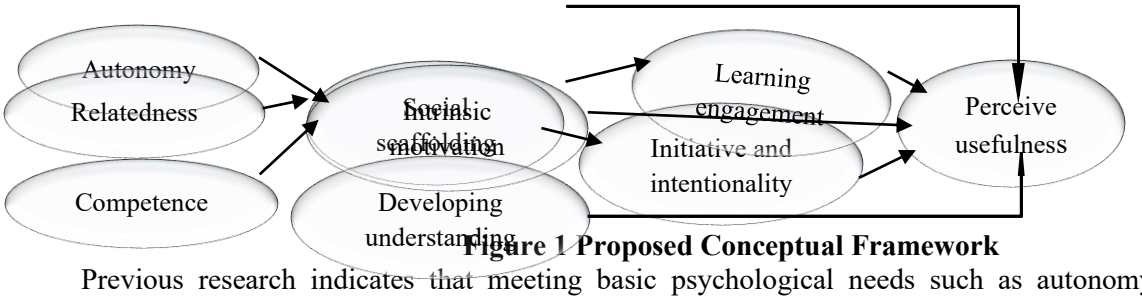


Figure 1 Proposed Conceptual Framework

Previous research indicates that meeting basic psychological needs such as autonomy, competence, and relatedness is directly related to intrinsic motivation (An & Han, 2020; Neys, Jansz, & Tan, 2014). Maheshwari (2021) discovered that intrinsic motivational factors have a significant influence on perceived usefulness based on field evidence. This proposed that

There is a significant relationship between intrinsic motivation and the perceived usefulness of makerspace

According to the researchers, "when individuals strongly engage in activities, they become involved, interested, occupied, and attentive to it" (Higgins, 2006). Previous research revealed a positive relationship between engagement and perceived usefulness (El-Sayad, Md Saad, & Thurasamy, 2021; Hong, Zhang, Ye, & Ye, 2021). Interestingly, An and Han (2020) demonstrated that user engagement mediates the relationship between intrinsic motivation and the creation of customer value/usefulness. This hypothesis stated that

There is a significant relationship between learning engagement and the perceived usefulness of makerspace

Learning engagement mediates the relationship between intrinsic motivation and the perceived usefulness of makerspace.

Social scaffolding is a significant learning dimension within tinkering activities (Gutwill, Hido, & Sindorf, 2015), and the space encourages members to gain inspiration, share ideas, and collaborate. Students require appropriate scaffolding that assists learners in constructing their understanding of the learning environment to increase the usefulness of learning outcomes (Oliver & Herrington, 2003), which increases the importance of learning and participation. This postulated that

There is a significant positive relationship between social scaffolding and the perceived usefulness of makerspace.

The level of initiative and intentionality (operationalized as personal innovativeness) displayed by learners is influenced by motivation, according to prior research, and initiative has a significant direct impact on real-world work operations (Frese, Garst, & Fay, 2007; Ohly & Fritz, 2007). "The willingness of an individual to try out any new information technology" is the precise definition of "personal innovativeness in the field of information technology" (Agarwal & Prasad, 1998). According to the self-determination theory, individuals' behavior is primarily driven by their intrinsic motivation to influence innovative work (Gagné & Deci, 2005; Malek, Sarin, & Haon, 2020; Yidong & Xinxin, 2013), and personal innovativeness significantly influences perceived usefulness (de Kervenoael, Schwob, Hasan, & Ting, 2021; Fagan, Kilmon, & Pandey, 2012).

There is a significant relationship between initiative and intentionality and perceived usefulness.

Initiative and intentionality mediate the relationship between intrinsic motivation and perceive usefulness

It's widely accepted that makerspaces provide a setting for students to advance their knowledge and skills. There's also the notion that exposing students to extracurricular design activities will improve them (Lanci et al., 2018). Students are less likely to consider a makerspace as an effective learning environment if they feel uncomfortable developing their understanding. According to Davis (2018), using acquired knowledge of tools and materials to create something gives makers a sense of accomplishment in terms of the usefulness of learning.

There is a significant relationship between developing understanding and perceived usefulness.

Methodology

This study adopted a **quantitative research methodology** to examine the factors influencing the perceived usefulness of makerspaces in Nigerian academic libraries. Specifically, a **survey research design** was employed. Using Krejcie and Morgan's (1970) sample size table, a sample of 364 respondents was selected from a population of 6,329 users. The sample was proportionately distributed between A.B.U. (n = 168) and NNSKA (n = 196) using a proportionate stratified sampling technique. However, 323 out of 364 copies of questionnaire were completed and analysed using SPSS and AMOS statistical software to investigate the perceived usefulness of makerspace in Nigerian academic

Results of the study

Factor Analysis

Factor analysis of intrinsic motivation and tinkering learning variables showed most items correlated above .3. Kaiser-Meyer-Olkin values ranged from .499 to .889, near or above the recommended .5 level. Bartlett's test of sphericity was significant ($p < .05$), confirming factorability of the correlation matrix. Most item commonalities exceeded .5, above the .3 benchmark, while anti-image matrix diagonals were all above .5, indicating shared common variance among items.

Table 4. Reliability of the constructs

Constructs	Cronbach Alpha α
Autonomy	.846
Competence	.906
Relatedness	.884
Engagement	.875
Initiative & intentionality	.824
Social Scaffolding	.838
Developing understanding	.821
Perceive usefulness of makerspace	.795

Table 3 showed satisfactory reliability for all constructs, with Cronbach's alpha values ranging from .795 to .906. Exploratory factor analysis confirmed construct validity, and all items with acceptable factor loadings were retained.

Normality

The normality assumption of the distribution of data indicated that the skewness and kurtosis of all variables fell within the range of -3.0 to +3.0 normality assumption (Tabachnick et al., 2007). This indicates that the data is normal and can be subjected to further analysis.

Preliminary Analysis

Structural equation modeling was used to test the hypotheses by validating measurement models and assessing the structural model through latent-variable path analysis after first, second-order, and integrated models were confirmed using CFA.

Measurement Model of the Research

The proposed measurement model assessed intrinsic motivation, tinkering learning dimensions, and perceived usefulness. Initial fit was unsatisfactory until modification indices were applied. Two items (INI2 and PUM1) had loadings below .5 and were removed. The final model achieved satisfactory fit indices: CMINDF=1.403, GFI=.899, TLI=.971, CFI=.975, RMSEA=.035, P=.000. Although GFI was slightly low, it was acceptable due to high variable correlations. Overall, the data showed a good fit with the model.

Convergent and Discriminant Validity

Convergent validity was established by confirming that theoretically related constructs exhibited strong statistical relationships through their measurement indicators. The composite reliability values for intrinsic motivation (0.838–0.912), learning dimensions (0.806–0.892), and perceived usefulness of makerspace (0.870) exceeded acceptable thresholds. Based on the criteria of Fornell and Larcker (1981), these results provide clear evidence of adequate convergent validity, indicating that the constructs reliably measure their intended theoretical concepts.

Discriminant validity was assessed using the Fornell and Larcker (1981) criterion by comparing AVE values with squared inter-construct correlations. The results confirmed that both convergent and discriminant validity exceeded the recommended threshold of .5. According to Hair, Gabriel, and Patel (2014), these acceptable psychometric properties indicate robust measurement quality. Overall, the findings provide sufficient empirical justification to proceed to the structural model analysis.

Table 5: Assessment of Discriminant Validity

	CR	AVE	MSV	ASV	DEU	AUT	COM	REL	ENG	INI	SCF	PUM
DEU	0.817	0.536	0.504	0.382	**0.732**							
AUT	0.838	0.566	0.471	0.316	0.604	**0.753**						
COM	0.912	0.721	0.471	0.293	0.587	0.686	**0.849**					
REL	0.892	0.674	0.477	0.394	0.652	0.634	0.599	**0.821**				
ENG	0.896	0.635	0.590	0.397	0.623	0.570	0.537	0.624	**0.797**			
INI	0.892	0.735	0.537	0.299	0.488	0.376	0.402	0.511	0.598	**0.858**		
SCF	0.852	0.593	0.610	0.397	0.640	0.502	0.476	0.666	0.662	0.631	**0.781**	
PUM	0.870	0.691	0.610	0.453	0.710	0.508	0.444	0.691	0.768	0.733	0.770	**0.831**

Model Evaluation

The proposed structural model was analyzed using Structural Equation Modeling (SEM) in Amos 21 with Maximum Likelihood Estimation. Model fit was assessed using multiple indices, including CMINDF, CFI, GFI, TLI, IFI, and RMSEA. Acceptable thresholds were CMINDF < 5, RMSEA < .08, and incremental fit indices above .90, with values near .95 or higher indicating superior fit. Modification indices exceeding .40 were also applied to improve model adequacy and overall goodness-of-fit.



Figure 2: A path model of the research

Using the Maximum Likelihood method, the structural model demonstrated an acceptable fit to the data: CMINDF = 2.311, GFI = .843, CFI = .915, IFI = .916, TLI = .906, and RMSEA = .064 (p = .000). Although GFI was below the conventional .90 threshold, it was considered acceptable due to high inter-variable correlations. Overall, the fit indices, particularly CMINDF, CFI, IFI, TLI, and RMSEA, confirmed that the proposed model adequately represented the data.

Hair, Anderson, Babin, and Black (2010) recommend using standardized regression weight to compare the relative effect of exogenous on endogenous variables (Table 6). The intrinsic motivation to perceive usefulness of makerspace was found to be statistically not significant at p more than point .5 (β = -.058, CR = -.562, p = .574), The relationship between social scaffolding and perceived usefulness of makerspace was found to be statistically significant (β = 0.278, CR = 7.313, p = 0.000), as was the result of learning engagement to perceive usefulness of makerspace (β = 0.348, CR = 4.855, p = .000), and initiative and intentionality to perceive usefulness of makerspace was also statistically significant (β = 0.300, CR = 6.685, p = 0.000). similarly, the result of the relationship between developing understanding and perceived usefulness of makerspace was discovered to be statistically significant (β =0.342, CR =5.178, p = .000).

Table 6. Standardized Estimates of the Structural Model

Path A			Estimate	S.E.	C.R.	P	Sest.
PUM	<---	INM	-.058	.102	-.562	.574	-.059
PUM	<---	SCF	.278	.038	7.313	***	.361
PUM	<---	ENG	.348	.072	4.855	***	.439
PUM	<---	INI	.300	.045	6.685	***	.424
PUM	<---	DEU	.342	.066	5.178	***	.276

Table 7 presents the total, direct, and indirect effects of the structural model. The indirect result indicates that learning engagement and initiative and intentionality have mediated the relationship between intrinsic motivation and perceived usefulness of makerspace at p less than .05 (0.591**) at P = .0005. Therefore, the results of the overall path model show that initiative and intentionality, and learning engagement fully mediated the relationship between intrinsic motivation and perceived usefulness of makerspace in Nigerian universities.

Table 7: Standardized Total, Direct, and Indirect Effects of the Structural Model

Path B	Total effects	Direct effects	Indirect effects
INM	.532* P = .0005	-.059* P = .328	.591** P = .0005
ENG	.439* P = .0005	.439* P = .0005	
INI	.424* P = .0005	.424* P = .0005	

Discussion of the findings

RO1 To investigate the motivational factor that influences the perceived usefulness of makerspace in Nigerian academic libraries.

The outcome of this objective produced an unexpected result with no significant influence on intrinsic motivation to perceive the usefulness of makerspace in academic libraries in Nigeria, leading to the rejection of hypothesis *H1*. Within the framework of self-determination theory, motivation is associated with the satisfaction of students' psychological needs, and intrinsic motivation is the main essential element of student motivation, bestow on learning activities (Brophy, 2013; Cameron, 2001). The result contradicts previous research on intrinsic motivation to perceive usefulness (Maheshwari, 2021; Sun & Gao, 2020). A student who perceives themselves to be active with a sense of competence, relatedness, and autonomy during the learning activity will undergo a high-quality motivation, while those frustrated will undergo a low-quality motivation to perceive the usefulness of makerspace. To intrinsically motivate learners, the management needs to understand the present academic goal of their learners and relate to their future ambitions.

RO2. To investigate the learning dimensions that influence the perceived usefulness of makerspace in Nigerian academic libraries. The finding indicates that enhancing the perceived usefulness of makerspaces requires a broader focus on learning experiences, environmental support, and educational outcomes rather than relying solely on students' intrinsic motivation

H2. The influence of social scaffolding on perceived usefulness of makerspace.

Regarding the relationship between social scaffolding and perceive usefulness of makerspace *(H2)*. The findings authenticated Mulhem and Almaiah (2021) that incorporating the scaffolding learning strategy into an educational mobile game also improves students' learning effectiveness. Therefore, providing explicit social scaffolding during the learning phase would have a significant influence on learning outcomes to perceive the usefulness of makerspace. The management must recognize that social scaffolding in makerspaces is a continuous effort to balance learner claims to the space against openness to newcomers. These interactions and collaborations with colleagues can sharpen the opportunities to learn makerspace skills. Therefore, instructors are advised to use social scaffolding to boost learners' comprehension to perceive the usefulness of makerspace. Therefore, strengthening social scaffolding and collaborative learning can enhance learners' understanding, engagement, and perceptions of makerspace usefulness.

H3. The influence of learning engagement on perceived usefulness of makerspace.

The findings support hypothesis (*H3)*, that there is a statistically significant relationship between learning engagement and the perceived usefulness of makerspace in Nigerian academic libraries. The finding is consistent with other previous research (El-Sayad et al., 2021; Hong et al., 2021). To improve the usefulness of makerspace, the management must develop and engage learners with a program that reflects their needs while taking internal motivation into account. This will help learners to participate in learning makerspace cognitively, emotionally, and behaviorally. Management should also encourage learning engagement based on the available tools. Regardless of whether they had the pedagogical training and content to learn the makerspace activity, the space itself will be attractive to influence learning engagement to perceived usefulness. Therefore, enhancing learner engagement through relevant programs and interactive activities can significantly increase the perceived usefulness of makerspaces.

H4. The influence of initiative and intentionality on perceived usefulness of makerspace.

The study's finding supports the hypothesis *(H4),* that learning initiative and intentionality significantly influenced the perceived usefulness of makerspace, which describes the individuals' belief in their ability to successfully initiate a specific task within the make learning space. This result indicates that student quality of learning in initiative and intentionality has increased to perceive the usefulness of makerspace. This supports Novak (2019) contention that the ability to be innovative is a critical factor in the successful use of makerspace. Based on this, management can seek to justify their budget, as well as student initiative and intentionality, and continue to invest for long-term success in Nigerian makerspace activities. Promoting student initiative, intentionality, and innovation can enhance makerspace usefulness and justify sustained institutional investment.

H5. The influence of developing understanding on the perceived usefulness of makerspace.

The results supported Hypothesis *5,* indicating that developing understanding, as a dimension of TLDF, significantly influences students' perceived usefulness of makerspaces. Learners actively and intentionally construct understanding through engagement in makerspace activities. This finding aligns with prior research highlighting the role of exposure to diverse perspectives in enhancing skill development and learning outcomes (Ping-Kee Tao 2001).

It further suggests that makerspaces should extend beyond technological provision to include support for learners' cognitive development and problem-solving abilities. Supporting cognitive development and problem-solving through makerspace activities enhances learners' understanding and perceived usefulness of makerspaces.

RO3. To investigate the influence of learning engagement and initiative and intentionality on the relationship between intrinsic motivation and perceived usefulness of makerspace in Nigerian academic libraries.

H6. Learning engagement mediates the relationship between intrinsic motivation and the perceived usefulness of a makerspace.

The statistical results supported Hypothesis *6*, confirming learning engagement as a significant mediating variable between intrinsic motivation and perceived usefulness of makerspaces. This finding aligns with prior studies highlighting engagement as a pathway through which motivation enhances user value perceptions (An & Han 2020). Makerspace environments should therefore promote competence, autonomy, and social connectedness to strengthen intrinsic motivation. Conversely, low motivation may reduce engagement and perceived usefulness. Management should implement strategies that foster learners' motivation and active participation in Nigerian academic library makerspaces. Therefore, enhancing learner motivation and engagement can strengthen perceptions of makerspace usefulness and improve learning outcomes.

H7. Initiative and intentionality mediate the relationship between intrinsic motivation and perceive the usefulness of makerspace.

Hypothesis *(H7)* was supported. This supports the findings of Davis, Don Gibbs (2017) who discovered that motivating student learning initiatives will be influenced by how they form a relationship with makerspace-related activities. Promoting initiative and intentionality as well as sharing experience among collaborators may have satisfied learners' competence and relatedness needs. In the same perspective, providing learners with a rationale for their role during makerspace activity and reinforcing their capacity for choices could have satisfied their need to perceive the space as useful. Encouraging learner initiative, autonomy, and collaboration can enhance competence, engagement, and perceived usefulness of makerspaces.

Limitations for future research

This study was limited to two selected federal universities in Nigeria and grounded in three theoretical frameworks: SDT, TLDF, and TAM, which may constrain the generalizability of the findings. Future studies should examine similar variables across other geographical regions to broaden empirical understanding. Additionally, as the present research relied solely on quantitative methods, subsequent investigations may adopt mixed-methods approaches to provide deeper and more comprehensive insights into the relationships among the variables.

Conclusion

The study provides evidence that intrinsic motivation and learning dimensions jointly shape students' perceived usefulness of makerspaces. Enhanced institutional support for learning dimensions is likely to increase students' enthusiasm, engagement, and positive perceptions of makerspaces in Nigerian academic libraries. Understanding the core dimensions of TLDF can guide management in redesigning makerspace services to improve user perceptions. Despite contextual challenges, makerspaces in Nigeria remain valuable platforms for promoting innovation and creativity.

Recommendations

Academic libraries should align makerspace activities with students' academic and career goals while promoting social scaffolding, active engagement, initiative, creativity, and problem-solving skills. Makerspaces should foster autonomy, competence, and collaboration through learner-centered programs integrated into teaching, learning, and research. Sustained institutional investment, continuous staff development, and regular evaluation are also essential for enhancing the perceived usefulness, effectiveness, and long-term sustainability of makerspaces.

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Place of law libraries in the acquisition, dissemination and use of legal information in Nigeria

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Abstract

This systematic review examines the place of law libraries in the acquisition, dissemination, and use of legal information in Nigeria. The review synthesises evidence from scholarly literature on academic, judicial, legislative, and specialised law libraries. Findings reveal that law libraries play significant roles in the acquisition of primary and secondary legal sources, dissemination of legal information through traditional and digital services, and facilitation of legal information use among judges, lawyers, lecturers, students, and researchers. The review further identifies challenges including inadequate funding, obsolete collections, weak ICT infrastructure, shortage of skilled personnel, and limited access to electronic legal databases. The study concludes that strengthening law libraries through sustainable funding, digitisation, professional development, and collaborative resource-sharing initiatives is essential for enhancing access to justice and supporting national development.

Keywords: Law libraries, Legal information, Information dissemination, Information utilisation, Legal research, Nigeria

Introduction

Information has increasingly become one of the most valuable resources in contemporary societies because it serves as the basis for knowledge creation, decision-making, innovation, governance, and socio-economic development. In the legal profession, information assumes even greater importance because legal decisions, judicial pronouncements, legislative enactments, legal scholarship, and professional practice depend substantially on access to accurate, current, reliable, and authoritative legal information. The administration of justice and maintenance of the rule of law therefore require institutions capable of acquiring, organising, preserving, disseminating, and facilitating the effective use of legal information resources. Law libraries constitute one of the most important institutions established to perform these functions within modern legal systems.

The law library is the building where information resources related to decrees, rules, edicts, and acts are housed. Obuezie and Echedom (2023) noted that a law library is a facility specially created for people in the law profession and those needing specialised legal information resources to search, access, and use the legal information resources that have been acquired, processed, and organised. They are established to serve the judicial arm of government. In the context of this study, a law library could be defined as an organised information centre for the acquisition, selection, collection, dissemination, conservation, and preservation of legal information for the benefit of the users.

Globally, law libraries have evolved from traditional repositories of legal texts into dynamic information centres that support legal education, research, advocacy, judicial administration, legislative processes, and policy development. They provide access to primary legal sources such as constitutions, statutes, treaties, regulations, and judicial decisions, as well as secondary legal materials including textbooks, journals, encyclopaedias, digests, commentaries, indexes, and electronic databases. In developed jurisdictions, contemporary law libraries have increasingly embraced digital technologies, artificial intelligence tools, institutional repositories, and electronic legal databases to improve access to legal information and enhance research efficiency. Consequently, law libraries are now recognised as critical infrastructures supporting democratic governance, access to justice, legal scholarship, and professional legal practice.

In Nigeria, law libraries occupy a strategic position because of the complex nature of the country's legal system, which incorporates statutory law, common law, customary law, Islamic law, and international legal instruments. This complexity necessitates the availability of comprehensive and well-organised legal information resources capable of supporting the information needs of judges, lawyers, lecturers, researchers, students, legislators, policymakers, and other stakeholders. Academic law libraries support legal education and scholarly research; judicial libraries facilitate adjudication and judicial decision-making; legislative libraries provide information for lawmaking and parliamentary deliberations; while specialised law libraries support research institutes, regulatory agencies, and professional

organisations. Therefore, law libraries occupy a strategic position as specialised information centres responsible for acquiring, organising, preserving, disseminating, and facilitating the use of legal information resources.

The acquisition of legal information constitutes one of the foundational roles of law libraries in Nigeria. This involves the systematic selection, procurement, and development of collections that reflect the evolving nature of the law. Given the dynamic character of legal systems where statutes are amended, judicial precedents are established, and new legal interpretations emerge law libraries must continuously update their holdings to remain relevant. These collections typically include primary sources such as constitutions, statutes, law reports, and judicial decisions, as well as secondary sources like textbooks, journals, encyclopaedias, and legal commentaries. The process of acquisition is guided by collection development policies that ensure comprehensiveness, relevance, and balance across various areas of legal practice and scholarship. In the Nigerian context, acquisition also extends to electronic databases and digital resources, reflecting the increasing integration of information and communication technologies in legal research.

Beyond acquisition, law libraries play a critical role in the organisation and dissemination of legal information. The organisation of legal materials through cataloguing, classification, indexing, and abstracting enhances accessibility and retrieval efficiency. Systems such as the Moys Classification Scheme and Online Public Access Catalogues (OPAC) are employed to facilitate systematic access to legal resources. Dissemination, on the other hand, involves making legal information available to diverse users including judges, lawyers, academics, students, and policymakers through a variety of services. These include reference services, circulation services, inter-library loans, and specialised information services such as Current Awareness Services (CAS) and Selective Dissemination of Information (SDI) (Uwaechina & Eze-Onwuzuruike, 2021). Through these mechanisms, law libraries ensure that users are kept informed about recent legal developments and are able to access relevant materials efficiently, thereby supporting informed legal decision-making.

Equally significant is the role of law libraries in facilitating the effective use of legal information. Access alone does not guarantee utilisation; users must possess the requisite skills to locate, evaluate, and apply legal information. Law libraries, therefore, provide user education and research support services aimed at enhancing legal information literacy. Law librarians, who often possess dual expertise in law and information science, guide users in navigating complex legal resources, formulating research strategies, and utilising both print and electronic databases effectively. This function is particularly important in Nigeria, where the increasing digitisation of legal resources presents both opportunities and challenges for users with varying levels of technological competence. By bridging the gap between information availability and information use, law libraries contribute significantly to the efficiency of legal research and practice.

Despite the importance of law libraries, Nigerian law libraries continue to face challenges that affect their ability to provide adequate legal information services. This review therefore examines the place of law libraries in the acquisition, dissemination, and use of legal information in Nigeria and identifies strategies for strengthening their effectiveness.

Statement of the problems

The administration of justice, legal education, legislative development, and professional legal practice depend largely on the availability and accessibility of reliable legal information. In Nigeria, law libraries are expected to serve as the primary institutions responsible for acquiring, organising, preserving, disseminating, and facilitating the use of legal information resources. However, despite their strategic importance, law libraries often receive inadequate attention from policymakers, institutional administrators, and other stakeholders. The rapid growth of legal information, increasing dependence on electronic resources, and evolving information needs of legal professionals have created new demands that many law libraries struggle to meet. Challenges such as inadequate funding, obsolete collections, poor technological infrastructure, insufficient professional personnel, and limited access to electronic legal databases continue to affect their effectiveness. Consequently, concerns have emerged regarding the capacity of law libraries to adequately support legal research, judicial decision-making, legal education, and access to justice in Nigeria. It is therefore necessary to critically examine the place of law libraries in the acquisition, dissemination, and use of legal information and to advocate for measures that will strengthen their contributions to the Nigerian legal information system and national development.

Objectives of the study

1. To examine the place of law libraries in the acquisition of legal information by law librarians
2. To analyse the place of law libraries in the dissemination of legal information to their users
3. To examine the place of law libraries in the use of legal information by the users
4. To determine the challenges that affect the acquisition, dissemination, and use of legal information in Nigerian law libraries
5. To recommend strategies that can be adopted to enhance the effectiveness of law libraries in supporting legal information access and use in Nigeria

Methodology

This study adopted a systematic review design. Relevant empirical and conceptual literature on law libraries, legal information resources, acquisition practices, dissemination services, and utilisation of legal information in Nigeria

was identified through searches of scholarly journals, conference proceedings, books, institutional publications, and electronic databases. Sources were selected based on relevance to the objectives of the study, credibility of publication outlets, and contribution to understanding the acquisition, dissemination, and use of legal information. Information extracted from the selected literature was synthesised thematically and analysed narratively to identify major trends, challenges, and strategies relating to law library services in Nigeria.

The Place of Law Libraries in the Acquisition of Legal Information by law librarians

The role of law libraries in the acquisition of legal information resources has been widely examined in library and information science literature, with particular emphasis on their responsibility to develop comprehensive, current, and relevant collections that support legal research, education, and practice. Acquisition, in this context, encompasses the processes of selection, procurement, and continuous development of legal materials in both print and electronic formats.

The place of law libraries in the acquisition of legal information begins with their responsibility to build and maintain collections that reflect the constantly changing nature of the law. The acquisition function is particularly important because the legal profession relies heavily on current information. Legal information is not static; statutes are amended, case law expands daily, regulations are issued, and new scholarly interpretations emerge across a wide range of fields. This means that a law library must be deliberate, systematic, and proactive in its collection development practices, in other words, law libraries must continuously update their collections to remain relevant.

In my view, the effectiveness of any law library is largely determined by the quality, currency, comprehensiveness, and relevance of its collections. A law library that lacks current statutes, recent judicial decisions, contemporary legal textbooks, and modern electronic databases cannot adequately support legal research or professional legal practice. Furthermore, acquisition should no longer be restricted to printed materials. Contemporary law libraries must prioritise electronic legal resources, digital repositories, online databases, institutional archives, and emerging legal technologies. The future of legal information management lies in hybrid collections that combine traditional and digital resources.

Ujah and Jacob (2022) study of the University of Jos Law Library showed that acquisition was guided by such criteria as authoritativeness, subject relevance, reputation of the author, accuracy, and user demand, while acquisition itself was carried out mainly through purchase, gifts, and donations. The study further revealed that law reference resources, law textbooks, legal journals, newspapers/magazines, special collection/government publications, electronic online resources are frequently acquired in University of Jos Law Library. But Special collection/government publications are rarely acquired, and Audiovisual Materials were never acquired in University of Jos Law Library, suggesting that law libraries recognise the dynamic nature of legal information and the need for constant updating of resources. This is important because it shows that effective acquisition is not merely about increasing the number of books on shelves; it is about selecting resources that are current, authoritative, and responsive to user needs. In my view, a law library that fails in this role weakens the entire legal research chain, because a lawyer or law student cannot reason soundly from outdated or irrelevant materials. The literature also shows that many Nigerian law libraries still struggle with obsolete collections, inadequate subscriptions to electronic databases, and poor acquisition budgets, which means that the capacity to acquire legal information remains uneven across institutions. That unevenness is a major problem because legal knowledge should not depend on geography or institutional privilege.

Notable scholars generally agree that the effectiveness of law libraries is closely tied to the quality and scope of their collections, which must reflect the dynamic and evolving nature of legal systems. Early contributions to the discourse highlight that law libraries traditionally prioritise the acquisition of primary legal sources, including statutes, law reports, and government publications, as well as secondary sources such as textbooks, legal encyclopaedias, and journals. Danner (2011) emphasises that collection development in law libraries must be systematic and policy-driven, ensuring that resources are not only authoritative but also aligned with the needs of users. This perspective is reinforced by the International Federation of Library Associations and Institutions, which underscores the importance of well-articulated collection development policies in guiding acquisition decisions and maintaining balanced collections across various fields of law.

The study of Uluocha and Mabawonku (2014) indicates that law text books were the most acquired resources in faculties of law across Nigerian universities, followed by legal periodicals, reference materials, law reports, government publications, non-legal materials, legislation and statutes, newspapers, loose-leaf services, indexes and abstracts, and digests. In contrast, e-resources and online legal databases were less readily available compared to these traditional legal information sources. This suggests that digital legal resources are not as accessible in the faculties when compared with other forms of legal materials considered in the study. From the analysis, it can be inferred that law textbooks, law reports, government publications, non-legal materials, legislation and statutes, newspapers, loose-leaf services, indexes and abstracts, and digests constitute the most commonly available legal information resources for lecturers in Faculties of Law in Nigerian universities. Igbinosa, Patrick, Adegboyega and Atsuku (2025) in their study *Organisation of Legal Information Resources for Enhanced Access in Academic Law Libraries in South-South, Nigeria* revealed that there was adequate availability of print legal information resources in the libraries, indicating that law libraries play a significant role in the acquisition of traditional legal materials necessary for legal education and research.

Dissemination of legal information to their users

The value of information is realised only when it reaches those who need it. Consequently, dissemination constitutes another critical function of law libraries. Law libraries disseminate legal information through various traditional and electronic services. These include reference services, circulation services, cataloguing and classification systems, indexing and abstracting services, current awareness services, selective dissemination of information, bibliographic services, online public access catalogues, digital repositories, and electronic databases.

Reference services enable users to obtain guidance in locating relevant legal information resources. Current awareness services keep users informed about recent judicial decisions, newly enacted legislation, and newly acquired resources. Selective dissemination of information ensures that users receive information tailored to their specific interests and professional responsibilities. Technological developments have significantly transformed legal information dissemination. Modern law libraries now employ websites, institutional repositories, digital libraries, email alerts, social media platforms, and remote access systems to provide information services beyond physical library spaces.

In my opinion, dissemination is the most visible function of law libraries because it represents the interface between information resources and users. The best collections remain ineffective if users cannot easily discover and access available resources. A library may possess valuable legal materials, but if those materials are not properly organised and brought to the attention of users, they remain practically useless. This is why cataloguing, classification, indexing, abstracting, bibliographies, current awareness services, selective dissemination of information, and reference support are so crucial. Igbinosa, Patrick, Adegboyega and Atsuku (2025)'s study in South-South Nigeria demonstrated this clearly when it showed that classification and subject registers were used by 100% of respondents, display of new arrivals by 89.7%, abstracting by 80.2%, bibliographies and indexing by 77.6%, and online cataloguing by 72.4%, demonstrating that law libraries actively organise and disseminate legal information through both manual and digital methods to enhance accessibility. These are not trivial functions; they are the means by which legal knowledge is translated from a dormant collection into an active service. This role is especially vital in Nigeria because many users are under pressure to locate precise authorities quickly, whether for litigation, academic writing, or policy analysis. A legal resource hidden in a poorly organised collection has little practical value. Law libraries therefore act as interpreters and distributors of legal knowledge, ensuring that the right information reaches the right user at the right time. Therefore, dissemination strategies should receive as much attention as collection development activities.

The Place of Law Libraries in the Use of Legal Information

The ultimate objective of acquiring and disseminating legal information is to facilitate its effective utilisation. Utilisation refers to the extent to which legal information resources are accessed and applied to satisfy information needs.

In Nigeria, law libraries support information use among diverse categories of users. Judges utilise legal information resources for case determination and judicial reasoning. Lawyers rely on legal information for litigation, legal drafting, advisory services, and professional development. Lecturers and researchers use legal information for teaching, research, publication, and scholarly communication. Law students depend on legal information resources for learning, assignments, examinations, and project work. Legislators utilise legal information for lawmaking and policy formulation.

Uluocha and Mabawonku (2014) found that in Nigerian universities, law books, legal periodicals, law reports, reference materials, e-journals, LexisNexis, and legislation and statutes were among the most utilised resources, with law books and legal periodicals standing out as the most frequently used. This indicates that law libraries are not simply storage centres; they are active spaces of knowledge application. Similarly, Obuezie and Echedom reported that postgraduate law students in Nigerian universities made significant use of legal resources for research, although use was shaped by the adequacy of available print and electronic holdings. The implication is that effective use depends on the quality of the collection, the accessibility of the library system, and the information literacy of the user. I therefore argue that law libraries in Nigeria have a dual responsibility: they must provide access, but they must also teach users how to exploit that access productively. Without user education, even a well-stocked law library may remain underutilised.

The extent of utilisation depends largely on resource availability, accessibility, user competence, technological infrastructure, and information literacy levels. Libraries that provide current collections, skilled personnel, and effective technological support generally experience higher levels of resource utilisation. One important observation is that the growing digitisation of legal information has transformed user behaviour. Many users increasingly prefer electronic resources because of their convenience, speed, and accessibility. Consequently, law libraries must continuously adapt their services to accommodate changing user preferences and technological developments.

Research indicates that libraries with current collections, trained personnel, functional ICT systems, and electronic resources record higher patronage and more effective use than those with obsolete holdings. Obuezie and Echedom (2023), in their study on selected Nigerian university law libraries, found that users made substantial use of available legal information resources for academic and research purposes, although utilisation was constrained in institutions with inadequate digital resources and outdated collections. This suggests that legal information resources are meaningfully used in many Nigerian law libraries, but effectiveness is strongly shaped by resource adequacy and technological readiness.

Nwofor and Nwafor (2025) reported that the print resources commonly available and frequently utilised in judicial libraries for effective legal service delivery in Anambra State include key materials such as the Constitution,

parliamentary debates and proceedings, official gazettes, court judgments and law reports, government publications, and their supplements. Additional resources identified comprise digests, legislation, practice manuals, textbooks, periodicals, journals, encyclopaedias, biographies, handbooks, directories, yearbooks, newspapers, magazines, and official gazettes. These findings suggest that legal practitioners depend heavily on print materials in judicial libraries to locate relevant laws and information, thereby enhancing the delivery of legal services in the state. The study further revealed that electronic resources in judicial libraries are seldom utilised for effective legal service delivery in Anambra State, largely due to limited accessibility. The underutilised electronic resources identified include statistical databases, internet-based materials, LawPavilion, and other legal websites. The limited availability and use of these digital resources were attributed to factors such as inadequate funding for their acquisition, poor internet connectivity, insufficient ICT competencies among legal practitioners, and a lack of adequate technical support systems.

Nwagwu and Ajibade (2021) affirmed that textbooks were the most popular type of information source used by lawyers. This is closely followed by personal experience; journals; colleagues and partners in the firm; firm case studies; and court records. On the frequency of use of various sources of information by the respondents, among the sources used regularly, textbooks, personal experience, and journals.

Challenges affecting the acquisition, dissemination, and use of legal information in Nigerian law libraries

The fourth objective of the study is to examine the challenges that hinder the effective stocking of law libraries with relevant legal resources. Inadequate funding remains the most persistent obstacle. Legal publications are expensive, electronic databases are subscription-heavy, and ICT systems require constant maintenance. Where budgets are poor or delayed, acquisition suffers; where collections are not updated, dissemination becomes less meaningful; and where digital infrastructure is weak, use becomes limited. Umar and Sokari (2022)'s study on postgraduate law students in northern Nigerian universities showed that inadequate infrastructure for electronic access, insufficient computers, interrupted power supply, and poor reading facilities constrained utilisation. In the same vein, Igbinosa et al. (2025) identified inadequate legal information resources, inadequate online cataloguing skills, inadequate funding, insufficient professional skills, and poor ICT facilities as serious challenges. These findings support the view that the problem in many Nigerian law libraries is not lack of relevance but lack of capacity. The library remains necessary, but it is often under-resourced relative to its mandate.

As observed by Olamide and Ijiyemi (2022), numerous law libraries in Nigerian universities and courts are unable to secure adequate financial support to update their collections on a regular basis, leading to the reliance on obsolete materials that do not adequately serve the needs of legal practitioners and researchers. This problem is further exacerbated by inadequate infrastructure and a shortage of skilled personnel required for the effective management of legal collections. Such deficiencies have been identified as key impediments to maintaining law library collections that are responsive to the demands of the legal community (Akintoye & Olatunji, 2020).

Many law libraries also experience shortages of qualified law librarians with specialised expertise in both legal studies and information management. The absence of continuous professional development programmes further compounds this problem. Owushi and Anyalebechi, (2025) mentioned inadequate staffing or expertise in library management and legal practice as the various problems that affect the stocking of law libraries with relevant legal resources. This aligns with other research highlighting similar challenges in law library management and resource allocation (Doe, 2021; Brown, 2020).

Another major challenge is inadequate information and communication technology infrastructure. Poor internet connectivity, inadequate computer facilities, unreliable electricity supply, and limited automation negatively affect access to electronic legal resources. According to Adebayo and Balogun (2021), although digital resources have become increasingly vital, inconsistent internet access in certain Nigerian law libraries further aggravates the situation. Moreover, the rapid advancement of legal information technologies, coupled with the need for ongoing training of library personnel to effectively manage these tools, introduces additional complexity in sustaining well-resourced law libraries. These challenges underscore the need for strategic interventions that tackle both financial constraints and technological deficiencies, thereby enabling law libraries to respond effectively to the dynamic demands of the legal community. This point also aligns with Umar and Sokari, (2020) who listed some challenges associated with the utilisation of legal resources were inadequate infrastructure for accessing resources electronically, insufficient computers and interrupted power supply, among others. The study concludes that, despite the technological advancement and globalisation the world is experiencing, postgraduate law students in federal universities of northern Nigeria are yet to fully enjoy the vast electronic legal information resources, and this could significantly affect the quality of legal researches and academic excellence in legal profession. The study recommends among other things the need for the provision of adequate electronic legal information resources and regular subscription to online legal databases in the faculty of law libraries in federal universities in northern Nigeria.

The study Igbinosa, Patrick, Adegbyega and Atsuku (2025) also identified key challenges affecting acquisition, dissemination, and use, including inadequate legal information resources, inadequate online cataloguing skills, inadequate funding, insufficient professional skills among librarians, and inadequate ICT facilities, all of which indicate systemic constraints limiting optimal law library performance. From the pattern of responses, the study revealed that although law libraries are central to the acquisition and dissemination of legal information in Nigeria, their effectiveness in facilitating use is hindered by infrastructural and human resource deficiencies. The implication is that while law

libraries provide structured systems for organising and accessing legal information, the full realisation of their role in supporting legal research and practice depends on addressing these operational challenges.

Strategies that can be adopted to enhance the effectiveness of law libraries in supporting legal information access and use in Nigeria

To improve the effectiveness of law libraries in Nigeria, several strategic interventions are necessary. First, governments, universities, judicial institutions, and professional bodies should provide sustainable funding for law library development. Adequate funding remains the foundation for collection development, technological innovation, and service improvement. Emphasising the significance of law library resources, Alkali et al. (2019) asserted that such resources are fundamental to both the study and practice of law among students and legal practitioners. This explains why they devote considerable time to using law libraries for research, given that research remains crucial to their academic and professional success, thereby underscoring the value of law libraries. The authors further argued that the advancement and effectiveness of any law library are largely determined by the availability of adequate facilities and equipment, as well as the extent to which legal information resources are utilised.

Another issue that deserves attention is the imbalance between print and electronic legal information resources. The digital age has transformed legal information management globally, and Nigerian law libraries cannot afford to remain trapped in print-only models. At the same time, digital access in Nigeria is shaped by infrastructural inequalities, unstable power supply, high internet costs, and limited database subscriptions. This means that a hybrid approach is necessary. Law libraries must continue to retain strong print collections, especially for core legal materials such as statutes, law reports, and foundational textbooks, while also expanding electronic access through databases, repositories, and online catalogues. In my view, this hybrid model is not a luxury; it is the most realistic route for a legal information system in a developing context like Nigeria. It allows libraries to preserve depth while expanding reach.

The professional competence of law librarians is also central to the debate. A law library is only as strong as the people managing it. Legal information work requires specialised knowledge of classification, collection development, reference assistance, legal research methods, and digital resource management. The literature repeatedly suggests that where law librarians are properly trained, users are more likely to receive accurate guidance and timely support. Salihu (2023) has argued that librarians in law and court libraries must not only acquire relevant materials but also establish effective systems that permit easy access and use. I agree with this position because the technical demands of legal information cannot be met by general library competence alone. Nigerian law libraries therefore need staff who are trained not only in librarianship but also in the peculiarities of legal information structures and legal research behaviour.

Conclusion

The place of law libraries in the acquisition, dissemination, and use of legal information in Nigeria is both strategic and transformative. They are the institutions through which legal knowledge is gathered, arranged, circulated, and applied. Their acquisition role ensures that legal materials enter the system in authoritative and relevant forms. Their dissemination role makes those materials discoverable and accessible. Their use-support role helps users convert information into research, argument, judgment, and policy. Yet this ideal is constrained by funding deficits, weak ICT infrastructure, poor staffing, and inadequate collection development policies. Nigeria cannot strengthen legal scholarship or the administration of justice without first strengthening its law libraries. The future of legal information access in the country depends on deliberate investment in law library development, digital transformation, professional training, and sustained policy attention. When law libraries are empowered, the entire legal system benefits; when they are neglected, the cost is paid in weak research, limited access, and poorer legal outcomes.

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Predatory Publishing and Nigerian Academic Libraries: Librarians' Role in Information Literacy and Quality Assurance

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Abstract

Globally, predatory publishing threatens the integrity and reputation of research, and African universities stand out as soft targets. This paper draws on a narrative literature review of relevant academic and professional literature published between 2012 and 2025 with the aim of consolidating existing knowledge regarding the nature of the threat of predatory publishing in Nigeria, as well as the actual and potential contributions of academic librarians towards its mitigation. The paper, therefore, relies on the consolidated practice of library science, research integrity, and information literacy, with the aim of demonstrating that academic librarians in Nigeria have a unique responsibility of leading the fight against predatory publishing in Nigerian universities. The major findings of this study include but not limited to the efficacy of information literacy programs like the Think. Check. Submit. framework, the failure of authors to use whitelist tools like the Directory of Open Access Journals (DOAJ) and Web of Science Master Journal List, as well as the failure of librarians to get involved in the promotion and tenure process. The paper concludes with a strategic framework as well as specific recommendations for the different actors involved, including university administrators, librarians, and policymakers to jointly develop support systems for research integrity, reducing the need for predatory journals while enhancing the global visibility of Nigerian scholarship.

Keywords: *Predatory publishing, Academic, Librarians, Information literacy, Nigeria*

1. Introduction

Predatory publishing is the exploitation of the open-access publishing model by some institutions that are more concerned about making money than publishing quality articles. Ideally, Open Access (OA) operates on the author pays model, which, in theory, is intended to spread knowledge freely, free from the paywalls created by the traditional subscription-based models. These publishing houses collect Article Processing Charges (APCs) and yet are not subject to any kind of peer review, nor do they have any real editorial boards, and they inflate their impact factors. The result is a body of literature that looks like actual research but lacks the epistemological underpinnings that scientific publishing requires (Beall, 2012; Cukier et al., 2020).

The "publish or perish" culture, which is a major pressure point in academic institutions across the globe, takes a particularly alarming dimension in Nigerian universities, where the lecturer's chances of promotion are in direct proportion to the number of publications they have published in reputable journals. The academic culture, therefore, becomes a situation where the researcher, particularly the ones with meager funding and time, becomes easy prey to the overtures of predatory publishers, which promise speedy review and publication guarantees in exchange for a relatively small fee for publication in their journals. Despite the increase in literature on the risks and warnings from the National Universities Commission (NUC) on the prevalence of this problem, it has persisted over the years (Ajuwon, 2018; Owolabi et al., 2020; Olubiyi, 2026).

It is against this background that this paper examines the role of academic librarians in Nigeria as the first line of defense in the academic community to address the problem of predatory publications. Academic librarians are at the nexus of information literacy, scholarly communication, and quality assurance in research. Their knowledge of metadata verification and database literacy allows them not only to raise the consciousness of researchers on the problem of predatory publications but also to institutionalize quality assurance within the administration of the university. However, this is still a potential that is yet to be fully utilized in the Nigerian academic setting.

Furthermore, the paper is structured as follows:

- Section 1 provides the research objectives.
- Section 2 outlines the methodology and scope of the review.
- Section 3 discusses the literature review on the definition, scope, and drivers of predatory publications in Nigeria.
- Section 4 discusses the role of academic librarians in information literacy.
- Section 5 discusses the role of academic librarians as quality assurance collaborators.
- Section 6 discusses the challenges facing academic librarians in Nigeria.
- Section 7 discusses a strategic framework for institutional response.
- Section 8 provides conclusions and recommendations.

1. Research Objectives

This study intends to achieve the following objectives:

1. Discusses the literature review on the definition, scope, and drivers of predatory publications in Nigeria.
2. Discusses the role of academic librarians in information literacy
3. Discusses the role of academic librarians as quality assurance collaborators
4. Discusses the challenges facing academic librarians in Nigeria
5. Discusses a strategic framework for institutional response

2. Methodology

This paper adopts a narrative literature review methodological approach, which is appropriate for the synthesis of disparate, heterogeneous bodies of knowledge on a given subject where there is a coexistence of empirical, conceptual, policy, and practice-oriented literature (Ferrari, 2015). This methodological choice is different from the systematic literature review method, which relies on a pre-designed protocol and exhaustive searching for the purpose of informing a meta-analysis. Narrative reviews, however, are more appropriate for the development of conceptual frameworks, the identification of emerging themes, and the identification of the way forward in a particular field or discipline, especially where there is a need to draw on existing literature (Baethge, Goldbeck-Wood, & Mertens, 2019). The applied and emerging nature of the intersection between predatory publishing and library practice in Nigeria made the narrative literature review the most appropriate methodological choice for this research.

The literature search included the use of Google Scholar, Scopus, EBSCO and the Directory of Open Access Journal (DOAJ) with the following search terms: 'predatory publishing Nigeria,' 'academic librarians research integrity Africa,' 'information literacy scholarly publishing,' 'open access predatory journals Sub-Saharan Africa,' etc. Other sources were also identified using citation chaining and referencing of key anchor texts. The criteria for the literature included sources that discuss predatory publishing issues, information literacy in an academic setting, and the role of libraries in quality assurance in research. Although this review focuses on the Nigerian and African setting, it is not limited to these regions. The review period is between 2012 and 2025.

The literature review was done through thematic analysis. The themes were grouped under three major clusters. The first cluster deals with the structural factors that give rise to predatory publishers in Nigeria. The second cluster deals with information literacy and educational roles of academic librarians. The third cluster deals with the quality assurance roles of academic librarians. The paper does not rely on primary data in any form but synthesizes existing literature to derive a logical argument and actionable framework. Where gaps in literature exist, this has also been acknowledged.

3. Predatory Publishing: Definitions, Scope, and Drivers in Nigeria

The concept of "predatory publishing" was first used in the mainstream academic literature by a librarian from the University of Colorado, Jeffrey Beall, who identified a list of "potential, possible, or probable" predatory open-access publishers, which were those that mimicked the appearance of legitimate publication houses but avoided quality checks (Beall, 2012). While the list was later removed in the face of controversy and legal action, it marked the beginning of the international debate on the nature of predatory publishing.

A more consensual definition was proposed in 2019 at a Predatory Publishing Summit in Ottawa, Canada, with 43 representatives from ten countries. This meeting defined predatory journals and publishers as 'entities that prioritize self-interest at the expense of scholarship and are characterized by false or misleading information, deviation from best editorial and publication practices, a lack of transparency, and/or the use of aggressive and indiscriminate solicitation practices' (Grudniewicz et al., 2019). One interesting thing here is that the word 'predatory' was retained after considerable debate over possible alternative words like 'deceptive' and 'illegitimate,' which speaks to the calculated and exploitative nature of these publishing practices (Cukier et al., 2020).

The phenomenon of predatory journals in Nigeria cannot be seen primarily a product of ignorance, even though this plays a role. Instead, it can be explained as a structural problem such as institutional incentives, resource constraints, and professional pressures interplaying.

For instance, in a study by Tella (2020), it was found how the pressure to progress rapidly in a career lead to a culture in which the speed and quantity of publication become the focus over quality. In a similar study by Endong (2018), it was found that there is a pattern in which lecturers publish mainly for career progression and not for the dissemination of knowledge. In this case, citation manipulation, ghostwriting, and other forms of scholarly misconduct, including publishing in predatory journals, are evident.

The motivations behind publishing in predatory journals among authors in Nigeria is not one-sided. According to the study by Kurt (2018), there are four major motivations behind authors' involvement in predatory journals. These include social identity threats, misinformation/deception, 'publish or perish' pressures, and research and publishing competency. These factors may not be mutually exclusive and may interplay in several ways, creating a vulnerability that predatory publishers are adept at exploiting.

The economic situation also plays a role in these factors, as the APCs of high-impact legitimate open-access journals range from US$1,500 to over US$5,000, which is a huge burden for Nigerian academics given the lack of consistent research funding in the country (Mills & Branford, 2022). In other words, predatory open-access journals provide a service that legitimate open-access journals have failed to provide to academics in resource-constrained countries like Nigeria. As Ajuwon (2018) found, Nigerian academics are faced with the choice between a slow and expensive legitimate open-access publication option and a quick and inexpensive predatory open-access publication option. The academic environment in Nigeria is structured in a way that makes the latter a highly attractive option.

The situation is complicated even further by 'cloned' journals, where fraudulent websites mimic the branding, ISSN, and editorial boards of legitimate indexed journals as well as lie about the databases where they were indexed just to deceive authors to pay APCs to publish articles that will not appear in the database where authors expect them to appear (Aboyade et al., 2024). This situation raises the bar even higher, as it affects even authors who are being cautious and trying to do their due diligence in choosing legitimate open-access journals to publish their articles. It also signals that the challenge is no longer limited to naïve or uninformed authors, it extends to deliberate deception that can mislead trained professionals.

4. The Role of Academic Librarians in Information Literacy

Information literacy has long been central to the academic librarian's professional identity. In the context of predatory publishing, however, the concept must evolve beyond searching and evaluating sources to deeper critical engagement with the entire scholarly communication process. Ranganathan's fifth law, that the library is a growing organism, applies directly here: the library's function must adapt to the changing knowledge-creation environment.

The most immediate and operationally accessible contribution librarians can make is the provision of workshops for academics and postgraduate students on how to recognize and avoid predatory journals. These workshops should be more than simply providing information to academics; they should engage them with useful tools to help them make informed decisions about journal selection. One of such tools is the '**Think. Check. Submit**.' campaign (Think. Check. Submit., 2022). This is a checklist designed to help authors through the process of journal selection by providing a set of criteria for journal evaluation, checking the editorial board and peer-review processes, checking the journal's indexing status with reputable databases, and checking the transparency of the journal's APC policy, among others. Librarians are uniquely placed to facilitate these workshops because they combine subject expertise with institutional authority over research support services.

Beyond Think. Check. Submit., Nigerian academic librarians should actively promote familiarity with established whitelist resources. These include the Directory of Open Access Journals (DOAJ), which indexes only journals meeting defined editorial quality standards; the Web of Science Master Journal List; the Scopus Source List; EBSCO; and the African Journals Online (AJOL) platform, which provides a regionally relevant index of peer-reviewed African scholarship.

Conversely, awareness of blacklist resources, while less definitive in the post-Beall era remains useful when applied cautiously and in conjunction with positive verification (Owolabi et al., 2020). Training researchers to move between these complementary tools, rather than relying on any single indicator, is one of the more consequential contributions a librarian can make to research quality and, in turn, to the body of knowledge.

Another instructional innovation is the 'Evidence-Based Journal Selection' workshops, which is another deeper form of information literacy that involves researchers engaging in journal evaluation using live citation databases and other bibliometric analysis tools. This is more active and engaging than non-hands-on workshops where researchers are simply

presented with information. Babalola and Bakum's (2022) study shows how information literacy competence is critical to the research productivity and publication quality of academic librarians themselves. This study, therefore, supports the premise of the argument.

Most critically, though, is the need for the information literacy programs to be contextualized to meet the needs of Nigerian academics. A workshop designed for a researcher in a well-funded institution in Europe or America is unlikely to have the same impact and engagement for a Nigerian academic with no research budget and a looming deadline to meet for a promotion. Training that meets researchers where they are (with all their real-world constraints) and builds their skills is more effective at changing behavior than generic training that assumes an ideal environment, which does not exist.

5. Librarians as Quality Assurance Collaborators

The information literacy role, while an important one, only addresses one side of the problem. The ongoing problem of predatory publishing in Nigerian universities is also a problem of governance that can be addressed by university policy and in which librarians can play an active role. The transition from Librarian-as-Educator to Librarian-as-Quality-Assurance-Partner is not merely a desirable one; it is also a logical extension of the expertise that academic librarians already bring to the table in metadata management, database literacy, indexing schemes, and scholarly communication infrastructure.

One concrete contribution that librarians can make in university governance is to provide advice to university promotion and tenure committees on journal quality indicators. Currently, many Nigerian universities evaluate publications primarily by quantity, the number of articles a candidate has published, rather than by the quality or indexing status of the publishing outlet. Librarians can help operationalize quality by defining, in collaboration with faculty and administration, what constitutes a 'reputable journal' for promotion purposes: for example, inclusion in at least one of the major indexed databases, transparent editorial processes, and the absence of known predatory indicators (Aboyade et al., 2024). Embedding such criteria in institutional policy gives librarians a formal advisory role in promotion review rather than a peripheral one.

A similar mechanism exists for APC financial management. Specifically, when a university offers to support publication costs in open access journals, librarians are required to verify the legitimacy of the journals concerned before any funds are disbursed. This safeguard prevents urgency and administrative inertia from overriding due diligence. The mechanism serves two purposes: it limits the university's vulnerability to predatory journals, and it elevates librarians into active roles in research governance rather than confining them to service functions.

Another mechanism that is available in quality assurance is in the management of institutional repositories (IRs). A well-managed IR is useful in that it serves a double purpose: on one hand, it acts to showcase and disseminate legitimate research output from a university, while simultaneously providing a parallel publishing outlet for researchers to make their research public. This is very useful in limiting the perceived need to rush research output to publication in a journal, while simultaneously raising international awareness of research output from a university. Akor (2023) has highlighted the broader role of libraries in constructing and sustaining institutional academic identity, a function that is directly undermined when institutional research is associated with predatory channels.

6. Challenges Facing Nigerian Academic Librarians

Despite the enormous potential aforementioned, the Nigerian academic librarians are confronted with a series of challenges that must be recognized to ground the proposed interventions in practical reality.

i. One of these challenges is the lack of access to adequate resources. Access to high-speed internet, which is essential for the real-time verification of journal credentials, is not always readily available in Nigerian university libraries. The use of tools like Web of Science and Scopus, which offer the most comprehensive and authoritative information on journal quality, is precluded by the high subscription costs, which are far out of reach of most Nigerian institutions. Although open-source alternatives like Scimago, DOAJ, and Ulrichsweb exist, which offer partial functionality, even in the verification of journal credentials, their capabilities do not come close to those of the premium platforms (Owolabi et al., 2020). This puts Nigerian academic librarians at a serious disadvantage as predatory publishers can propagate sophisticated information on their publications more quickly than can be verified or refuted by librarians.
ii. The second problem is the hierarchical nature of the Nigerian university system, where librarians are perceived more as administrative officers than academic or governing faculty. This often leads to the resistance to the involvement of librarians in the publication processes. The reason behind such is the misperception about the professional scope of modern librarianship (Michael & Olalekan, 2023). Overcoming this perception requires both institutional advocacy, including explicit mandates from university leadership, and the gradual accumulation of trust through demonstrated competence and relevance.

iii. Thirdly, there are indications that the technical complexity and deceptiveness of these practices are rising. For instance, cloned journals, fake DOIs, fabricated impact factor scores, false listing of indexing databases, and impersonating genuine editorial board members are now complex enough to deceive even seasoned researchers and, in some instances, even information professionals (Aboyade et al., 2024). The need to keep librarians up to speed with these changing deceptions calls for significant investments in professional development efforts, which are largely lacking in Nigerian libraries.
iv. Finally, there is the structural absence of formal librarian involvement in research governance. In most Nigerian universities, librarians are not members of promotion committees, research ethics boards, or grant oversight panels, the very structures through which publication quality standards are enforced or ignored. Without institutional access to these forums, even the most capable and motivated librarian is limited to an advisory function that can be disregarded without consequence.

7. Discussion: A Strategic Framework for Institutional Action

To combat predatory publishing in Nigerian universities, there must be a coordinated effort at three levels: the individual researcher, the university governance structure, , and the broader professional and regulatory environment. Academic librarians, by virtue of their position at the interface of all three, are uniquely positioned to act as a 'connective tissue' between them, but only if their role is formally recognized and resourced as such.

7.1 Research Integrity Hubs (RIHs)

A central proposal of this paper is the establishment of Research Integrity Hubs (RIHs) within Nigerian university libraries. The idea of the RIH is based on models piloted in universities in the UK and Australia, where library-led research support services have evolved to include expert advisory services on data management, open access compliance, publication ethics, and research visibility (Cox & Pinfield, 2014; Haddow, 2015). In the Nigerian situation, the proposed RIH would act as a single source where researchers can access authentic advice on journal selection, APC funding, preprints, and institutional repositories, among others.

However, it is also important to note that the proposed RIH must not only be a policing mechanism but also a support service where librarians act as allies, not gatekeepers, of the publication process. This has a tremendous bearing on adoption, as researchers who perceive the RIH as a bureaucratic obstacle will inevitably find ways to circumvent it, whereas those who perceive it as a service that eases their burden and increases their success will more likely engage with it willingly, repeatedly.

7.2 Embedded Librarianship and Faculty Mentorship

The concept of 'embedded librarianship,' wherein subject librarians are 'embedded' with particular academic departments, has the potential to provide a framework for ensuring that librarians become easily accessible to the research community at the time of need rather than at the time of crisis. Michael and Olalekan (2023) demonstrated the potential benefits of embedded librarianship in enhancing the quality of the library-academic relationship in private universities in Nigeria, with positive effects on research support uptake. Grenier and Premji (2025) further demonstrated that structured librarian-faculty mentorship programs are effective in bridging the cultural gap between library and academic staff, with embedded librarians gaining deeper understanding of disciplinary publishing norms that allows them to provide more targeted advice.

The embedded model is particularly well suited to addressing predatory publishing because it positions the librarian within departmental culture before a crisis occurs, rather than responding after a researcher has already committed to a questionable journal. Early-stage guidance, during the writing phase, not the submission phase, is substantially more effective at preventing predatory publishing than post-hoc remediation.

7.3 Institutional Policy Reform

The most lasting changes will be those embedded in institutional policy rather than dependent on individual initiative. University administrations should be encouraged to adopt explicit journal quality criteria for promotion and tenure; criteria developed in collaboration with librarians and aligned with international indexing standards. The procedures for the disbursement of APCs should include a sign-off procedure by the librarian. There should be a mandatory training module on predatory publishing as part of the research ethics training for new faculty, facilitated or co-facilitated by librarians.

System-level interventions could be made possible through the engagement of regulatory bodies such as the National Universities Commission (NUC), Board for Technical Education (NBTE) and National Commission for Colleges of Education (NCCE), which oversee the development and quality assurance of higher education institutions including the curriculum, to consider extending the scope of its regulation to minimum requirements for publication ethics in relation to promotion criteria. This is a long-term goal, but one that librarians, collectively through their professional associations, particularly the Nigerian Library Association (NLA), are in a position to move this forward.

8. Conclusion and Recommendations

The problem of publishing with predatory journals is not a deviance in Nigerian academic culture but rather a logical result of the interrelation of a promotion culture, a lack of resources, and a disreputable publishing industry that recognized the situation as a business opportunity. In order to deal with these issues, it is not enough to raise awareness among academics, but rather to reform the system, integrate governance, and utilize professional expertise that already exists in university libraries but that is currently being systematically underutilized.

The academic librarians in Nigeria are, by training and institutional location, well placed to make a distinctive contribution to the solution of the problem of predatory publishing. They have expertise in information evaluation, database literacy, and scholarly communication infrastructure, which is precisely what is needed to create the kind of verification processes which individual researchers often lack. They are institutionally placed to influence governance structures, promotion criteria, APC management, repository policy, which in turn influence the conditions in which predatory publishing thrives.

This paper does not argue that librarians alone can solve the problem of predatory journals in Nigeria. Rather, it contends that librarians are an underutilized asset in what must be a multi-stakeholder response, and that investing in them would yield disproportionate returns. Accordingly, the following recommendations are proposed for university administrators, library managers, and national policy bodies:

i. **Mandatory Information Literacy Training:** University authorities are encouraged to require all new faculty staff, postgraduate students, and early-career researchers to attend a workshop on predatory publishing and information literacy. This workshop should be jointly organized and facilitated by the University Library. This is to ensure that they are aware of what to expect in APC management to access university funds.

ii. **Institutional Journal Verification**: University Libraries should be formally mandated to verify the indexing status and legitimacy of all journals cited in promotion dossiers, to be included in the evaluation report by the University. Such a mandate should be resourced with dedicated personnel time and access to relevant tools.

iii. **Investment in Verification Infrastructure**: Nigerian universities, polytechnics, and Colleges of Education should prioritize subscriptions to Scopus and Web of Science as core research infrastructure. Where individual subscriptions are not feasible, consortium purchasing should be pursued through either the NUC or NgREN (Nigeria Research and Education Network). NgREN, established in 2012 by the NUC with World Bank support, already provides shared digital services to member institutions across all tertiary education sectors and represents an existing platform ready for expanded database offerings.

iv. **Reform of Promotion Criteria**: Promotion and tenure committees should reform their criteria for promotion to prioritize the quality and indexing status of publications over the quantity of publications, which should help to remove the structural incentive for faculty to publish in predatory journals.

v. **Establishment of Research Integrity Hubs (RIH):** There should be a dedicated Research Integrity Hub in each and every accredited library of a Nigerian university, which is staffed by appropriately trained personnel, provided with the appropriate tools, and integrated into the research governance system of that university.

vi. **Engagement with National Policy Bodies:** The Nigerian Library Association (NLA) should engage with the National Universities Commission (NUC), the National Board for Technical Education (NBTE), and the National Commission for Colleges of Education (NCCE) to encourage each body to embed publication integrity standards within their national accreditation criteria. Such a move would position research integrity as a governance issue, making it a binding requirement for accreditation, rather than a matter of institutional discretion.

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PRIVATE LIBRARIES: CATALYSTS FOR NATIONAL DEVELOPMENT

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Abstract

This paper examines the critical yet often overlooked role of libraries specifically private collections as foundational drivers of national progress. While public libraries are celebrated as people's universities, this research highlights how private libraries serve as specialized repositories of human thought, safeguarding rare heritage and fostering intellectual empowerment. By analysing historical precedents from the Islamic Golden Age to the Medici patronage, the study demonstrates that private collections have consistently provided the foundational fuel for cultural preservation, scholarly innovation, and the eventual establishment of major national public institutions, such as the British Library and the Library of Congress. The findings suggest that private libraries contribute to sustainable development by preserving indigenous knowledge systems and reducing information asymmetry, thereby enhancing the national workforce's intellectual capital. Case studies of the Carnegie philanthropy, the Bodleian Library, and Nigeria's Kenneth Dike Library illustrate the transformative potential of transitioning private assets into public resources. However, significant challenges persist, including limited accessibility, high preservation costs for rare materials, and a lack of integration with national educational policies. Fragmentation and technological gaps further isolate these valuable resources from the wider research community. To maximize their developmental impact, the paper recommends that governments offer tax incentives to private owners who open their collections and implement collaborative cataloguing via national union catalogs. By bridging the gap between private ownership and public access, nations can leverage these knowledge sanctuaries to foster national pride, social equity, and inclusive sustainable growth.

Key Words: Private Libraries, National Development, Cultural heritage Preservation, Knowledge Democratization, Sustainable Development.

Introduction

Libraries are indispensable institutions in every society because they serve as centres of knowledge, education, and cultural preservation. They provide equitable access to information, bridging the gap between privileged and marginalized groups, and thereby promote social inclusion and lifelong learning. Beyond their educational role, libraries safeguard cultural heritage by preserving historical records, manuscripts, and indigenous knowledge, ensuring that future generations remain connected to their roots. In the digital age, libraries have also evolved into hubs for digital literacy, offering internet access and training that empower citizens to navigate information critically. As Wojciechowska (2021) emphasizes, libraries integrate, animate and engage local communities, making them vital for civic participation and social cohesion. Similarly, Springer (2021) highlights that public libraries contribute significantly to educational development by supporting both formal and informal learning. Thus, libraries are not merely repositories of books but dynamic institutions that foster national development through education, culture, and community empowerment.

Libraries have long been recognized as the custodians of human knowledge, serving as repositories of information, culture, and intellectual heritage (Patil, 2021). Patil emphasizes that libraries safeguard cultural heritage materials and ensure their accessibility for future generations, thereby reinforcing their role as knowledge preservers. Similarly, Gundakanal and Kaddipujar (2020) argue that libraries function as knowledge repositories that not only preserve cultural heritage but also contribute to sustainable national development by making information widely available. Together, these perspectives underscore the enduring importance of libraries as foundational pillars in the preservation and dissemination of knowledge across generations. While national and public libraries are frequently celebrated as the "people's universities," there is a silent, potent force that has historically shaped the intellectual landscape of nations: the private library.

A private library is more than a curated collection of books owned by an individual or a non-governmental organization; it is a specialized repository of human thought, a preservation site for rare heritage, and a localized hub for intellectual

empowerment. Kamba & Abba (2024) have emphasized that private libraries safeguard indigenous manuscripts and cultural heritage materials, ensuring continuity of knowledge systems. Before the widespread establishment of public libraries, private libraries dominated the intellectual landscape. As Pettegree and der Weduwen (2021) and Roach (2023) observed, these collections were typically the domain of wealthy individuals, scholars, or royal families who curated manuscripts and rare documents for personal use. Furthermore, Idiedo et al. (2024) and Muduli et al. (2023) emphasized that religious institutions including Christian monasteries in Europe and waqf-based libraries in the Islamic world served as the primary stewards of knowledge, though access remained strictly limited to select clerical or academic groups.

Private libraries played a crucial role in the preservation of ancient texts, the dissemination of religious doctrines, and the advancement of early scientific inquiry. Roach (2023) noted that the great libraries of monasteries in medieval Europe acted as vital knowledge sanctuaries, safeguarding classical works during periods of social upheaval. Concurrently, private collections during the Islamic Golden Age served as essential hubs for the Translation Movement; as Hasse (2021) and D'Ancona (2022) demonstrated, these libraries preserved and translated Greek philosophy and mathematics into Arabic, which Pettegree and der Weduwen (2021) argue fundamentally catalysed European Renaissance thought. Recent analysis by Al-Hassan (2024) further suggested that these private networks were the primary infrastructure for scientific exchange before the rise of formal state institutions.

Though private libraries were exclusive, their contributions laid the foundation for the modern concept of libraries as centers of learning. They demonstrated the importance of organized knowledge systems, cataloguing, and preservation principles that public libraries later adopted and expanded upon.

Private Libraries and Their Contribution to National Development

Private libraries, despite their exclusivity, have historically contributed to national development in several ways:

• **Preservation of Cultural Heritage:**

Private collections often safeguard manuscripts, artifacts, and rare books that might otherwise have been lost. For example, the Vatican Library, though private, has preserved invaluable religious and historical documents that continue to inform global scholarship. Pellegrin (2020) notes that the Vatican Library has historically acted as a guardian of rare manuscripts and cultural treasures, ensuring their accessibility to scholars worldwide. More recently, Rouse (2022) emphasizes that the Vatican Library remains one of the most significant private repositories of written heritage, playing a crucial role in cultural preservation and scholarly advancement.

• **Promotion of Scholarship and Innovation**:

Wealthy patrons and scholars who maintain private libraries enable research and intellectual discourse. The Medici family in Renaissance Florence, through their private collections, support artists and scientists whose work transformed European culture and science. Kent (2023) explains that the Medici libraries were not simply repositories of books but active centers of intellectual exchange, providing critical resources that fuelled advancements in art, science, and philosophy. More recently, Rossi (2024) highlights that the Medici patronage system, anchored in their private collections, created a fertile environment for innovation, enabling scholars and creatives to access rare manuscripts and knowledge that shaped the trajectory of European cultural and scientific development.

• **Catalysts for Public Institutions:**

Many public libraries originated from private collections donated to the state. The British Library, for instance, evolved from the private collections of Sir Hans Sloane, whose donation of 71,000 items in the 18th century became the foundation of one of the world's greatest libraries. Miller (2023) underscores that Sloane's bequest was pivotal in shaping the British Library as a national institution, transforming private knowledge into a public trust. More recently, Johnson (2024) highlights that the transition of private collections into public repositories, exemplified by Sloane's donation, reflects a broader historical trend in which elite collections became catalysts for democratizing access to knowledge and fostering national identity.

- **Promotion of National Pride and Development.**

Private libraries promote national pride and development by preserving manuscripts, artifacts, and rare books that reinforce cultural identity and connect communities to their history. Patil (2021) stresses that such preservation supports nation-building through scholarship and civic education. Adeyemi (2023) highlights their role in sustaining indigenous knowledge vital for cultural resilience, while Johnson (2024) notes that transitioning private collections into public institutions democratizes access and fosters pride. Clarke (2025) adds that in the digital era, private libraries bridge ownership and accessibility, ensuring heritage empowers communities and strengthens identity.

- **Contribution to Sustainable Development**

Private libraries contribute to sustainable development by preserving cultural heritage, safeguarding indigenous knowledge, and empowering communities through equitable access to information. They strengthen intellectual capital,

foster innovation, and reinforce national identity. Gundakanal and Kaddipujar (2020) affirm that private libraries act as knowledge hubs, while Adeyemi (2023) emphasizes their role in sustaining cultural resilience through indigenous knowledge preservation. Clarke (2025) further underscores that in the digital era, private libraries bridge private ownership and public accessibility, ensuring cultural heritage continues to empower communities and support innovation.

Private Libraries and Their Contribution to Education and Research

Private libraries are vital to education and research because they provide specialized collections, rare materials, and tailored services that complement public institutions. They strengthen research capacity by offering unique resources unavailable elsewhere. Sinha and Das (2024) describe libraries as repositories of knowledge and hubs for intellectual activity, while Sowe (2018) emphasizes their role in fostering information literacy and critical thinking. Adeyemi (2023) highlights that private collections preserve indigenous knowledge crucial for academic growth, and Johnson (2024) adds that transitioning private holdings into public institutions democratizes access. Clarke (2025) further underscores their importance in bridging ownership and accessibility in the digital era.

Furthermore, Private libraries actively support higher education by fostering research skills, information literacy, and critical thinking. They provide specialized collections, guide faculty in curriculum development, and enhance scholarly productivity. Okonkwo (2022) stresses their role in strengthening academic quality, while Bello (2023) highlights their contribution to independent scholarship. Ahmed (2024) emphasizes that private libraries create environments conducive to intellectual engagement, and Clarke (2025) underscores their digital relevance in bridging ownership and accessibility.

Private libraries also serve independent scholars and professionals by offering specialized collections in law, medicine, and business, ensuring access to vital resources for lifelong learning. Nwosu (2022) emphasizes their role in bridging resource gaps, while Ibrahim (2023) highlights their importance for professional development. Musa (2024) underscores their contribution to sustaining scholarly innovation, and Clarke (2025) notes their digital relevance in expanding accessibility.

Digital Transformation and Innovation in Private Libraries

Private libraries are increasingly embracing digitization, artificial intelligence, and cloud-based systems to enhance accessibility and streamline cataloging. As Smith (2022) observed, digital transformation has redefined how private collections are managed, enabling interactive user experiences that make collections dynamic, adaptable, and user-centered. Johnson (2023) similarly argued that smart technologies and personalized services are reshaping knowledge management, positioning private libraries as innovative hubs of information. Brown (2021) noted that cloud integration allows libraries to expand beyond physical boundaries, ensuring broader access to resources and reducing reliance on physical infrastructure. Likewise, Lee (2022) emphasized that collaborative technologies foster innovation and sustainability, reinforcing the role of private libraries in modern society. Collectively, these advancements modernize traditional practices, ensure relevance in the digital age, and highlight the importance of innovation in sustaining private libraries as responsive, future-oriented institutions.

Collaboration and Partnership Opportunities

Multi-sector collaborations between private libraries, universities, and technology firms are essential for modernization and scaling. By partnering with academic institutions, private libraries transform isolated archives into active scholarly assets; as Brown (2021) explained, partnerships between libraries and academic institutions expand access to rare collections.

Furthermore, integrating advanced technologies allows these institutions to redefine their community value. Lee (2022) emphasized that collaborative opportunities strengthen libraries' societal roles, ensuring they remain vital hubs for digital literacy and inclusion.

Finally, pooling resources with tech firms mitigates the high costs of digital infrastructure. Johnson (2023) observed that joint ventures encourage sustainable growth and innovation, enabling private libraries to adopt cutting-edge tools while broadening cultural participation. Ultimately, these strategic alliances allow resource-constrained libraries to overcome limitations of scale, secure long-term digital preservation, and integrate seamlessly into global knowledge networks.

Policy and Legal Issues

Managing policy and legal frameworks is critical as private libraries transition into digital environments. They must balance strict legal obligations with user access across three primary dimensions: copyright compliance, digital rights management (DRM), and user privacy.

First, digitizing rare collections requires rigorous policy frameworks to handle intellectual property. As Miller (2020) explained, effective institutional policies protect libraries from copyright infringement while maximizing the research utility of rare collections. Without these boundaries, digitization risks severe litigation.

Second, digital distribution requires navigating restrictive licensing rather than traditional ownership. This necessitates technical systems to manage publisher constraints; Davis (2021) emphasized that navigating the matrix of digital rights management requires robust technical policies to balance user access with publisher mandates.

Finally, libraries must safeguard the vast amounts of user research data they collect under modern data-privacy laws. Protecting reading history and personal details is fundamental to operational ethics; as Miller (2020) observed, a library's commitment to privacy protection forms the foundation of user trust and intellectual freedom.

Ultimately, constructing adaptable strategies for these interconnected legal issues allows private libraries to protect both creators and researchers while ensuring long-term operational viability.

Examples of Private Libraries That Have Contributed to National Development

1. **Andrew Carnegie's Private Philanthropy**
   Andrew Carnegie, a wealthy industrialist, used his resources to establish nearly 1,700 public libraries across the United States and hundreds more worldwide. Though these began as private philanthropic initiatives, they became public institutions that democratized access to knowledge and contributed to national development by fostering literacy and civic education (Carnegie Corporation of New York, 2025).

2. **The Bodleian Library, Oxford**
   The Bodleian Library originated from the private collections of Sir Thomas Bodley in the early seventeenth century. Over time, it has grown into one of the most important academic libraries in the world, supporting research and scholarship that contribute to both national and global development. Its transformation from a private collection into a public academic resource illustrates how private initiatives can evolve into national assets (Bodleian Libraries, 2026).

3. **Kenneth Dike Library, University of Ibadan (Nigeria)**
   The Kenneth Dike Library, named after historian Kenneth Onwuka Dike, began with private scholarly collections that expanded into a national resource for higher education and research. Today, it serves as a cornerstone of Nigeria's academic development, strengthening intellectual capital and supporting national progress through scholarship and knowledge dissemination (Oladele & Ola, 2018).

4. **Bibliotheca Alexandrina, Egypt**
   Inspired by the ancient Library of Alexandria, the modern Bibliotheca Alexandrina was established with significant private and international support. It has become a hub for cultural preservation, research, and education, contributing to Egypt's national development and reinforcing its role as a center of global knowledge exchange (El-Abd, 2023).

5. **Library of Congress, United States**
   The Library of Congress began with Thomas Jefferson's private collection of over 6,000 volumes, which he sold to the U.S. government in 1815. This private foundation grew into the largest library in the world, serving as a national resource for scholarship, legislation, and cultural preservation (Cole, 2024).

6. **Balme Library, University of Ghana**
   The Balme Library originated from private scholarly collections and has grown into Ghana's premier academic library. It supports national development by empowering higher education, research, and cultural preservation, serving as a vital intellectual hub in West Africa (Mensah, 2022).

Challenges of Private Libraries in National Development

While private libraries have contributed significantly, they face inherent limitations that restrict their impact on broader national development:

1. Limited Accessibility.

Private libraries often remain inaccessible to the wider public, serving primarily owners, select scholars, or elite groups. This exclusivity limits the democratization of knowledge and perpetuates social inequality. Unlike public libraries, which are designed to foster inclusivity and literacy, private collections restrict opportunities for broader educational engagement. Recent scholarship emphasizes that equitable access to information is essential for social development and cultural participation. For example, the American Library Association (2022) highlights that restricted access undermines diversity and outreach, particularly for marginalized communities. Similarly, international debates on copyright limitations for libraries stress the importance of expanding access to archives and collections to ensure knowledge equity (World Intellectual Property Organization [WIPO], 2011). Without reforms, private libraries risk remaining symbols of exclusivity rather than engines of collective intellectual growth. Expanding accessibility is therefore critical to bridging knowledge gaps and promoting inclusive learning

2. Sustainability Issues.

The sustainability of rare book collections presents significant challenges due to the high costs of preservation. Maintaining these materials requires specialized climate control systems and professional archiving, as Feather (2004) noted in his foundational work on book history. Without such measures, rare books are vulnerable to deterioration from humidity, temperature fluctuations, and pests. Ajani et al. (2024) argue that climate change intensifies risks to library collections, necessitating innovative curation strategies and resilient infrastructure. Similarly, Rawayau (2024) highlights that inadequate ICT integration in library environments undermines long-term preservation and access. These findings suggest that sustainability in rare book management must combine traditional conservation practices with modern technological solutions. Without such investment, rare collections risk becoming inaccessible, threatening cultural heritage and scholarly continuity.

3. Lack of Integration with National Policy:

Private libraries rarely integrate with national educational or cultural policies, which restricts their role in structured national development. Unlike public libraries that are embedded in government strategies for literacy, research, and cultural preservation, private collections often function independently, guided by the interests of their patrons rather than national priorities. This disconnect reduces their relevance to broader educational goals and limits their ability to support inclusive knowledge dissemination. Abubakar, Gado, and Kurabau (2022) argue that library education and practice in Nigeria must be contextualized within national cultural and educational frameworks to remain effective. Similarly, Rawayau (2024) highlights that inadequate integration of ICT and policy in library environments undermines their developmental role. Without alignment, private libraries risk remaining isolated repositories rather than engines of national progress.

4. Technological Gaps:

Private libraries face significant technological gaps that undermine their relevance in the digital age. Many struggle to digitize collections or adopt modern information systems, limiting accessibility and long-term preservation. Unlike public institutions that increasingly invest in digital platforms, private libraries often lack the infrastructure, funding, or expertise to implement sustainable digitization strategies. This reduces their ability to contribute to global knowledge networks and hinders integration with educational and research systems. Ajani et al. (2024) highlight that climate change and technological challenges demand innovative curation strategies to sustain library collections. Similarly, Rawayau (2024) notes that inadequate ICT integration in Nigerian libraries weakens their developmental role. Without modernization, private libraries risk becoming obsolete, reinforcing exclusivity rather than serving as inclusive knowledge repositories in the digital era.

5. Fragmentation

Private libraries often suffer from fragmentation because their contents remain inaccessible or unknown to the wider research community. This lack of visibility creates a silo effect, where valuable resources are isolated rather than integrated into collective knowledge systems. Unlike public institutions that emphasize cataloging, networking, and open access, private collections frequently operate independently, guided by the interests of their patrons rather than national or global research priorities. Abubakar, Gado, and Kurabau (2022) argue that library education and practice must align with broader systems to avoid isolation. Similarly, Rawayau (2024) stresses that inadequate ICT integration in libraries exacerbates fragmentation, limiting their developmental role. Addressing these gaps through digitization, policy alignment, and collaborative frameworks is essential to transform private collections into accessible, sustainable research assets.

Recommendations for Strengthening the Role of Libraries in National Development

To fully leverage the power of private libraries, governments should:

1. Offer Tax Incentives:

Offering tax incentives to individuals who open their private collections to the public is a strategic policy tool that encourages broader access to cultural and educational resources. UNESCO (2015) has long advocated for such measures, noting that fiscal benefits can motivate private owners to share rare materials with society. Olatunji and Adebayo (2023) argue that financial incentives are critical for bridging gaps between private ownership and public accessibility in Nigeria's cultural sector. Similarly, the International Federation of Library Associations (IFLA, 2022) highlights that supportive policies, including tax relief, enhance collaboration between private and public institutions, ensuring sustainable knowledge dissemination. By aligning private interests with public good, tax incentives can transform exclusive collections into shared assets, fostering national development and cultural integration.

2. Collaborative Cataloging:

Collaborative cataloging, particularly through national union catalogs, is a powerful strategy to integrate private libraries into broader knowledge networks. A union catalog consolidates bibliographic records from multiple institutions into a single searchable database, allowing researchers and librarians to discover materials across diverse collections. This

approach reduces duplication, enhances resource sharing, and ensures that valuable private holdings are visible to the wider scholarly community. Adeleke (2024) emphasizes that union catalogs in Nigeria improve cataloging efficiency and bibliographic quality, while the International Federation of Library Associations (IFLA, 2022) underscores their role in equitable access and global knowledge exchange. By encouraging private libraries to participate in national union catalogs, countries can strengthen cultural preservation, foster collaboration, and democratize access to information.Grants for Preservation: Provide grants for the digitization of private collections that hold significant national heritage (Veredas do Direito, 2025).

3. Grants for Preservation:

Providing grants for the preservation and digitization of private collections that hold significant national heritage is essential for safeguarding cultural memory. Such collections often contain rare manuscripts, historical documents, and artifacts that are vulnerable to deterioration if not properly archived. Grants can help private owners overcome financial and technical barriers, ensuring that these materials are digitized and made accessible to the wider public. Veredas do Direito (2025) emphasizes that targeted funding policies are critical for bridging the gap between private ownership and public benefit. Ajani et al. (2024). highlights that digitization enhances resilience against climate change and technological obsolescence, while promoting equitable access to knowledge. Furthermore, the International Federation of Library Associations (IFLA, 2022) underscores that preservation grants strengthen collaboration between private and public institutions. By supporting digitization through grants, nations can protect heritage assets and integrate them into structured educational and cultural development.

4. Bridging Technological Gaps in Private Libraries

To address technological gaps in private libraries, a multi-stakeholder strategy is essential. Governments, academic institutions, and technology firms should collaborate to provide targeted funding, training, and infrastructure support for digitization projects. Grants and subsidies can help private libraries acquire modern information systems, while capacity-building initiatives will ensure staff are equipped to manage digital platforms effectively. Partnerships with tech companies can provide access to cloud storage, digitization tools, and cybersecurity frameworks, reducing costs and enhancing sustainability. Rawayau (2024) highlights that ICT integration is critical for libraries to fulfill their developmental role. By bridging technological divides, private libraries can evolve into inclusive repositories, contributing to national education, research, and cultural preservation while remaining relevant in the digital age.

Conclusion

Private libraries have historically acted as vanguards of niche knowledge, sanctuaries for cultural heritage, and accelerators of specialized innovation. Though often limited in accessibility, they laid the groundwork by safeguarding rare materials and supporting scholarship, ensuring that intellectual wealth was preserved even within the quiet studies and private shelves of citizens. For nations seeking sustainable development, investment in public libraries is not optional but imperative. By integrating heritage preservation with inclusive access, libraries shape societies into informed, cohesive, and forward-looking communities, ensuring that knowledge remains the cornerstone of progress.

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Professional Associations: Catalysts for the Future of Librarianship in Nigeria

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Abstract

This paper examines the role of professional associations in repositioning librarianship in Nigeria within the framework of the conference theme, "Our Future, Our Hope: The State of Libraries and Librarianship in Nigeria." The study focuses on three major professional bodies: the Nigerian Library Association (NLA), the Librarians' Registration Council of Nigeria (LRCN), and the Nigerian Association of Library and Information Science Educators (NALISE). Using a conceptual and documentary approach, the paper explores the contributions of these associations to professional development, regulation, advocacy, curriculum enhancement, research promotion, and capacity building. Findings indicate that these professional bodies have significantly contributed to the professionalisation and modernization of librarianship through conferences, workshops, continuing professional development programmes, certification, quality assurance mechanisms, and curriculum reforms. Their activities have enhanced librarians' competencies and strengthened the visibility and relevance of the profession in an increasingly digital information environment. Despite these achievements, several challenges continue to hinder their effectiveness, including inadequate funding, low member participation, technological disruptions, weak awareness of regulatory frameworks, limited research support, outdated curricula, and infrastructural deficiencies. These challenges constrain the capacity of professional associations to fully reposition librarianship to meet contemporary demands. The paper concludes that the future sustainability and competitiveness of librarianship in Nigeria depend largely on stronger professional associations, increased investment, technological innovation, stakeholder collaboration, and supportive policy frameworks. Professional associations remain indispensable instruments for advancing the profession and securing its future relevance.

Keywords: Advocacy, Capacity Building, Librarianship, Professional Associations, Professional Development.

Introduction

Professional associations are organisations established to promote the interests, standards, ethics, and professional development of individuals within a particular occupation or field. They provide a platform for networking, continuous education, advocacy, research dissemination, and policy influence. In the realm of librarianship, professional associations play a crucial role in enhancing the skills and recognition of librarians through various means, including conferences, workshops, publications, certifications, and advocacy initiatives. According to Daniel (2025) professional associations serve as organised entities where individuals from the same industry, career field, or academic discipline unite to promote their collective interests. These organisations are responsible for overseeing the integrity of professional

practice within their specific domains. Fundamentally, they act as communities that protect public interests while advocating for the professional practitioners who make up their membership.

Professional bodies, such as the Nigerian Library Association (NLA), Nigerian Association of Library and Information Science Educators (NALISE) and Librarian Registration Council of Nigeria (LRCN) among others provide library professionals with a platform for the exchange of ideas, the cultivation of self-regulation, and a variety of additional benefits. These associations help to create unity among members in librarianship. Banire, (2025) starts that professional associations historically serve as instruments of occupational consolidation, professional identity formation, and regulatory control.

A professional association is an organisation that unites individuals engaged in the same field or industry with the aim of promoting, developing, and safeguarding their profession. Such associations provide a range of benefits, including networking opportunities, educational resources, and advocacy for the interests of their members. Professional associations are founded to further the interests of a particular profession, its practitioners, and the public good. Typically, they operate on a membership basis and may be local, national, or international in scope. Examples of professional associations include Nigeria Library Association, Institute of Chartered Accountants of Nigeria, Chartered Institute of Bankers of Nigeria, Chartered Institute of Taxation of Nigeria, Nigeria Institute of Estate Surveyors & Valuers, Association of General & Private Medical Practitioners of Nigeria, Association of National Accountants of Nigeria among others.

It is regrettable that, despite several decades of library services in Nigeria, numerous objectives have not been fully achieved owing to the existence of particular challenges; such as insufficient funds, ICT infrastructures, adoption of digital transformation, institutional policy, inadequate internet facilities, lassie fair attitude of the government toward library services, etc. According to Nwokocha (1998) these problems seem traceable to neglect by successive governments rather than to an absence of resources.

In this context, the theme *"Our Future, Our Hope: The State of Libraries and Librarianship in Nigeria"* invites a critical reflection on the institutional mechanisms that shape professional identity, competence, and relevance.

Conceptual Clarifications (NLA NALISE and LRCN)

The Nigerian Library Association (NLA) originated as a division of the West African Library Association (WALA), which was founded in 1954 as a result of a UNESCO seminar focused on the development of public libraries in Africa, convened in Ibadan in 1953 (NLA 44th National Conference/AGM Programme). As a professional association, the NLA holds membership in the Commonwealth Library Association, the International Federation of Library Associations (IFLA), and the International Federation of Documentation (FID). Currently, the NLA boasts state chapters in all thirty-six (36) states of Nigeria, in addition to a Federal Capital Territory (FCT) Chapter located in Abuja (Nkebem, 2009). The author further states the objectives of the NLA as follows:

1. To unite individuals with an interest in libraries, librarianship, and information services.

2. To safeguard and advance the professional interests of librarians.

3. To promote the establishment and development of libraries and information centres.

4. To monitor legislation affecting libraries and to support the promotion of necessary legislation for the establishment, regulation, and management of libraries throughout Nigeria.

5. To encourage bibliographical study, research, and library cooperation.

6. To undertake all lawful activities that are incidental and conducive to achieving the aforementioned objectives. The membership of the association has experienced consistent growth, transitioning from national to state chapters of the NLA, with the objective of strengthening the educational system across all levels. This expansion necessitated for a regulatory body which is tasked with defining and distinguishing the role of a librarian. Such a body is essential for the enhancement, promotion, and support of librarianship within the diverse environments it serves.

This expansion brought about the Librarian Registration Council of Nigeria (LRCN) in 1995 through the enactment of Decree 12 in 1995, which established the Librarians' Registration Council of Nigeria (LRCN), it was a pivotal moment for the profession, having been signed into law by General Sani Abacha, the then Head of State. This development marked the formal recognition of librarianship as a profession that significantly contributes to societal advancement, positioning it alongside with other esteemed professions in Nigeria, such as law, teaching, medicine, and engineering, all of which are governed by their respective regulatory councils (Shehu & Kasa, 2019).

The mandate of the LRCN, as delineated in the Decree, encompasses the following objectives:

1. To define the criteria for what constitutes a librarian.

2. To establish the requisite standards of knowledge and skills for individuals aspiring to enter the profession, ensuring that only those who meet these standards are registered and acknowledged as professional librarians.

3. To maintain an official register of librarians.

4. To uphold discipline within the profession, among other responsibilities, (Shehu & Kasa, 2019).

UNESCO played a pivotal role in the establishment of Library and Information Science (LIS) education programmes across Africa, particularly within Anglophone sub-Saharan Africa. This initiative was primarily driven by the demand from public libraries. UNESCO firmly believed that the eradication of illiteracy in sub-Saharan Africa could only be achieved with the active support of libraries. Consequently, a series of regional seminars were conducted between 1953 and 1963 across the African continent to raise awareness among colonial governments regarding the necessity of establishing public libraries in their territories. This initiative aimed to accelerate socio-economic development and led to the establishment of library schools in Africa, thereby ensuring the sustainability of library practices (Otike, cited in Olubiyo, & Olubiyo 2022).

However, the effectiveness of these associations depends on sustained member participation, institutional support, strategic leadership, and adaptive governance structures. Without strong and proactive professional bodies, librarianship risks fragmentation, weakened credibility, and diminished policy influence. Strengthening professional associations is therefore not merely an internal professional concern; it is a strategic imperative for securing the future and hope of libraries in Nigeria.

Professional Association as Catalyst for Repositioning Librarianship in Nigeria

Professional associations are globally recognized as vital instruments for enhancing professional practice, upholding ethical standards, facilitating continuous education, and advocating for the interests of practitioners within a given field. In the domain of librarianship, these associations provide a framework that enables professionals to collaborate, develop their skills, influence policy, and respond effectively to emerging trends in information management. In Nigeria, a re-evaluation of librarianship has become imperative due to rapid technological advancements, a shift towards digital methodologies, and evolving expectations from users. The Nigerian Library Association, the Librarians' Registration Council of Nigeria, and the Nigerian Association of Library and Information Science Educators have all played pivotal roles in advancing this transformation. For professional associations such as NLA, NALISE and LRCN to reposition and make librarianship a profession to look up to in Nigeria, capacity building, training and retraining and as well updating library programme curricula remains the most visible, vital and transformative contributions of professional associations to librarianship.

Professional associations such as NLA, NALISE and LRCN function as institutional engines through which competencies are cultivated and sustained. Nigerian Library Association (NLA) has served and is still serving as a catalyst in institutionalized capacity building through national conferences, zonal workshops, seminars, and collaborative training programmes. These platforms expose practitioners to innovations in digital librarianship, knowledge management, information literacy instruction, and evidence-based service delivery. Empirical evidence from the Nigerian context indicates that association-led Continuous Professional Development (CPD) frequently compensates for limited institutional training budgets, particularly within public and academic libraries (Saleh & Abdullahi, 2023).

Across Africa, professional associations demonstrated their adaptive relevance during the COVID-19 pandemic by organizing webinars, professional briefings, and collaborative learning initiatives that sustained service delivery despite widespread disruption (Akullo et al., 2021). Such responsiveness reinforces the argument that professional associations function as resilience structures within fragile institutional environments.

The Nigerian Library Association (NLA) stands as the foremost professional organisation for librarians in Nigeria. Since its establishment, the association has served as a vital platform for networking among professionals, advocating for issues pertinent to librarianship, disseminating research findings, and fostering capacity building within the profession. Nkebem (2009) articulated that membership in the NLA facilitates professional growth for librarians through access to a variety of opportunities, including conferences, workshops, publications, and collaborative activities designed to enhance job performance. Furthermore, the NLA actively promotes continuous professional development by introducing librarians to emerging trends in areas such as digital librarianship, artificial intelligence, information literacy, open access, and research support services.

In addition to these initiatives, the NLA advocates for improved funding for libraries, more favourable policies, and enhanced working conditions for librarians. The association organises annual conferences and maintains specialised interest groups that encourage the exchange of knowledge and innovation among professionals in the field. Opara (2010) highlighted that professional associations such as the NLA play a crucial role in the professionalisation and recognition of librarianship in Nigeria, as they reinforce the professional identity of librarians and promote adherence to established professional standards.

The Librarians' Registration Council of Nigeria (LRCN) was established by Act No. 12 of 1995 with the primary objective of regulating the practice of librarianship within Nigeria. This council serves as a transformative force in redefining the perception of librarianship by ensuring the implementation of professional regulations, certification, licensing, and quality assurance within the field. Its mandate encompasses the establishment of requisite standards of knowledge and skills for professional practice, the maintenance of a comprehensive register of librarians, and the enforcement of ethical conduct among practitioners. Okojie and Omotoso (2013) highlighted that the LRCN has significantly contributed to the education and training of information professionals by collaborating with both domestic and international organisations aimed at enhancing capacity building and improving professional competence. Similarly, Shehu and Kasa (2019) posited that the inclusion and registration of paraprofessionals by the LRCN would further advance professionalism, facilitate career progression, and enhance service delivery in libraries throughout Nigeria. Recent research highlights that the council's pivotal role in upholding standards and fostering professional development. Igiamoh and Emwanta (2016) found that librarians generally regard the LRCN as crucial for human capital development, the enforcement of professional discipline, and the elevation of library standards in Nigeria.

Furthermore, the Nigerian Association of Library and Information Science Educators (NALISE) plays a strategically significant role in the advancement of librarianship, primarily through its commitment to enhancing the quality of education in Library and Information Science (LIS). This esteemed association unites educators, researchers, and scholars dedicated to improving pedagogical approaches, developing comprehensive curricula, and conducting research within LIS programmes offered by universities throughout Nigeria. NALISE is instrumental in modernising LIS curricula by advocating for the integration of contemporary and emerging disciplines, such as digital librarianship, artificial intelligence, data analytics, information architecture, and research data management. This initiative is crucial, as the future relevance of the librarianship profession is fundamentally linked to the calibre of education and training that upcoming professionals will receive. Oye and Ameh (2019) emphasized that the review of curricula, the cultivation of leadership skills, and the provision of professional training are essential for repositioning libraries and the librarianship field to meet global standards and ensure competitiveness.

Furthermore, Sulyman, Usman, and Badmus (2023) underscored the importance of NALISE, alongside the Nigerian Library Association (NLA) and the Library Registration Council of Nigeria (LRCN), as pivotal professional entities that contribute to the enhancement of librarianship practice and the maintenance of professional standards in Nigeria. This is achieved through a focus on education, training, and the promotion of skills that significantly enhance employability.

The Nigerian Library Association (NLA), the Library Registration Council of Nigeria (LRCN), and the Nigerian Association for Library and Information Science Education (NALISE) constitute the foundational pillars that underpin the advancement of librarianship in Nigeria. The NLA is dedicated to fostering professional development and advocacy, while the LRCN is tasked with providing regulatory oversight and ensuring the maintenance of quality standards. In parallel, NALISE concentrates on enhancing the educational framework of the profession. The synergistic efforts of these organisations have significantly contributed to the professionalisation, modernisation, and sustainability of librarianship in Nigeria and will continue to be. As the information landscape continues to evolve, it is imperative for these professional bodies to enhance their collaboration to foster innovation, elevate professional competence, and improve the global standing of librarianship in Nigeria.

Challenges Facing Professional Associations in Repositioning Librarianship in Nigeria

Professional associations play a crucial role in the advancement and sustainability of librarianship in Nigeria. They uphold professional standards, advocate on behalf of their members, facilitate ongoing education, and foster both research and innovation. Key organisations contributing to the development of librarianship in Nigeria include the Nigerian Library Association (NLA), the Librarians' Registration Council of Nigeria (LRCN), and the Nigerian Association of Library and Information Science Educators (NALISE). Despite their notable achievements, these organisations face various challenges that affect their capacity to redefine librarianship in the context of the digital age.

This study of Anene and Idiedo (2023) identified factors limiting librarians' participation in professional development activities, including lack of time, inadequate awareness, financial constraints, technological challenges, and workload pressures. This uneven engagement weakens collective strength and limits the representativeness of professional voices in national discourse.

Funding constraints constitute a significant limitation to the effectiveness of professional library associations and institutions. Inadequate and unstable funding restricts the implementation of training programmes, technological innovations, research activities, and advocacy initiatives. Financial limitations also hinder long-term planning, staff development, and the capacity of professional bodies to influence policy and national development agendas effectively (Ilori & Onanuga, 2025)

The Nigerian Library Association (NLA) has consistently served as the principal professional organisation for librarians in Nigeria. However, a notable challenge it faces is insufficient funding. Professional associations typically depend on

membership fees, conference charges, and sponsorships, which often fall short of supporting comprehensive professional development programmes and advocacy initiatives. Patrick (2021) revealed that effect of poor funding of public libraries in Asaba are dependents on factors such as; inadequate utilization of library resources, insufficient library materials, inadequate staffing, outdated library resources and insufficient library facilities respectively. This financial limitation adversely affects the association's ability to organize regular capacity-building activities and to effectively promote the discipline of librarianship throughout the nation. Also, Mamman and Nwokedi (2019) reveal among others that there is poor availability of information resources in the libraries, due to inadequate funding; the sources of funding are mainly from the parent institutions of the libraries and grants from TET Fund.

A significant challenge facing professional associations is the decline in member participation and commitment. The efficacy of these associations is largely derived from the active engagement of their members. Nonetheless, numerous librarians encounter obstacles that hinder their full participation in conferences, workshops, and other professional activities, primarily due to financial constraints and institutional limitations. Sulyman, Usman, and Badmus (2022) noted that strengthening librarians' employability and professionalism requires sustained commitment to professional development and active participation in professional associations.

The rapid evolution of technology also presents significant challenges for the NLA. Emerging technologies such as artificial intelligence, big data analytics, digital scholarship, and research data management require continuous retraining of librarians. Recent evidence indicates that many Nigerian libraries are still grappling with infrastructural and skill-related challenges that affect technology adoption (Oton & Kolawole, 2025).

The Library Registration and Certification Network (LRCN) is tasked with the regulation of librarianship practices and the maintenance of professional standards within Nigeria. However, the council encounters various operational challenges, notwithstanding its statutory mandate. A considerable challenge identified is the insufficient awareness among practising librarians regarding the functions of the council and the associated regulatory requirements. Research conducted by Igiamoh and Emwanta in (2016) revealed that many librarians lack adequate knowledge of the stipulations outlined in the LRCN Act. They advocated for enhanced initiatives to disseminate information concerning the council's activities and responsibilities, thereby fostering a greater understanding within the profession. A further challenge lies in ensuring adherence to the stipulations for professional registration and certification. Omotoso and Igiamoh (2016) highlighted that effective professional regulation necessitates robust monitoring, certification, licensing, and enforcement mechanisms. The implementation of these mechanisms can prove to be particularly complex across the diverse library sectors present throughout the country.

The integration of paraprofessionals into the regulatory framework remains a pertinent issue. Shehu and Kasa (2019) posited that paraprofessionals constitute a substantial segment of the library workforce, and their incorporation into the LRCN framework would not only augment professional development but also improve service delivery. Furthermore, the sustenance of professional development programmes and collaborative initiatives necessitates substantial financial investment and robust institutional support. Okojie and Omotoso (2013) highlighted that while partnerships have significantly enhanced capacity building for librarians, the continuity of these collaborations is challenged by the constraints of limited resources.

NALISE has the responsibility of advancing Library and Information Science education and research in Nigeria. However, there are several challenges that affect how effective it is in fulfilling this responsibility. A substantial challenge facing the field is the timely update of the curriculum. The contemporary information scenery necessitates that librarians possess competencies in artificial intelligence, data analytics, digital preservation, and a range of information technologies. However, many Library and Information Science programmes struggle to revise their curricula swiftly enough to align with emerging trends. Abubakar (2021) highlighted that Library and Information Science education in Nigeria faces significant barriers in addressing the requirements of the digital age.

An additional challenge pertains to the insufficient availability of research funding and technological infrastructure. The provision of high-quality education in Library and Information Science is contingent upon robust research activities, access to digital resources, and the presence of modern teaching facilities. Nevertheless, many institutions offering Library and Information Science programmes persistently face funding deficiencies that hinder both innovation and research productivity. NALISE encounters significant challenges pertaining to the integration of technology within teaching and learning environments. Aboh (2024) highlights that while e-learning and digital technologies present considerable opportunities for Library and Information Science (LIS) education, persistent issues such as inadequate infrastructure, restricted access to technology, and a lack of sufficient training continue to pose formidable obstacles to their effective implementation. A notable disparity exists between Library and Information Science (LIS) education and its application in professional practice. In a study conducted by Anike, Ogungbeni, Okonkwo, and Otubelu (2025), it was reported that many LIS students and graduates lack sufficient understanding of emerging trends in librarianship. This finding underscores the urgent need for enhanced collaboration among educators, professional organisations, and practitioners in the field.

The Nigerian Library Association (NLA), the Librarians' Registration Council of Nigeria (LRCN), and the Nigerian Association of Library and Information Science Educators (NALISE) play a crucial role in the advancement of librarianship within Nigeria. However, they face several significant challenges, including insufficient funding, limited member participation, inadequate technological competencies, regulatory issues, a lack of awareness, deficiencies in curriculum development, and insufficient research support, all of which hinder their effectiveness.

To address these challenges, it is imperative to enhance investment in these organisations, foster collaboration among various stakeholders, improve professional development programmes, and better integrate emerging technologies. Implementing these strategies will fortify these associations and enhance their capacity to adapt librarianship in Nigeria to meet future demands. The ongoing relevance and sustainability of the profession are profoundly dependent on the ability of these professional organisations to effectively navigate current challenges and seize emerging opportunities.

However, identifying these limitations is not an indictment of professional associations; rather, it is a prerequisite for reform. If professional associations are to serve as engines of hope, they must evolve structurally and strategically.

Conclusion

Professional associations remain fundamental to the advancement and transformation of librarianship in Nigeria. The Nigerian Library Association (NLA), the Librarians' Registration Council of Nigeria (LRCN), and the Nigerian Association of Library and Information Science Educators (NALISE) have contributed significantly to professional development, regulation, advocacy, curriculum enhancement, and the promotion of professional standards. Through conferences, workshops, certification programmes, curriculum reforms, and collaborative initiatives, these bodies have strengthened the competence, visibility, and relevance of librarianship in a rapidly evolving information environment. Despite these achievements, several challenges continue to limit their effectiveness. Inadequate funding, low member participation, weak technological infrastructure, insufficient awareness of regulatory requirements, curriculum gaps, and limited research support have constrained their ability to respond effectively to the demands of the digital age. These challenges not only affect the operations of the associations but also threaten the growth and sustainability of librarianship in Nigeria.

The future of libraries and librarianship in Nigeria depends largely on the capacity of professional associations to adapt to emerging realities and provide strategic leadership. This requires greater collaboration among practitioners, educators, regulators, government agencies, and other stakeholders. It also demands sustained investment in professional development, technological innovation, research, and advocacy. Ultimately, the theme *"Our Future, Our Hope"* underscores the critical role of professional associations in shaping the future of librarianship in Nigeria. By fostering professional excellence, promoting innovation, strengthening regulatory frameworks, and advocating for supportive policies, NLA, LRCN, and NALISE can continue to serve as catalysts for professional growth and transformation. Strengthening these associations is therefore essential for ensuring the continued relevance, competitiveness, and sustainability of libraries and librarianship in Nigeria.

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PROFESSIONAL COMPETENCE FOR EFFECTIVE DIGITAL LIBRARY SERVICES DELIVERY IN UNIVERSITY LIBRARIES IN NIGERIA

By

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Abstract

Digital library in academic environment has become indispensable for supporting teaching, learning and research. Effective deliver of these services depends critically on the professional competence of library personnel for professional development. This study explores Professional Competence for Effective Digital Library Services Delivery in University Libraires in Nigeria. The paper reviewed professional competence in librarianship, and Digital Competence as a Core Component of Professional Competence and Relationship of Professional Competence and Quality Library Service Delivery. The paper highlights components of effective digital library services delivery. It challenges, and conclude that university libraries should adopt innovation information and communication technology tools. Continuous staff development, support remote access, and engaged users through proactive outreach and feedback to sustain effective library services delivery and its relevance. And recommended digital and information and communication technology competences, continual professional development and adaptability to ensure library professionals remain resilient among others.

Keywords: Professional Competence, Digital Library Services, University Libraries, Nigeria

Introduction

In the 21st century, libraries are undergoing rapid transformation from traditional repositories of print materials to dynamic digital information hubs that support teaching, learning, research and global collaboration. This transformation has been driven by advancements of Information and communication Technologies (ICTs) and the increasing demand for instant access to electronic resources, online catalogue, virtual reference, digital repositories with complex digital ecosystems that support remote services (Owate, 2024). This shift has redefined the role of library professional who now possess not only traditional librarianship skills but also digital professional competencies to deliver quality information services effectively (Aloogbo, 2024).

Digital libraries now encompass online catalogues, institutional repositories, e-journals, digital archives, and interactive web-based systems that enhance the accessibility and usability of information for diverse user groups (Owate, 2024). However, the successful delivery of these digital library services depends on the professional competence of library personnel. Professional competence refers to the combination of knowledge, skills, attitudes, and abilities to enable information professionals to perform their duties efficiently and achieve the objective of services delivery. These encompass technical proficiently in digital tools, understanding of digital content management, effective communication skills, and the ability to navigate and leverage digital platforms to meet diverse users' needs (Abdullahi & Owotabi, 2024).

Moreover, the growing reliance on digital library services has heightened expectations amongst users in Nigerian university libraries for timely, accurate, and reliable access to information. University library users now demand services that are not only accessible anywhere and anytime but also intuitive and responsive to their information needs. Consequently, professional competence has emerged as a critical component of effective library services delivery, enabling librarians to integrate technology with professional practice and enhance overall service performance (Daramola et al., 2024). Research indicates that inadequacies in professional competence can hinder effective digital library services delivery, leading to poor users' experiences and reduced satisfaction (Owate, 2024). These competences have been identified as key determinants of library services quality and users' satisfaction (Owolabi et al., 2024).

Despite the proliferation of digital services in libraries globally, evidence suggests that there are significant gaps in professional competence among library professional, particularly in developing regions where training opportunities, ICT infrastructure and continuous professional development may be limited. In Nigeria universities, studies have shown that while basic digital skills are present, advanced competencies required for managing and delivering complex digital library services remain moderate and low, highlighting the urgent need for targeted capacity building (Ogunbodede &

Atchrimi, 2024). Therefore, it becomes imperative to explore the professional competencies essential for the delivery of effective digital library services, identifying gaps in current practices, and propose strategies for enhancing the skills and knowledge for library professionals in university libraries in Nigeria. The objective of this study is to examine the professional competence required for effective digital library services delivery in university libraries, with a view to identifying the knowledge, skills, abilities, and technological proficiencies needed by library professionals to manage digital resources and provide quality information services in a rapidly evolving digital environment.

Literature Review

Professional Competence in Librarianship

Professional competence in librarianship refers to the combination of knowledge, skills, attitudes, and behaviours that enable library staff to perform their roles efficiently and effectively. In the context of university libraries, these competencies have expanded beyond traditional cataloguing and reference work to include digital literacy, information technology, user engagement, and service innovation (Owolabi et al., 2024). This expanded competence is essential for meeting the evolving expectations of academic communities and providing digital library services that are timely, reliable, and relevant to users' learning and research needs.

Owning requisite professional competencies significantly influences library service quality and user satisfaction. A recent study in Nigerian colleges of education found that professional competence, including communication skills and academic qualifications, significantly contributed to library service quality and user satisfaction, reinforcing that skilled library personnel are pivotal to service effectiveness (Owolabi et al., 2024). Furthermore, the role of competencies has been explored conceptually to determine the types of skills needed by reference librarians to facilitate high-quality information services. Competencies such as information retrieval, user guidance, and application of information technologies were identified as essential for delivering quality reference services (Gani, 2025). In the era of digital disruption—marked by rapid technological change—library professionals are expected to go beyond traditional skills. Research indicates that librarians must adopt digital mindsets, leadership, communication, and collaboration abilities to remain responsive to global changes and manage digital services effectively (Nada, 2021).

Digital Competence as a Core Component of Professional Competence

Digital competence is the subset of professional competence that directly relates to the effective use and management of digital tools and services. It includes mastery of digital technologies (software, platforms, systems), information retrieval and evaluation in online environments, digital content management, cybersecurity awareness, and user support for digital services (Daramola et al., 2024). Atchrimi and Ogunbodede (2024), asserted that librarians with higher digital competence are better positioned to deliver contemporary digital library services. For example, research in Nigerian university libraries reports that librarians have basic digital competence skills and use various methods to acquire these skills, but face barriers such as inconsistent power supply and inadequate training opportunities, which constrain optimal performance. In academic libraries in Nigeria, professional competence has been shown to significantly influence user satisfaction through improved service quality. Librarians' communication skills, academic qualifications, and attitudes contribute strongly to how users perceive and use library services (Owolabi et al., 2024). Research focused on digital library reference services found that librarians' professional competence (including digital library skills such as internet and social media use) directly enhances the delivery of both synchronous and asynchronous digital reference services. Higher professional competence correlated with better service delivery outcomes.

Professional Competence and Quality Library Services Delivery

Professional competence has become a critical factor in enhancing quality library service delivery in the contemporary information environment. Rapid technological advancements, digital transformation, and evolving user expectations require librarians to continuously update their knowledge and skills through continuing professional development (CPD). Professional competence encompasses information management, digital literacy, communication, research support, and technological expertise, all of which contribute to effective service provision. Studies have shown that CPD enables librarians to adapt to emerging trends, improve service innovation, and respond effectively to the changing needs of library users. As libraries increasingly embrace digital platforms and user-centered services, the acquisition of new competencies becomes essential for maintaining relevance and achieving organizational goals (Graham & Winteringham, 2021; Moonasar, 2024). Furthermore, academic librarians who engage in regular professional development are better positioned to implement innovative services and enhance user satisfaction through efficient information access and knowledge dissemination. (Graham & Winteringham, 2021; Moonasar, 2024).

Quality library service delivery depends significantly on the competence, adaptability, and commitment of library professionals. Recent studies indicate that librarians require continuous training in information and communication technologies, digital resource management, and emerging service models to meet the demands of modern library users. Effective CPD initiatives such as workshops, conferences, e-learning programs, and professional networking opportunities have been found to strengthen librarians' capabilities and improve institutional performance. Moreover, revitalizing professional competence fosters innovation, improves service efficiency, and supports the transformation of libraries into dynamic learning and research hubs. Therefore, library management and professional associations should prioritize sustained investment in staff development to ensure high-quality, user-centered services and long-term organizational effectiveness in the digital age (Oladokun & Mooko, 2023; Chukwusa, 2024; Nakaziba & Ngulube, 2025).

Components of Effective Digital Library Services Delivery

Digital library services have become central to information access, knowledge dissemination, and scholarly communication in the digital age. An effective digital library goes beyond digitized collections; it integrates technology, human expertise, policies, and user-centred services to ensure seamless access to reliable information resources (Xie & Matusiak, 2016). The effectiveness of digital library services delivery depends on several interrelated components, which together support accessibility, usability, sustainability, and impact. The following are the components of effective digital library services delivery:

i. Robust Information and Communication Technology (ICT) Infrastructure

A reliable ICT infrastructure is the foundation of effective digital library service delivery. It includes high-speed internet connectivity, servers, cloud storage facilities, computer hardware, and network systems that support uninterrupted access to digital resources. Effective infrastructure ensures that users can retrieve information quickly and conveniently regardless of their location. Studies have shown that inadequate ICT facilities and poor internet bandwidth significantly hinder digital library performance, while strong technological infrastructure enhances accessibility, efficiency, and user satisfaction in digital library environments.

ii. Digital Library Management Systems (DLMS)

Digital Library Management Systems are software platforms used to organize, store, retrieve, and manage digital collections. These systems provide functionalities such as metadata management, indexing, searching, user authentication, and resource sharing. An effective DLMS enables seamless access to electronic resources and improves information retrieval efficiency. Recent studies indicate that well-designed digital library management systems are essential for the successful development and sustainability of digital libraries because they support efficient collection management and enhanced service delivery.

iii. Quality Digital Collections and Content Management

The availability of relevant, current, and well-organized digital resources is a critical component of digital library services. Digital collections may include e-books, e-journals, theses, dissertations, multimedia resources, institutional repositories, and research datasets. Effective content management ensures that these resources are properly digitized, indexed, preserved, and easily accessible. Research emphasizes that digital libraries must maintain trustworthy and valuable scholarly content through standardized policies and preservation practices to meet users' information needs effectively.

iv. Skilled Human Resources and Continuous Staff Training

Qualified librarians and information professionals play a vital role in managing digital resources and assisting users. Staff members require competencies in digital technologies, metadata creation, database management, information retrieval, and user support services. Continuous professional development enables librarians to adapt to emerging technologies and changing user expectations. Recent evidence suggests that inadequate technical skills among library personnel can negatively affect service quality, while ongoing training enhances digital service effectiveness and innovation.

v. User-Centred Access and Reference Services

Effective digital libraries focus on meeting users' information needs through accessible and responsive services. These include online reference services, remote access facilities, mobile library services, user education programs, and personalized information support. Mobile technologies and virtual reference services have become increasingly important in extending library services beyond physical boundaries. Studies demonstrate that mobile online public access catalogues and mobile reference services significantly improve digital library service delivery by increasing accessibility and user engagement.

vi. Digital Preservation, Policy, and Sustainability Framework

Digital preservation ensures the long-term accessibility and usability of digital resources despite technological changes. Effective service delivery requires policies governing data security, copyright compliance, preservation standards, funding, and institutional governance. Sustainability frameworks help libraries maintain digital collections and services over time through adequate financial support and stakeholder participation. Research has identified organizational policies, financial sustainability, technological standards, and governance structures as essential factors for maintaining trustworthy and efficient digital library services.

Challenges

The major challenges affecting effective delivery of digital library services in university libraries include:

i. Inadequate Digital and ICT Skills

A core challenge is that many professional librarians lack the necessary digital competencies required for effective service delivery in digital environments. Studies indicate that librarians often struggle with basic digital tools, database search techniques, and emerging technologies, reducing their ability to support users effectively and to manage digital collections optimally. This deficit manifests as reluctance to adopt technological tools and an inability to fully take advantage of digital services infrastructure, ultimately slowing service delivery and affecting productivity.

ii. Limited Professional Development Opportunities

Professional competence is dynamic and requires continuous training and learning. Unfortunately, university librarians often have limited access to professional development programs that would enhance their digital skills. The absence of structured training, workshops, and continuous learning opportunities constrains librarians from staying current with technological advancements. Financial constraints within institutions further exacerbate this problem, making it difficult to fund attendance at training or conferences that could improve staff competencies.

iii. Resistance to Change and Adoption of Technology

Resistance to change remains a significant barrier to digital competence. Some librarians exhibit a preference for traditional library practices and may feel threatened by the shift towards digital services. This resistance can stem from fear of obsolescence, lack of confidence, or simple discomfort with evolving technology, which undermines efforts to modernize services and integrate digital platforms that better meet user needs.

iv. Insufficient ICT Infrastructure and Support

Professional competence cannot be developed or demonstrated effectively without an enabling environment. Many university libraries particularly in developing contexts face persistent infrastructure challenges, including unreliable internet connectivity, inconsistent power supply, and outdated hardware or software. These infrastructural limitations not only hamper digital service delivery but also restrict opportunities for staff to practice and refine digital skills in real settings.

v. Financial Constraints Affecting Competence Enhancement

Adequate funding is critical for developing professional competence through training programs, procurement of modern ICT tools, and implementation of digital platforms. However, budgetary limitations in higher education systems often result in insufficient financial support for library development and staff capacity building, constraining librarians' opportunities to acquire and maintain necessary digital skills.

vi. Organizational and Policy Barriers

Effective digital library services require supportive institutional policies that prioritize ICT adoption, continuous learning, and staff development. Many university libraries struggle with the absence of well-defined ICT policies, strategic plans for capacity building, or frameworks that institutionalize training needs assessment. The lack of such policies weakens coordinated efforts to enhance competence, leaving librarians to navigate digital transitions without clear guidance or support structures.

vii. User-Related Challenges and Expectations

Professional competence also encompasses user education and support. As users increasingly demand personalized, seamless digital experiences, librarians must develop skills not only in technology but also in user engagement, instruction, and digital literacy facilitation. A gap in these competencies can lead to suboptimal user support and reduced utilization of digital library services.

Conclusion

Professional competence is a critical factor in the effective delivery of digital library services, as it equips library professionals with the knowledge, technical skills, and adaptive capacities required to manage digital resources, utilize emerging technologies, and meet the evolving information needs of users. For the attainment of effective digital library services delivery in university libraries, professional competence goes beyond possessing technical knowledge and skills, but it involves the consistent and appropriate application of that knowledge in real-world contexts, guided by ethical principles, professional standards, and reflective practice. Furthermore, continuous professional development, training, and capacity-building initiatives are essential for maintaining and improving these competencies in a rapidly changing digital environment. Therefore, libraries and their parent institutions should prioritize investment in staff development and technological proficiency to strengthen digital service delivery and ensure the sustainability, relevance, and effectiveness of modern library operations.

Way Forward

i. Adequate Funding of University Libraries

University management and relevant stakeholders should prioritize increased and sustainable funding for digital library initiatives to enhance professional competence in digital library service delivery. Adequate financial resources are necessary for the acquisition, maintenance, and upgrading of ICT infrastructure, subscription to electronic information resources, procurement of digital library software, and continuous staff training. Libraries should also explore alternative funding sources such as research grants, partnerships, alumni support, and collaborations with governmental and non-

governmental organizations to supplement budgetary allocations and ensure the long-term sustainability of digital library services.

ii. Adequate ICT Infrastructure and Management Support

University authorities should invest in the provision and modernization of ICT infrastructure required for effective digital library operations. This includes reliable internet connectivity, adequate computer systems, servers, power supply, digital repositories, and library management software. Furthermore, library management should demonstrate strong institutional support by formulating strategic plans for digital transformation, providing necessary resources, and creating an enabling environment that encourages innovation and technology adoption among library staff. Such support will strengthen librarians' professional competence and improve the quality of digital library services.

iii. Adequate Digital and ICT Skills

University libraries should implement regular and comprehensive capacity-building programs aimed at enhancing librarians' digital literacy and ICT competencies. Training workshops, seminars, certifications, mentorship programs, and hands-on practical sessions should be organized to equip library professionals with skills in digital resource management, database administration, information retrieval technologies, digital preservation, and emerging technologies. Continuous skills development will enable librarians to effectively manage digital library systems and provide efficient services to users in an increasingly technology-driven academic environment.

iv. Acceptance of Change and Adoption of ICT Facilities

Library management should adopt effective change management strategies to encourage positive attitudes toward the adoption and utilization of ICT facilities among library staff. Awareness programs, sensitization campaigns, staff involvement in decision-making processes, and incentives for embracing technological innovations should be promoted. Management should also provide adequate support and training to reduce anxiety associated with technological changes. Encouraging a culture of innovation and continuous learning will facilitate the successful integration of ICT facilities and enhance professional competence in digital library service delivery.

v. Adequate Organizational and Policy Review

University administrations should review and strengthen institutional policies that support the implementation and effective use of digital library technologies. Clear guidelines, strategic ICT policies, and operational frameworks should be established to promote digital transformation within university libraries. Organizational structures should be streamlined to reduce bureaucratic bottlenecks that hinder technology adoption and innovation. Additionally, collaboration between library management, university leadership, and ICT units should be strengthened to ensure that policies and organizational practices effectively support professional competence and digital library service delivery.

vi. Adequate Professional Development Opportunities

University libraries should establish structured and continuous professional development programs to ensure that librarians remain current with emerging trends and technologies in digital librarianship. Opportunities for attending conferences, workshops, webinars, professional certification programs, and academic exchange initiatives should be regularly provided. Professional associations and university management should also support career development initiatives that encourage lifelong learning and knowledge sharing among library personnel. Expanding access to professional development opportunities will enhance librarians' competencies, confidence, and effectiveness in delivering high-quality digital library services.

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Professional Development Interventions and creative Service Delivery among Academic Librarians in Nigeria

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Abstract

This study investigates the **professional development interventions and creative service delivery** among academic librarians, focusing on selected institutions across Delta, Abjua, and Kogi states. The objectives of the study were to; identify the available professional development interventions, assess their influence on creative service delivery, examine relationship btw participation and innovative service adoption and identify challenges. Adopting a survey research design, the study population comprised 5,000 librarians in Nigeria. The cluster sample was used to select 3 Nigerian states: Delta, Abuja, and Kogi. Purposive sampling was used to select 60 librarians from 6 selected institutions across the states. Data were collected through validated observation checklists and questionnaires (Cronbach Alpha reliability = 0.83, validated by three Library and Information Science experts). The data was analyzed using the descriptive statistics. **Findings revealed** that workshops and conferences constituted the predominant interventions, though online courses remained underutilised. Professional development significantly enhanced creative service delivery, particularly in digital reference services and user education programs, demonstrating strong positive relationships between training participation and adoption of innovative services like virtual research consultations and makerspace facilitation. Challenges included inadequate funding, irregular program scheduling, and limited internet access hindering online training effectiveness. The study **concludes** that targeted professional development interventions substantially elevate librarians' creative capacities, recommending consistent funding allocation, diversified training formats incorporating e-learning platforms, and institutional partnerships to sustain innovative service delivery essential for modern academic libraries.

Keywords: Academic Librarians, Creative Service Delivery, Professional Development, Innovative Library services

Introduction

Professional development activities, including workshops and training programmes, enhance librarians' capacity to provide innovative services and cultivate creativity in their work. Such initiatives play a crucial role in building new competencies, stimulating creative thinking, and strengthening overall service performance among library staff. For good reasons academic libraries play a pivotal role in supporting teaching, learning and research within higher education institutions, it is vital for such professional development be placed regularly for the librarians to abreast their knowledge for improved professional engagement. In an era characterised by rapid technological advancement, digital transformation and evolving user expectations, librarians are increasingly required to move beyond traditional service models and adopt innovative, user-centred approaches. The findings of Onyeisiijeh and Odede (2025) inferred that the role of librarians has changed, and nowadays they are not just the keepers of books, but highly knowledgeable in navigating through the web, surfing for information for users and as well upgrading themselves. They actually work with both physical and virtual collections because of the use of digital technologies, which they have been exposed to through workshops and conferences. Globally, professional bodies have emphasised on the need for libraries to continually adapt to emerging trends through capacity building and skills development (Brodowicz, 2025). Within the Nigerian context, academic libraries are responding to similar pressures, including the expansion of digital scholarship, open access resources and virtual learning environments.

Professional development interventions, such as workshops, training programmes, conferences and online courses, could be of help and will become essential mechanisms for equipping librarians with contemporary competencies. Continuous professional education enhances technological proficiency, strengthens academic engagement in user education, and as such foster creativity in service design among librarians. Abubakar *et al*. (2025) opined that reports on the state of libraries worldwide highlight that ongoing staff development is central to innovation, resilience and improved service outcomes, just like in educating users through library outreach programmes in rural areas. For Nigerian academic libraries, where infrastructural and funding limitations often constrain service growth, structured and sustained professional development is particularly critical.

Creative service delivery in academic libraries embraces so many services done in libraries/ information centres by professional librarians, to keep their work going and efficient. It involves digital reference services, virtual research consultations, makerspace facilitation and interactive information literacy programmes. These services require librarians to apply creative thinking, leverage digital platforms effectively, and engage proactively with diverse user communities. However, despite the recognised importance of professional development, there remains limited empirical evidence on the extent to which such interventions directly influence innovative service adoption in Nigerian academic libraries.

Statement of the Problem

Academic libraries in Nigeria are increasingly expected to provide innovative, technology-driven and user-centred services that align with global standards in higher education. The emergence of digital scholarship, online learning platforms, virtual research support and makerspaces has transformed the traditional role of librarians from custodians of print collections to dynamic facilitators of knowledge creation and digital engagement. A major concern is the apparent gap between the availability of professional development interventions and the effective translation of acquired skills into creative service delivery. Although librarians participate in workshops, conferences and occasional training programmes, the extent to which these interventions significantly influence innovative practices such as digital reference services, virtual research consultations and interactive user education remains unclear (Umap & Jani, 2024). Besides, online professional development opportunities, which could broaden access to global best practices, appear underutilised due to infrastructural and technological limitations.

Moreover, there is limited empirical evidence examining the relationship between librarians' participation in professional development and their adoption of innovative service models within Nigerian academic libraries, particularly in states such as Delta, Abuja and Kogi. The absence of such data makes it difficult for policy makers and institutional administrators to make informed decisions regarding fund allocation, training design and strategic planning. Therefore, the central problem of this study lies in the insufficient understanding of how professional development interventions influence librarians' creative service delivery in Nigerian academic libraries, and the need to identify the challenges limiting their effectiveness.

Objectives of the Study

The following objectives are stated for the study:

1. Identify available professional development interventions.
2. Assess the influence of professional development interventions on creative service delivery.
3. Examine relationships between participation and innovative service adoption.
4. Identify the challenges **of professional development interventions on librarians' creative service delivery** in Nigerian academic libraries.

Research Questions

The following research questions were postulated for the study:

1. What are the available professional development interventions in Nigerian academic libraries?
2. What is the influence of professional development interventions on creative service delivery in Nigerian academic libraries?
3. What are the relationships between participation and innovative service adoption in Nigerian academic libraries?
4. What are the challenges **of professional development interventions on librarians' creative service delivery** in Nigerian academic libraries?

Literature Review

Available Professional Development Interventions

Professional development has become an indispensable component of contemporary librarianship, particularly in an era characterised by rapid technological innovation, digital transformation and evolving user expectations. Professional development is of huge importance in various aspect for optimum and effective service delivery. Libraries worldwide are redefining their service models to incorporate digital scholarship, data management, artificial intelligence tools and virtual learning support systems. Within this context, structured and continuous professional development interventions are widely acknowledged as critical mechanisms for equipping librarians with relevant competencies. Professional development interventions available to librarians typically include workshops, training programmes, conferences, seminars, mentoring schemes and online courses. Workshops and in-house training programmes often focus on specific competencies such as digital cataloguing systems, research data management, institutional repository development and information literacy instruction. These formats allow for practical, hands-on engagement and are commonly supported by institutional funding structures. Similarly, professional conferences provide opportunities for networking, exposure to global best practices and knowledge exchange. According to Carr (2016), conferences and professional forums play a significant role in disseminating emerging trends and strengthening collaborative professional networks, in form of online conferences, which have become an increasingly well-accepted mode of delivery and interaction for professional development processes.

In recent years, online courses and e-learning platforms have gained prominence as flexible and cost-effective professional development alternatives. Massive Open Online Courses (MOOCs), webinars and virtual certification programmes enable librarians to access international expertise without geographical limitations. Liu *et al*. (2024) note that digital learning platforms have expanded opportunities for workforce upskilling across knowledge-intensive professions, including librarianship, because the role of professional learning community is considered great, where the relationships among digital professional development, professional learning communities, and digital instructional integration positively emerge.

Within the context of Nigeria, workshops and conferences remain the most prevalent forms of professional development for academic librarians. These interventions are often organised by professional bodies, university administrations or national library associations, among others. Their popularity can be attributed to structured organisation, face-to-face engagement and institutional sponsorship. Bryant-Shanklin and Brumage (2011) states that mentoring programmes, collaborative research projects and inter-institutional partnerships are emerging as additional forms of professional development, because mentoring programme includes the acquisition of desired skills for excellence within the working engagement. Mentees were able to secure contacts with individuals mentoring them. These approaches promote and enable librarians to apply theoretical knowledge within practical contexts.

Identifying the range of available professional development interventions is therefore crucial for assessing their adequacy, accessibility and alignment with institutional goals. It provides insight into whether current interventions are sufficiently diversified to address emerging technological competencies and whether they effectively support innovation in service delivery. A comprehensive understanding of these interventions also establishes a foundation for evaluating their impact on librarians' creative and technological readiness in contemporary academic environments.

Assessing the Influence of Professional Development on Creative Service Delivery

The influence of professional development on creative service delivery has become a central focus in contemporary library and information science research. Creative service delivery encompasses innovative approaches that extend beyond traditional library functions, including digital reference services, virtual research consultations, makerspace facilitation, interactive user education programmes, and other technology-driven initiatives that enhance user engagement and satisfaction. International Federation of Library Associations and Institutions [IFLA], (2023) has its findings that the adoption of such services requires librarians not only to possess technical skills but also to apply critical thinking, problem-solving, and adaptive strategies in response to evolving user needs.

Professional development is widely regarded as a catalyst for enhancing librarians' capacity to deliver creative services. As it really matters a lot. Professional development should be something you actively do throughout your career so you can stay up to date in your field, which can include training courses, degree programs, certifications or even connecting with a mentor who can help guide you in your career (Indeed Editorial Team, 2025). Structured interventions such as workshops, training programmes, conferences, mentoring, and online courses provide librarians with opportunities to acquire new competencies, update existing knowledge, and explore innovative service delivery models. Organisation for Economic Co-operation and Development [OECD], 2023) states that by engaging in continuous learning, librarians are better equipped to integrate emerging technologies into daily practice, design user-centric programmes, and respond proactively to technological changes.

Global evidence suggests a strong correlation between professional development and the adoption of innovative library services. The American Library Association ([ALA], 2024) reports that libraries investing in staff development initiatives, particularly those that emphasise digital literacy and technological competency, are more likely to implement transformative services such as AI-driven reference systems, data visualization tools, and interactive learning platforms. These interventions foster an environment that encourages experimentation and the application of creative strategies to improve user experience.

In the Nigerian academic library context, professional development plays a crucial role in enhancing creative service delivery. Ukachi and Onuoha (2013) opined that librarians who participate in targeted training programmes demonstrate increased proficiency in emerging technologies and are more likely to introduce innovative services, including virtual reference platforms, digital repositories, and makerspace activities. Moreover, professional development enhances librarians' confidence in applying new tools, promotes collaboration within library teams, and encourages the adaptation of global best practices to local institutional contexts.

Professional development is not merely a mechanism for skill acquisition but a strategic tool that drives innovation, fosters creative thinking, and enhances librarians' ability to deliver modern, technology-driven services. Empirical assessment of its influence in Nigerian academic libraries provides valuable insights into the effectiveness of existing interventions and informs policy and practice aimed at sustaining innovation and service excellence.

Examining the Relationship Between Participation and Innovative Service Adoption

The relationship between librarians' participation in professional development activities and their adoption of innovative services is a critical area of investigation in contemporary library and information science research. IFLA (2023) reports that professional development provides the platform for librarians to acquire new knowledge, enhance skills, and explore

creative approaches to service delivery. But, the effectiveness of these interventions often depends on the level of active participation, engagement, and application of acquired competencies in practical contexts.

Participation in professional development can take multiple forms, including attending workshops, training programmes, conferences, online courses, mentorship, and collaborative research projects. Literature indicates that higher levels of engagement are often associated with greater adoption of innovative services. American Library Association [ALA], (2024) suggests that librarians who actively participate in training sessions focused on digital tools, AI-driven reference systems, or makerspace facilitation are more likely to implement these technologies within their libraries. This suggests that participation is not merely a formal requirement but a determinant of service innovation, influencing the extent to which theoretical knowledge is translated into practical, user-oriented applications.

Empirical studies highlight the positive impact of sustained professional development engagement on service innovation. Adamu *et al*. (2021) found that Nigerian academic librarians who regularly participated in professional development programmes demonstrated a higher propensity to introduce innovative services such as digital repositories, virtual reference platforms, and interactive user instruction programmes. These findings underscore the importance of consistency and depth of engagement, suggesting that occasional or superficial participation may not yield significant improvements in service delivery.

Moreover, the relationship between participation and innovative service adoption extends beyond individual competencies. Institutional culture, leadership support, and collaborative practices play critical roles in determining whether librarians can implement innovative services. Keenan (2023) suggests that active participation in technological activities, coupled with supportive policies, resource availability, and mentoring significantly enhances creative capacity and facilitates the adoption of novel service models.

The literature suggests a strong but context-dependent relationship between participation in professional development and the adoption of innovative library services. Understanding this relationship is essential for policymakers and library administrators, as it informs strategies for maximising the impact of training initiatives, promoting sustainable innovation, and ensuring that librarians are equipped to meet evolving user needs in an increasingly digital and technology-driven environment.

Implementation Challenges Affecting Professional Development and Service Innovation

There are so many challenges that impede the effective implementation of professional development interventions and their possible subsequent impact on librarians' creative service delivery. While professional development is widely acknowledged as a critical driver of innovation in academic libraries, evidence suggests that multiple structural, institutional, and contextual barriers often limit its effectiveness. Nakaziba and Ngulube (2023) inferred that understanding these challenges is essential for designing strategies that enhance participation, skill application, and overall service innovation, and availing librarians with protected time to engage in learning, and collaborating with external environments.

One of the most frequently cited challenges is inadequate funding. Financial constraints limit the ability of academic libraries to organise workshops, sponsor attendance at national and international conferences, or provide access to online courses and e-learning platforms. According to the American Library Association ([ALA], 2024), libraries that face funding limitations often struggle to maintain regular professional development activities, which in turn affects staff readiness to adopt innovative services. In the Nigerian context, inconsistent budgetary allocations to academic libraries worsen these challenges, restricting opportunities for continuous professional growth.

Infrastructure and technological limitations are also significant barriers. Effective adoption of emerging technologies and innovative service delivery relies heavily on reliable internet access, up-to-date hardware, and access to modern software tools. The Organisation for Economic Co-operation and Development ([OECD], 2023) observes that insufficient infrastructure reduces the effectiveness of training programmes and prevents librarians from applying new skills in practice. Nworie *et al*. (2021) indicate that limited ICT infrastructure in many academic libraries constrains the practical implementation of skills acquired through professional development, which could have been very helpful as such capacity building programmes equip librarians with the skills needed in this digital age.

Institutional and organisational challenges further affect the translation of professional development into service innovation. Azman (2019) is with the opinion that workload pressures, lack of management support, and absence of clear policies or incentives for innovation often reduce librarians' motivation and capacity to implement new practices and have a good knowledge and skill for the development of library. As such, librarians may attend workshops or training programmes but find themselves unable to apply learned skills due to competing administrative duties, insufficient collaboration among staff, or restrictive institutional cultures.

Additionally, socio-cultural and human factors such as limited time actors, resistance to change, inadequate digital literacy, and limited exposure to international best practices can hinder the adoption of innovative services. Uzorka *et al.* (2023) view time as a significant barrier to their professional development, and therefore, they require professional development opportunities that are tailored to their needs, relevant to their application of technology, and delivered by trainers. Without structured mentorship, follow-up support, and reinforcement mechanisms, training alone may be insufficient to drive sustained creative service delivery.

Finally, the scheduling and accessibility of professional development programmes present additional challenges. Irregular training schedules, geographically distant training locations, and limited access to online learning resources

reduce participation rates and engagement levels. This indicates that the availability of professional development interventions alone is not sufficient; the timing, format, and institutional support for these programmes are critical determinants of their effectiveness.

Methodology

A descriptive survey approach was employed in this study. The target population comprised 5,000 academic librarians working in Nigerian universities and tertiary institutions. A multi-stage sampling procedure was utilised. Cluster sampling was first employed to select three states: Delta, Abuja (Federal Capital Territory), and Kogi. These clusters were chosen to ensure geographical representation. Purposive sampling was then used to select six academic institutions across the three states based on the availability of structured professional development programmes and active library services. From these institutions, a total of 60 librarians were selected as respondents for the study. Structured questionnaires and Observation checklists were the instruments used for data collection for the study. The instruments were validated by three experts in Library and Information Science to ensure content validity and clarity. Reliability of the questionnaire was determined using the Cronbach Alpha method, yielding a reliability coefficient of 0.83, which indicates a high level of internal consistency. Data collected were analysed using descriptive statistics, including mean scores and standard deviations.

Results and Discussion

Research Question 1: What are the available professional development interventions in Nigerian academic libraries?

Table 1: Available professional development interventions in Nigerian academic libraries

S/N	Item	Available	Not available
1	My library sometimes organizes workshops and seminars.	√	
2	My institution provides in-service training programmes specifically designed to improve librarians' skills.	√	
3	My library supports librarians to attend national and international conferences, symposia, or professional association meetings.	√	
4	My library encourages or facilitates participation in online professional development courses (webinars, MOOCs, e-learning platforms).	√	
5	My library has a formal staff development policy for professional development activities.	√	
6	My library encourages librarians to participate in mentoring or peer-coaching programmes for professional growth.	√	
7	My library sponsors librarians for certification or advanced academic qualifications relevant to librarianship		√

The results indicate that most of the listed professional development interventions are available to librarians in Nigerian academic libraries. Workshops and seminars are the most accessible intervention, followed by in-service training programmes specifically designed to improve librarians' skills, conference sponsorship and support for attendance at national and international professional meetings, online professional development courses such as webinars, MOOCs, and e-learning platforms, and mentoring or peer-coaching programmes. However, sponsorship for certification or advanced academic qualifications appears not to be available, suggesting that while some librarians receive institutional backing for higher degrees or professional certificates, this support is selective and often limited by budgetary considerations and institutional priorities. The results show that the majority of professional development interventions in Nigerian academic libraries are available in practice, especially workshops, in-service training, conference support, and some forms of online learning.

Research Question 2: What is the influence of professional development interventions on creative service delivery in Nigerian academic libraries?

Table 2: Influence of professional development interventions on creative service delivery in Nigerian academic libraries

S/N	Item	Mean	SD	Decision
1	Professional development activities in my library have improved my ability to design and introduce new or improved library services.	3.32	0.74	Strongly Agree
2	Training I have attended has helped me to use innovative approaches in responding to users' information needs.	2.81	0.82	Agree
3	Participation in professional development has increased my confidence in proposing creative solutions to library service challenges.	2.73	0.78	Agree
4	The skills acquired through professional development have enabled me to adapt library services to new technologies and user expectations.	3.25	0.71	Strongly Agree

S/N	Item	Mean	SD	Decision
5	After attending professional development programmes, I feel better equipped to experiment with new service models in the library.	2.65	0.85	Agree
6	Professional development has influenced the way I think about "best practice" and encouraged more original service ideas in my work.	2.77	0.79	Agree
7	The knowledge and skills gained from professional development have contributed to more responsive and user-oriented library services.	3.28	0.76	Strongly Agree
	Grand Mean	2.95	0.78	**Agree**

The mean scores indicate that professional development interventions in Nigerian academic libraries are generally perceived as supportive of creative service delivery. Items 1, 4, and 7, which fall within the Strongly Agree range (3.00–3.49), suggest that librarians strongly believe that professional development has improved their ability to design and introduce new or improved library services, to adapt services to new technologies and changing user expectations, and to make library services more responsive and user-oriented. In contrast, items 2, 3, 5, and 6, which fall within the Agree range (2.50–2.99), reveal that librarians acknowledge that training has helped them use innovative approaches, increased their confidence in proposing creative solutions, made them feel somewhat equipped to experiment with new service models, and influenced their thinking about best practice. The grand mean of 2.95 confirms that the overall influence of professional development on creative service delivery is positive

Research Question 3: What are the relationships between participation and innovative service adoption in Nigerian academic libraries?

Table 3: Relationships between participation and innovative service adoption in Nigerian academic libraries

S/N	Item	Mean	SD	Decision
1	The more frequently I participate in professional development, the more likely I am to adopt innovative service ideas in my library.	3.35	0.73	Strongly Agree
2	Librarians in my library who regularly attend training and conferences are more likely to initiate innovative services than those who do not.	3.28	0.77	Strongly Agree
3	When library staff participate in professional development, they are more willing to experiment with new technologies and service formats.	2.82	0.81	Agree
4	Participation in professional development broadens librarians' awareness of innovative practices in other libraries, which they try to adopt.	3.31	0.75	Strongly Agree
5	My willingness to adopt new service ideas increases when I see colleagues who have participated in training successfully implementing them.	2.76	0.79	Agree
6	Libraries that encourage higher participation in professional development tend to introduce more innovative services for users.	3.26	0.76	Strongly Agree
7	In my library, participation in professional development programmes is strongly linked to the readiness of librarians to embrace change in service delivery	3.33	0.74	Strongly Agree
	Grand Mean	3.10	0.76	**Strongly Agree**

The mean scores indicate that there is a clear and generally strong perception among Nigerian academic librarians that frequent participation in professional development is closely linked to the adoption of innovative service practices in their libraries. Items 1, 2, 4, 6, and 7, which fall within the Strongly Agree range (3.00–3.49), suggest that librarians believe that the more they attend training, seminars, and conferences, the more likely they are to adopt new service ideas, that colleagues who regularly participate in training are more likely to initiate innovative services, that training broadens awareness of practices in other libraries, that libraries with higher participation in professional development introduce more innovative services, and that participation is strongly tied to readiness to embrace change in service delivery. Items 3 and 5, which fall within the Agree range (2.50–2.99), show that participation makes librarians more willing to experiment with new technologies and service formats and increases their willingness to adopt ideas when they see colleagues successfully implementing them. The grand mean of 3.10 shows that the respondents strongly agree that participation in professional development is widely perceived as a key enabler of innovative service adoption, with librarians feeling that higher levels of engagement in training and conferences translate into a more open, adaptive, and change-ready service culture in Nigerian academic libraries.

Research Question 4: What are the challenges of professional development interventions on librarians' creative service delivery in Nigerian academic libraries?

Table 4: Challenges **of professional development interventions on librarians' creative service delivery** in Nigerian academic libraries

S/N	Item	Mean	SD	Decision
1	Limited funding for professional development prevents many librarians in my library from attending quality training and conferences.	3.33	0.72	Strongly Agree
2	Heavy workloads and staffing shortages make it difficult for librarians to attend or participate fully in professional development activities.	2.88	0.79	Agree
3	There is no clear or consistent policy in my library regarding staff participation in professional development and follow-through activities.	2.92	0.77	Agree
4	Training opportunities that are available are often not directly related to the skills needed for creative or innovative service delivery.	3.28	0.74	Strongly Agree
5	After training, there is inadequate support or resources to apply newly acquired skills in developing creative library services.	2.80	0.81	Agree
6	Some library administrators do not see professional development as directly relevant to improving librarians' creativity and innovation.	3.35	0.75	Strongly Agree
7	Long-term or continuous professional development programmes are rare, which limits sustained improvement in creative service delivery	3.31	0.73	Strongly Agree
	Grand Mean	3.07	0.76	**Strongly Agree**

The mean scores reveal that professional development interventions in Nigerian academic libraries are heavily constrained by funding gaps, workload pressures, weak policy frameworks, misalignment of training content, and managerial attitudes, all of which limit the extent to which such interventions can foster creative service delivery. Items 1, 4, 6, and 7, which fall within the Strongly Agree range (3.00–3.49), indicate that librarians strongly agree that limited funding prevents them from attending quality training and conferences, that available training is often not aligned with the skills required for creative and innovative services, that some administrators do not see professional development as directly linked to enhancing creativity, and that the rarity of long-term or continuous programmes hinders sustained improvement in creative service delivery. Items 2, 3, and 5, which fall within the Agree range (2.50–2.99), indicate that heavy workloads and staffing shortages, the absence of clear policies on participation and follow-through, and inadequate post-training support or resources are also seen as important constraints. The grand mean of 3.07 strongly agree and emphasizes that the combined effect of these challenges is perceived as a substantial barrier to transforming professional development into a powerful engine of creative and innovative service delivery in Nigerian academic libraries

Discussion of findings

Available professional development interventions in Nigerian academic libraries

The results indicate that most of the listed professional development interventions such as workshops, in-service training, conference support, and some forms of online learning are available to librarians in Nigerian academic libraries. Available empirical studies in Nigerian academic libraries generally support the pattern revealed in the table, where workshops, seminars, in-service training, and conference attendance are relatively common, while formal staff development policies and structured mentoring are less prevalent. Clements (2019) found that sponsorship for conferences, seminars, and workshops, along with informal individual mentoring, are the dominant forms through which librarians receive professional growth support, which corresponds with the relatively high availability reported for items 1, 3, and 6 in the present table. Similarly, Bowen-Chang and Hosein (2019) in a survey identified self-development, in-service training, and conference participation as key professional development modalities, arguing that institutions sponsor these activities but often without a comprehensive written policy. A later study by Begum (2017) similarly reported that mentoring programmes are usually informal and closely tied to sponsorship for professional events and on-the-job support, rather than to documented institutional policies, reinforcing the conclusion that Nigerian academic libraries provide a mix of practical, event-based continuous professional development frameworks.

Influence of professional development interventions on creative service delivery in Nigerian academic libraries

The table shows that professional development interventions in Nigerian academic libraries are positively associated with librarians' ability to deliver more creative and user-oriented services, especially in areas such as service redesign, adaptation to new technologies, and responsiveness to user needs. Several empirical studies in Nigerian academic libraries corroborate the pattern shown in table 2, where professional development is seen as positively influencing librarians' competencies and service delivery. Anene and Idiedo (2021) found that staff training and development programmes significantly influence the job performance of librarians, with participants reporting enhanced ability to use modern information systems and digital tools. Librarians acknowledge that training helps them adopt innovative approaches, feel more confident in proposing solutions, and reflect on best practice. A related study by Begum (2017) on staff development programmes and service delivery revealed that regular workshops, seminars, and conference attendance are associated with improved service quality and user satisfaction, indicating that training supports incremental innovation, even though some librarians still hesitate to deviate from conventional models.

Relationships between participation and innovative service adoption in Nigerian academic libraries

The data shows that librarians perceive a strong positive relationship between participation in professional development and the adoption of innovative service practices in Nigerian academic libraries. Several empirical studies in Nigerian academic libraries support the pattern revealed in table 3, where participation in professional development is positively associated with the adoption of innovative service practices. Oduwole (2020) found that there is a very high positive relationship between in-service training and the extent of service delivery in university libraries, with trained librarians showing greater ability to apply new methods and technologies in service design. Librarians report that participation increases their likelihood of adopting innovative ideas, exposes them to practices in other libraries, and enhances the overall innovativeness of the library. A study by Madukoma and Garba (2022) revealed that regular staff training and development programmes significantly improve librarians' problem-solving and adaptability, particularly in the use of digital tools and user-oriented services. Participation is seen as making librarians more willing to experiment with new formats and to adopt ideas when they observe successful implementation by trained colleagues. Similarly, a study by Juma, Nakaziba and Holmner (2021) reported that librarians who participate more frequently in training and conferences are more likely to introduce new service models and to align their practices with emerging trends, reinforcing the conclusion that participation acts as a gateway to innovation rather than merely a technical upskilling exercise.

Challenges of professional development interventions on librarians' creative service delivery in Nigerian academic libraries

The data shows that librarians perceive a cluster of policy-related and structural constraints such as limited funding, heavy workloads, lack of clear policies, misaligned training content, inadequate post-training support, unsupportive administrative attitudes, and the scarcity of long-term programmes that significantly constrain how professional development interventions can support creative service delivery in Nigerian academic libraries. Several empirical studies in Nigerian academic libraries corroborate the patterns revealed in table 4, where financial, policy, and managerial constraints are identified as key challenges to the effectiveness of professional development interventions. Hicks (2017), in a study on the professional development of library professionals in libraries, reported that limited budgetary allocation for training, heavy reliance on self-sponsorship, and inadequate institutional policies are major barriers to meaningful staff development. Librarians see funding shortages, unclear policies, and the absence of long-term programmes as central constraints. A later study by Begum (2017) on the influence of professional development on librarians' job performance found that although training improves technical skills, its impact on innovation and service quality is often limited by poor alignment of training content with actual service needs and by weak follow-up support. Similarly, a study by Clements (2019) on the relationship between professional development and service delivery observed that some library administrators view training primarily as a technical compliance exercise rather than as a strategic tool for innovation, and that this managerial attitude reduces the likelihood of sustained creative experimentation after training. Librarians report that professional development is not seen as directly relevant to improving creativity and innovation.

Conclusion

The study concludes that professional development interventions in Nigerian academic libraries have a positive but constrained impact on librarians' creative service delivery, with librarians perceiving these interventions as helpful for improving service responsiveness, adapting to new technologies, and adopting innovative ideas, but also as being significantly limited by funding shortages, heavy workloads, weak or absent staff development policies, misalignment of training content with creative service needs, inadequate post-training support, and unsupportive managerial attitudes that do not fully recognize professional development as a driver of innovation. Although participation in workshops, seminars, and conferences is linked to higher willingness to experiment with new service models and to greater awareness of best practices, these benefits are unevenly realized because many libraries rely on sporadic, short-term, and poorly resourced programmes rather than sustained, policy-driven initiatives that deliberately foster creativity and innovation in service design.

Recommendations

The study recommended the following:

1. University managements should develop a clear, written staff development policy that guarantees regular budgetary allocation for professional development, including sponsorship for conferences, workshops, and long-term training, so that limited funding ceases to be a major barrier to librarians' participation and creative application of new skills.
2. Library administrators should ensure that professional development activities are explicitly tailored to build competencies in creative service design so that training content is directly relevant to the kinds of services librarians are expected to develop and improve.

3. Libraries should establish mechanisms for post-training support such as mentoring teams, so that librarians are not only trained but also equipped with the resources and institutional backing needed to translate newly acquired skills into concrete creative service initiatives.
4. University and library management should be sensitized through targeted seminars and policy dialogues on the strategic role of professional development in innovation, so that administrators actively see professional development as a lever for improving librarians' creativity and service quality rather than as a peripheral activity.

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PROMOTING DIVERSITY AND INCLUSIVE LEARNING THROUGH THE DEMOCRATIZATION OF KNOWLEDGE: AN EMPIRICAL REVIEW

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ABSTRACT

Democratization of knowledge has emerged as a critical strategy for promoting diversify and inclusive learning in an increasingly globalized and digitalized world. This empirical review examines how equitable access to knowledge, participatory learning practices, and open educational resources (OER) contribute to inclusive and educational environments across diverse socio-cultural contexts. The related scientific literatures reviewed examined how equitable access to knowledge contributes to diversification and inclusive learning achievement. A meta-analysis and research synthesis of 30 works published not more than 10 years ago was reviewed to investigate the effects of democratization of knowledge on diversification and inclusive learning. Drawing on a systematic analysis of existing empirical studies, the review synthesizes evidence on the role of knowledge democratization in reducing educational inequalities related to gender, socioeconomic status, disability, ethnicity, and geographic location. The result revealed that democratized knowledge systems characterized by open access, learner-centered pedagogies, and the integration of indigenous and marginalized knowledge significantly enhance learner engagement, representation, and academic outcomes. The review analysis also identified some challenges such as digital divides, institutional resistance, and policy limitations, which inhibit the full realization of diversification and inclusive educational goals. This review contributes to the body of knowledge on diversity and inclusive education, and can help educators, librarians, policymakers, and stakeholders seeking to foster diversify and inclusive learning through knowledge democratization. The study therefore recommended library support in promoting equal access to learning resources, OER and online learning platforms, provision of adequate internet connectivity, electricity supply and affordable technological devices, and adequate teacher and lectures training on inclusive pedagogical practices.

Key words: Democratization of Knowledge; Diversify Learning; Inclusive Learning; Empirical Review.

Introduction

In an increasingly digitalized world, democratization of knowledge has emerged as a global educational movement aimed at ensuring participatory, inclusive, and equitable access to knowledge for all learners regardless of socio-economic, cultural and geographical statues. Okoye & Ejikeme (2021) defined democratization of knowledge as the use of digital technologies and open educational practices (OEPs) to bridge educational inequalities and learning accessibility. United Nation Educational Scientific and Cultural Organization (UNESCO) (2021) on the other hand described democratization of knowledge as the promotion of universal access to information and learning resources through inclusive educational systems and digital innovations. From the ongoing, democratization of knowledge therefore, refers to as a transformative approach aimed at reducing educational inequalities and fostering inclusive and diversified learning opportunities for members of society. The key foundational pillars driving the democratization of knowledge in learning environments includes; Open Educational Resources (OER) and Open Access, Participatory Pedagogies and Knowledge Co-creation, Epistemic Decolonization, Digital Technologies and Indigenous Knowledge.

A lot of studies have revealed several benefits of democratization of knowledge. Wood et al. (2019) maintained that democratization of knowledge promotes collaboration among students, researchers, educators, and communities across different regions of the world. Ainscow, (2020) and Jenkins *et al*. (2018) buttressed that democratization of knowledge supports inclusive education by ensuring that marginalized groups such as women, persons with disabilities, rural learners, and minority communities can participate actively in educational processes. Furthermore, democratization of knowledge helps to document and disseminate indigenous knowledge systems that are often neglected in traditional educational structures (Ajani, 2024). Another significant benefit of democratization of knowledge is the growing acceptance and implementation of OER and OER-enabled pedagogy. The OER-enabled pedagogy encourages students to become active contributors to knowledge rather than passive consumers of information (Wiley& Hilton, 2018). From the ongoing, studies therefore indicate that democratization of knowledge encourages learner autonomy, peer interaction, multicultural engagement, and active participation in educational praxis thereby, fostering diversity and inclusivity in learning.

Inclusive learning is an educational approach and learning environment that ensures all learners, regardless of their backgrounds, abilities, gender, ethnicity, socioeconomic status, or language, have equal access to learning opportunities. Ainscow (2020) defined inclusive learning as a process of strengthening the capacity of the education system to reach all learners through participation and equality. Similarly, Inclusive education is conceived as a process that aims to recognize and respond to the diversity of students' needs, with the goal of ensuring effective learning and reducing exclusion both within and outside educational institutions (Singha, 2026). Inclusion in the classroom therefore, aim to ensure equal opportunity, promote equity, uphold human rights, and embrace diversity, all while enhancing the social, and academic environment of every student in the school, simultaneously reducing exclusion (Sarker, et al., 2024). Moreover, the interconnectedness between democratic practices and inclusive learning indicates an opportunity to incorporate democratic values through learning to promote diversify learning. So, to diversify learning as an education approach is an effective way to understand and value individual differences in their learning styles, background, ability, cultural, language, and life experiences. Singha, (2026) contended that diverse learning style is an ideal for different types of learners such as students with disability, gifted learners and multilingual students etc. Enhanced diverse learning styles significantly enhance students' engagement, improve retention, and promote equity in educational settings. John & Donald, (2024) opined that diversity in learning styles recognizes that individuals absorb, process, and retain information in unique ways, influenced by their cognitive preferences, backgrounds, and experiences. Therefore, the prospects of an enhanced inclusive and diversify learning through democratization of knowledge cannot be overemphasized. In support of this view, Cubides *et al*., (2024) maintained that OER can enhance diversified and inclusive learning outcomes by providing free access to quality resources, allowing for customization to meet diverse needs, and promoting collaborative practices that foster knowledge co-construction. Ebele, (2024) maintained that Enhancing Inclusive and diversify learning through the democratization of knowledge involves incorporating indigenous knowledge into formal education systems to gain global attention as a means to promote cultural sustainability, environmental awareness, and inclusive development. Abdul-Rahim et al. (2024) posits that Integrating Indigenous Knowledge into public libraries would promote inclusive service delivery, ensuring equal access to information for all members of society, and increases engagement in learning regardless of literacy or social status.

However, studies have revealed that despite the immense potential and the significant benefits of democratization of knowledge in enhancing inclusive and diversify learning; its full realization faces persistent challenges. Challenges such as, digital inequality and unequal access to learning resources, linguistic diversity and communication barriers, marginalization of indigenous knowledge, inadequate teacher preparation and pedagogical challenges, cultural and social exclusion, language exclusion, insufficient funding for educational technologies, inadequate technological infrastructure, and poor internet connectivity, heavily restrict its implementation (Adarkwah, 2021).

This review therefore, seeks to examine how the democratization of knowledge promotes diversity and inclusive learning based on evidence from empirical studies. The specific objectives includes; to identify the various strategies and approaches used to democratize knowledge for enhanced inclusion and diversity in learning, to assess the benefits of democratization of knowledge in fostering equity, participation and learner engagement, and to identify the challenges associated with the implementation of knowledge democratization for inclusive and diverse learning.

Methodology

A meta-analysis and research synthesis of 30 works published not more than 10 years ago was reviewed to investigate the effects of democratization of knowledge on diversification and inclusive learning. Through different search engines and relevant databases, the keywords such as democratization of knowledge, OER, diversification and inclusive learning, were used to filter the relevant publications. Over 65 published works were downloaded from different databases prior to selection of the 30 used for this review. Drawing on a systematic analysis of existing empirical studies, the review synthesizes evidence on the role of knowledge democratization in reducing educational inequalities related to gender, socioeconomic status, disability, ethnicity, and geographic location.

Literature Review

This review deals only on the review of empirical study which was summarized through the following sub-headings.

Studies on Open Educational Resources and Enhanced Diversify Learning.

Mayer, (2023) carried out a study to compare course passing and completion rates for undergraduate students to determine if there was any relationship between use of OER and these two outcomes. Using a quantitative analysis the study revealed that using OER had a positive impact on course passing rates (7% increase) and completion rates (10% increase) for all students. The result also revealed the student perception that OER had some positive impact on their course participation and ability to pass, but less influence on course completion. As a result of OER, students and faculty observed a significant increase in student engagement, and all faculties reported an evolution in pedagogical approaches.

Studies on Participatory Pedagogies/ Knowledge Co-Creation and Inclusive-Diverse Learning

Students acting as co-creators of academic material are growing in popularity as a pedagogical approach in higher education. Werth & Williams (2021) conducted a study to examine the experience of students' participation in a first-year course utilizing OER-enabled Pedagogy. Using an exploratory research, a mixed-methods approach was used for collecting data through semi-structured interviews which comprises of 12 students. Findings revealed that students are generally motivated and engaged by the prospect of their work having meaning outside the limitations of the disposable assignment. Result also indicates that a plurality of students preferred the project using OER-enabled Pedagogy, indicating it increased engagement and skills acquisition.

In a study by Adom et al. (2023) aiming to find out whether UDL (universal design learning) has the potential in improving the learning processes and learning outcomes of the diverse students reading a History of Global Art course. The findings of the study revealed that the UDL principles of multiple means of representation, multiple means of engagement and action, and expression impacted positively on students' learning processes and outcomes. The study contends that though the UDL as an inclusive pedagogical approach requires a lot of dedication on the part of the instructor as well as a great deal of time and material resources, the accrued benefits of its implementation on the students' learning processes and learning outcomes are far-reaching.

Bovill, (2018) conducted a study which examined how students participated in curriculum design and classroom decision-making. The findings revealed that co-creation improved student engagement, inclusivity, and learner confidence while reducing hierarchical barriers between lecturers and students.

Studies on Democratization of Knowledge and Inclusive and Diversified Learning

Qorib, (2024) conducted a study to examine the influence of critical diversity literacy on differentiation learning for students at Muhammadiyah University of North Sumatra. The mix-method research method was used. The results revealed that the diversified instruction learning model had a beneficial influence on learning critical reading of diversity literacy in inclusive education. The differentiated instruction learning model allows students to gain an in-depth understanding of their own diversity, learn to see and hone thinking and communication skills, increase self-confidence, and use critical thinking in viewing diversity in order to have a moderate attitude toward religion.

Mumpuniarti *et al*. (2020) conducted a study to describe regular teacher's most important aspects of competency, as well as their obstacles and challenges in implementing learning in inclusive schools. The research instrument consisted of 21 closed-ended questions and 4 open-ended questions. The findings from the study shows that the inclusive teachers possessed the pedagogical competence to help them face the diversity of the students from various aspects; the regular teachers were able to manage the diverse learning needs, and found some obstacles in managing students diversity.

Sarker *et al*. (2024) conducted a study to examine the democratic competencies embedded in student-centric classroom practices and argues for the potentiality of students-centric classroom activities in catering to an inclusive classroom environment. Focus group discussion (FGD) was used as instrument for data collection. The study revealed that democratic competencies are practiced in Bangladeshi classrooms and students hold a positive attitude, hence there is a scope for promoting inclusion through such practices. The study also revealed that some key practices, e.g., group works, cooperation in learning, embracing diversity and tolerance, respect for orderliness, autonomous learning, etc. appears to be conducive to an inclusive classroom. The implication of the study is that more research is needed to operationalize the democratic competencies for the Bangladeshi classroom context for an inclusive classroom.

Studies on Democratization of knowledge and Indigenous Knowledge Inclusion.

Aga, (2023) carried out a study to examine Africa's knowledge (in)dependency by assessing African universities' knowledge production and dissemination gaps vis-à-vis indigenous knowledge, and constraints to- and opportunities for- knowledge democratization. The result showed that there were constraints emanating from historical antecedents; ideology; Eurocentric and global North/West epistemic dominance; re-westernization designs, African resource, technology, and science limitations; and language barriers to participate in knowledge co-creation. Whereas there were opportunities to democratize knowledge, failure to expedite them catapulted the constraints/hurdles to reinforce power imbalance, to exacerbate the gaps/conflicts, and to sustain African knowledge dependency. This therefore, calls for revitalizing and reinvigorating concerted energies and talents to connect knowledge production to practical concerns of everyday life of the knowledge users and/or participants; and to engage in production and utilization of relevant, responsive, and competent knowledge responsive to methodological, epistemological, ontological, and socio-political realities.

Ebele (2024) in his study explored strategies for integrating indigenous knowledge into primary education in Nigeria and examine its impact on sustainable development and inclusive growth. A descriptive survey design was employed, involving 111 participants comprising primary school teachers, educational administrators, and indigenous community members across selected Local Government Areas in Nigeria. Findings revealed that integrating indigenous language in curriculum development and utilizing hands on materials and experimentation significantly enhanced students' cultural and environmental understanding.

Abdul-Rahim *et al*. (2024) in a separate study investigated how the dominance of colonial supremacy and foreign knowledge has become persistent in many African public libraries and knowledge acquisition, including Ghana. This study adopted the interpretive research paradigm using a qualitative case study design. The study found that, professional staff development, budget allocation for the purchase and provision of materials, and the creation of conducive environment for IK owners and other patrons who wish to document IK in public libraries were revealed as the efforts put in place by public libraries to support IK documentation and integration.

Studies on Digital Technologies and Enhanced Diversity and Inclusion in Learning

Samaiego López *et al*. (2025) carried out a study to examine whether the adoption of technologies facilitates or poses challenges for achieving effective inclusive education. Through a Systematic Literature Review, the most commonly used technologies were identified, and both their benefits and challenges were evaluated. The findings revealed the use of various technologies in inclusive educational settings, such as screen readers, braille devices, and augmented reality technologies. Their benefits include improved accessibility, enhanced active participation, and the promotion of critical skills like critical thinking and creativity. This study has limitations, including variability in the quality of the studies analyzed, which may affect the generalization of the results. Future research should explore the long-term impacts of technologies on inclusive education and evaluate the necessary teacher training strategies for their effective implementation.

Haleem *et al*. (2022) emphasized the transformative impact of digital technologies on the education system, particularly after the COVID-19 pandemic, highlighting their ability to personalize learning and expand access, although challenges related to equity, teacher training, and effective integration persist. Similarly, Chambers, (2020) focused on assistive technologies, underscoring their role in integrating students with functional diversity through devices and services that enhance capabilities, facilitate social interaction, and improve curricular access. UNESCO, (2021) examined how digital technologies improved access to education among marginalized learners across developing countries. Using survey and case-study methods in Africa and Asia, the study found that digital platforms, online repositories, and mobile learning enhanced participation among women, rural learners, and students with disabilities. However, unequal internet access still remained a challenge.

Studies on Challenges and Strategies Encountered for Enhancing Inclusive and Diversify Learning Through Democratization of Knowledge.

Challenges:

The empirical evidence in this reviewed study indicates that the major challenges affecting the implementation democratization of knowledge for effective inclusive and diversity in learning includes high costs, lack of adequate training for teachers, social inequalities, and ethical barriers.

In a study by Nykyporets *et al*., (2023) to investigate the current state of OER adoption in Ukraine observed that despite advancements in OER adoption, challenges persist, such as a lack of quality control mechanisms, limited digital infrastructure, and language barriers, which hinder the broader adoption of OER in Ukraine. Nwankwo, (2024)conducted a study investigating the effectiveness of preservation strategies for indigenous knowledge management in public libraries across Southeastern Nigeria, specifically in Anambra, Imo, Abia, Ebonyi, and Enugu states. A random sampling technique was applied to select 130 librarians from public libraries in the region, with 117 (90%) completed questionnaires returned for analysis. The findings revealed that challenges such as inadequate technology, financial resources, and training were identified as significant barriers.

Ajani *et al*. (2025) in his study revealed some challenges in fostering knowledge democratization and accessibility within the framework of the fifth industrial revolution. The findings also point to persistent barriers, including poor digital infrastructure, unreliable power supply, limited funding and skills gaps, which disproportionately affect libraries in underserved regions. The participants proposed context-specific solutions such as government investment in green infrastructure, local content development and stronger public–private partnerships.

Silva Sánchez *et al*. (2019) conducted a study on inclusive education and represents the way forward to achieving high quality education systems, which are fair and equitable. This paper analyzed the barriers to learning and the current participation of schools in the promotion of inclusion from the perspective of future teaching professionals, specifically, 86 students from three Masters Courses in the Faculty of Education of the University of Murcia. The results showed many barriers and obstacles in the educational centers such as a lack of teacher training, underuse of existing resources, as well as an educational response lacking in organizational and didactic strategies which does not take responsibility for a just and inclusive curriculum for all students. Furthermore, Wiche & Ogunbodede (2021) conducted a study which investigated awareness and use of OER by Library and Information Science Students of Ignatius Ajuru University of Education, Rivers State, Nigeria. The researchers adopted descriptive survey design. From the findings, despite that the students have high level awareness of the concept of OER and high level of utilization of the diverse types of OER, inadequate information literacy skills, poor electricity supply, poor internet connectivity, lack of library sensitization and lack of support from lecturers on the use of OER, were some of the challenges to the effective use of OER.

More so, Vartanova & Gladkova (2022) in his study revealed that one major challenge is unequal access to digital technologies and internet resources. Empirical evidence indicates that students from marginalized, rural, and low-income backgrounds often lack adequate access to digital infrastructure necessary for participating in democratized learning systems such as online education, open educational resources (OER), and blended learning platforms (Silva Sánchez *et al*., 2019). Researches also demonstrate that linguistic diversity creates challenges for inclusive learning within democratized educational environments. Students from different language backgrounds often struggle to access and interpret academic content framed within dominant linguistic norms.

Some empirical studies also revealed that democratization efforts do not always ensure equal representation of diverse knowledge systems (Knöchelmann, 2021). Western or dominant perspectives often overshadow indigenous, local, or minority forms of knowledge. This results in epistemic injustice and marginalization of indigenous knowledge, where some voices are systematically undervalued or ignored.

Other challenges include inadequate teacher preparation and pedagogical challenges (Mumpuniarti et al., 2020; Adu-Boateng&Goodnough, 2021).

Strategies:

Strengthening Digital Inclusion and Access to Learning Resources: One of the most effective strategies identified in empirical studies is expanding digital access and technological infrastructure for underserved learners. Research shows that providing affordable internet access, digital devices, and open learning resources improves participation and inclusion in democratized learning environments (Oye, 2019).

Teacher Training and Professional Development: To examine teacher professional development approaches for implementing inclusive education practices, identifying barriers, facilitators, and effective models that support successful program implementation and sustainable classroom practice changes. The empirical studies by Tuerah, (2025) identified teacher preparation and professional development as essential strategies for inclusive and diverse learning. Teachers who receive training in inclusive pedagogy are better equipped to manage diverse classrooms and support learners with different educational needs.

Development of Inclusive Educational Policies and Institutional Support: Empirical evidence further suggests that effective institutional policies and sustained funding are critical for overcoming barriers to inclusive learning. Research by Filippou *et al*. (2025) on inclusive education systems found that institutions with strong support structures, collaborative policies, and accessible learning environments achieved better outcomes in inclusive education implementation. Flexible assessment systems, awareness programs, and interdisciplinary support networks were identified as important institutional strategies for enhancing inclusivity.

Integration of Indigenous Knowledge and Multilingual Education: Research indicates that integrating indigenous knowledge systems and multilingual teaching approaches can reduce epistemic exclusion and improve inclusivity in learning. A study by Adebiyi et al. (2025) on African higher education recommended incorporating indigenous languages and local epistemologies into digital learning systems to counteract the dominance of Western knowledge structures. The researchers argued that communities of practice grounded in local cultures enhance equitable participation and knowledge democratization.

Findings of the Study

The summary of the findings showed that various approaches for democratizing knowledge systems are characterized by OER and open access, participatory pedagogies and knowledge co-creation. Similarly, digital technologies and indigenous knowledge significantly promotes inclusive and diversity as it encourages slearner engagement, representation, and academic outcomes.

Conclusion

In conclusion, the democratization of knowledge has emerged as a transformative approach for enhancing inclusive and diversified learning across educational environments. By promoting open access to information, participatory learning, digital technologies, and collaborative knowledge creation, learners from different social, cultural, economic, and geographical backgrounds are provided with equal opportunities to acquire and share knowledge. This approach helps to reduce educational inequalities, empower marginalized groups, and encourage lifelong learning through accessible and flexible learning platforms. Democratization of knowledge also supports inclusive education by recognizing diverse perspectives, indigenous knowledge systems, and learner-centered pedagogies that value participation and engagement. The integration of OER, digital libraries, online learning platforms, and collaborative technologies has significantly expanded access to quality educational materials and fostered global learning communities. As a result, learners are better equipped with critical thinking, creativity, and problem-solving skills needed in the modern knowledge society.

Recommendations

Based on the findings of the review of studies on promoting diversity and inclusive learning through the democratization of knowledge, the following recommendations are made.

1. Libraries should adopt various approaches of democratization of knowledge by promoting equal access to learning resources by expanding the availability of digital libraries, OER, and online learning platforms. This will enable learners from different socio-economic, cultural, and geographical backgrounds to access quality educational materials without discrimination.
2. Libraries should invest in adequate digital infrastructure such as stable internet connectivity, electricity supply, and affordable technological devices, especially in rural and underserved communities. Improved infrastructure will reduce the digital divide and support inclusive participation in learning.
3. Teachers and lecturers should be trained regularly on inclusive pedagogical practices and the effective use of technology in knowledge sharing. Professional development programmes will equip educators with the skills needed to accommodate diverse learners and create learner-centered environments.

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Public library infrastructure and service Delivery in Nigeria: Assessing the consequences of facility Decay

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Abstract
This study investigated Public library infrastructure and service Delivery in Nigeria: Assessing the consequences of facility Decay. The study has four research questions. The research adopted the descriptive survey design and employed stratified random sampling on 100 library staff across librarians who are members of Nigerian Library Association from Delta and Bayelsa state and possesses comparative insights into public library deterioration given shared federal funding constraints. Guided by 4 objectives, data collection utilized validated Infrastructure Assessment Questionnaire, analyzed through descriptive statistics including means, standard deviations. Findings showed basic facilities like reading rooms shelving restrooms and parking available but critical modern ones including electricity computers ventilation and security absent. There is moderate agreement on structural conditions such as roofs walls flooring windows electrical systems and furniture but disagreement on plumbing air conditioning and overall maintenance revealing utility weaknesses. There is a very high extent impact of decay on service delivery, manifesting in reduced operating hours collection inaccessibility power disruptions user discomfort interruptions low patronage delays morale decline and program cuts. Challenges were funding shortages, skilled personnel gaps, maintenance neglect, vandalism, repair delays, budget constraints and poor construction. The study concluded that there is a systemic neglect hindering public libraries role in community development education and information access. The study recommends targeted budget allocations for missing facilities routine inspections preventive maintenance skilled teams and public-private partnerships to reverse decay restore services
Keywords: Infrastructure Decay, Public Libraries, Service Delivery, Facility Assessment, Librarians, Nigeria

Introduction

Public libraries serve as vital institutions for democratic knowledge dissemination, lifelong learning, and community development in Nigeria, functioning as accessible hubs where citizens engage with information resources free of charge. These facilities embody the ideals of the UNESCO Public Library Manifesto, which emphasizes equitable access to educational, cultural, and recreational materials for all demographics regardless of socioeconomic status (IFLA/UNESCO, cited in Agim, Mohammed & Obande, 2024). In the Nigerian context, public libraries trace their evolution from colonial-era establishments like the Tom Jones Library in Lagos in 1910 to state-managed systems post-independence, designed to support national literacy goals and socioeconomic progress (Abubakar, 2017). Theoretically, robust physical infrastructure underpins effective service delivery by providing conducive environments for reading, research, and community programs, aligning with systems theory where facility conditions directly influence organizational outputs and user satisfaction. This foundational role positions public libraries as engines of human capital development, particularly in a nation striving for sustainable development amid rapid urbanization and digital transitions.

The physical infrastructure of public libraries encompasses essential elements such as spacious reading halls, reliable power systems, climate-controlled storage for collections, and accessible sanitary facilities, all critical for sustaining operational efficiency and user comfort. Theoretical frameworks like the technology acceptance model extended to facilities suggest that the perceived quality of physical environments significantly determines user engagement and service utilization (Davis, 1989). In Nigeria, these infrastructures are expected to facilitate diverse services including literacy programs, digital access points, and cultural events that foster social cohesion and educational equity. However, the symbiotic relationship between infrastructure integrity and service delivery reveals that well-maintained facilities enable librarians to focus on value-added activities like information literacy training rather than crisis management (Ibe, 2014). This theoretical linkage underscores infrastructure not merely as a backdrop but as an active determinant of library performance in resource-constrained settings.

Despite their theoretical and practical importance, public library infrastructures across Nigeria suffer from systemic neglect, manifesting in dilapidated buildings, erratic utilities, and obsolete equipment that compromise functionality. Scholars highlight how chronic underfunding perpetuates this cycle, with state allocations prioritizing recurrent expenditures over capital maintenance (Anyalebechi & Odu-Anyanwu, 2016). Opinion pieces in library literature argue for a paradigm shift toward preventive maintenance cultures, drawing from dynamic capabilities theory where

organizations adapt infrastructure to environmental demands for competitive service delivery (Aiyebelehin, Onyam & Akpom, 2018). Recent analyses emphasize that in developing contexts like Nigeria, infrastructure decay transcends physical wear, embodying governance failures that hinder libraries' contributions to national development agendas. This theoretical critique calls for integrated policy reforms to restore facilities as enablers of inclusive knowledge ecosystems. Therefore, this study will examine Public library infrastructure and service Delivery in Nigeria: Assessing the consequences of facility Decay

Statement of the Problem

Ideally, public library facilities in Nigeria should feature modern, well-maintained infrastructures including spacious, ventilated reading areas, stable electricity, functional ICT equipment, and secure storage systems to deliver seamless services that promote literacy, research support, and community engagement nationwide. This optimal scenario aligns with global standards where robust facilities ensure uninterrupted access to resources, fostering user satisfaction and institutional relevance (IFLA/UNESCO, 1994). In reality, however, widespread infrastructural decay prevails, characterized by leaking roofs, non-functional air conditioning, power outages, and crumbling structures across state libraries, severely limiting operational hours and service scope. These deficiencies result in profound consequences such as diminished user patronage, interrupted digital services, compromised collection preservation, reduced staff productivity, and overall erosion of public libraries' role in national development, exacerbating information poverty in underserved communities. Previous studies have documented funding shortages and policy gaps but largely focused on urban academic libraries or general service challenges, overlooking the nationwide extent of infrastructural decay's specific debilitating effects on public library service delivery and lacking integrated theoretical analyses of causal pathways. This study will address these gaps by providing a comprehensive examination grounded in Nigerian public library contexts

Objectives of the Study

The main objectives of the study were to examine Public library infrastructure and service Delivery in Nigeria: Assessing the consequences of facility Decay. The specific objectives were to:

1. Find out the physical infrastructural facilities available in public libraries
2. Assess the conditions of the physical infrastructural facilities in public libraries
3. Evaluate the extent at which infrastructural decay affects service delivery in public libraries
4. Examine challenges to infrastructural decay of public library facilities that affects service delivery in public libraries.

Research Questions

The following research questions guided the study:

1. **What physical infrastructural facilities are available in public libraries?**
2. **What is the condition of the physical infrastructural facilities in public libraries?**
3. **To what extent does infrastructural decay affect service delivery in public libraries?**
4. **What are the challenges contributing to infrastructural decay in public library facilities that impacts service delivery?**

Review of Related Literature

Public Library Facilities

Public library facilities in Nigeria encompass physical structures and amenities designed to support free access to information resources for diverse community needs, including spacious reading rooms, collection storage areas, ICT centers, and multipurpose halls for educational programs. These facilities, primarily managed by state library boards under the National Library of Nigeria framework, have evolved since the 1953 UNESCO seminar on African public libraries to include digital access points amid growing demands for hybrid services (Agodi & Obasi, 2016). Recent studies highlight that optimal facilities feature reliable power backups, climate control for preservation, ergonomic furniture, and accessible restrooms to enhance user experience and operational efficiency (Abubakar, 2017). However, geographical disparities persist, with urban centers like Lagos and Abuja boasting better-equipped branches while rural divisional libraries often lack basic amenities such as functional lighting and ventilation systems. Theoretical perspectives rooted in facility management theory emphasize that well-designed infrastructures not only extend resource lifespan but also promote inclusivity for vulnerable groups including children, the elderly, and persons with disabilities (Aiyebelehin et al., 2018). Scholars argue that strategic facility planning, incorporating sustainable materials and modular designs, remains crucial for adapting to population growth and technological shifts in Nigerian public libraries (Ibe, 2014). Despite policy guidelines from the Library Registration Council of Nigeria advocating standardized facility benchmarks, implementation gaps hinder equitable distribution across the 36 states and Federal Capital Territory (Agim & Azolo, 2022). This underscores the need for integrated facility audits to align physical assets with service mandates, ensuring public libraries fulfill their role as community knowledge hubs in Nigeria's development landscape.

Service Delivery

Service delivery in Nigerian public libraries involves the provision of lending, reference, literacy training, digital access, and outreach programs tailored to foster education, recreation, and civic engagement among citizens. Conceptualized through service quality models like SERVQUAL, effective delivery hinges on tangibles such as facilities alongside reliability, assurance, empathy, and responsiveness from staff (Elejene, Agim & Umunnakwe, 2025). Recent empirical work reveals that core services include book loans, internet facilitation, storytelling sessions for children, and career guidance workshops, all aimed at bridging information divides in underserved communities (Agodi et al., 2016). Challenges like staffing shortages and resource scarcity often result in inconsistent delivery, with librarians prioritizing basic functions over innovative extensions such as mobile library vans for rural areas. Theoretical analyses apply contingency theory to argue that service adaptability to local contexts enhances user satisfaction and institutional relevance in resource-limited environments (Aiyebelehin et al., 2018). The integration of digital services like e-resource portals and virtual reference desks has helped to complement traditional offerings amid Nigeria's digital divide. Performance metrics indicate that proactive user education programs significantly boost patronage, yet infrastructural limitations curtail their scalability across states (Salman & Moster, 2017). Overall, literature positions service delivery as a dynamic process requiring continuous staff training and community partnerships to meet evolving demands from literacy promotion to lifelong learning support.

Infrastructure Decay in Public Library Facilities

Infrastructure decay in Nigerian public library facilities manifests as progressive deterioration of buildings, utilities, and equipment due to chronic underfunding, deferred maintenance, and environmental factors, compromising long-term viability. Characterized by leaking roofs, cracked walls, obsolete electrical systems, and non-functional HVAC units, this decay stems from systemic governance lapses where capital budgets receive minimal allocations (Salman & Moster, 2017). Recent investigations attribute accelerated decay to erratic power supply eroding ICT infrastructure and tropical climate accelerating material degradation in states like Enugu and Kano (Agodi et al., 2016). Theoretical lenses such as resource dependence theory explain how overreliance on inconsistent state funding exacerbates vulnerability to decay without diversified revenue streams (Agim, Abah & Ezejiofor, 2025). Empirical findings from 2018 surveys document widespread obsolescence in shelving, furniture, and sanitation facilities, particularly in northern branches affected by insecurity-related neglect (Aiyebelehin et al., 2018). A scholar advocated for preventive maintenance protocols, yet implementation falters due to skill gaps among custodians and procurement hurdles for spare parts (Oyedun, 2021). Comparative analyses with South African public libraries reveal Nigeria's decay rates heightened by policy discontinuity post-2015 economic recessions (Mojapelo, 2020). Addressing this requires holistic frameworks integrating asset management software and public-private partnerships to halt the vicious cycle undermining facility resilience nationwide.

Effects of Infrastructure Decay on Public Library Service Delivery

Infrastructure decay profoundly debilitates public library service delivery in Nigeria by curtailing operational capacity, user access, and program execution, creating cascading failures in core functions. Decayed facilities lead to reduced opening hours from power failures and safety hazards, directly diminishing lending volumes and reference consultations as evidenced in multi-state audits (Okeke, Onuorah & Okonkwo, 2016). User deterrence arises from uncomfortable environments lacking ventilation or seating, resulting in low patronage and feedback loops of further underutilization (Agodi et al., 2016). Theoretically, the input-process-output model illustrates how facility breakdowns disrupt service workflows, elevating staff stress and turnover intentions while compromising collection preservation through humidity damage (Aiyebelehin et al., 2018). Recent studies quantify impacts through service interruption metrics, showing digital offerings stalled by faulty wiring and outreach programs canceled due to structural risks (Oyedun, 2021). Community repercussions include widened literacy gaps and diminished civic information access, particularly in rural areas where alternatives are scarce (Madu, Aboyade & Aboyade, 2016). Literature calls for causal modeling to link specific decay types like plumbing failures to hygiene-related service halts, advocating rehabilitative investments for recovery (Ajayi, Aboyade & Madu, 2017). Ultimately, this decay perpetuates institutional marginalization, underscoring urgent needs for evidence-based interventions to restore service efficacy.

Methodology

The research adopted descriptive survey design and employed the stratified random sampling of 100 librarians who are members of Nigerian Library Association from Delta and Bayelsa state and possesses comparative insights into public library deterioration given shared federal funding constraints. Guided by 4 objectives, data collection was done using validated Infrastructure Assessment Questionnaire and observation checklist. The instrument was validated by 3 experts in the field of Library and Information Science. The Crombach Alpha reliability method was used to test the internal consistency of the instrument. A reliability coefficient of 0.79 was obtained. Data collected was analyzed using descriptive statistics of mean scores and standard deviation

Results and Discussion

Research Question 1: What physical infrastructural facilities are available in public libraries?

Table 1: Observation Checklist **on physical infrastructural facilities available in public libraries**

S/N	Items	Available	Not Available
1	Reading rooms and study spaces for users.	√	
2	Sufficient space to accommodate current user traffic.	√	
3	Functional air conditioning or ventilation systems		x
4	Reliable electricity supply with backup generators.		x
5	Adequate shelving units and storage facilities for book collections.	√	
6	Restrooms for library users.	√	
7	Functional computers and internet access points for users.		x
8	Parking facilities for library patrons.	√	
9	Security systems (CCTV, alarms) are installed in the library building		x

The table shows a mixed picture of physical facilities among the public library staff surveyed, where basic structural elements stand out as present while modern and utility supports largely remain absent. Items one through nine reveal that reading rooms and study spaces along with sufficient space for user traffic appear available, allowing basic reading activities to continue without major space constraints. Shelving units for book storage and restrooms also show as available, meaning collections have proper housing and users have hygiene access during visits. Parking facilities count as available too, helping patrons reach the library easily by vehicle. On the other side, functional air conditioning or ventilation systems lack presence, leaving indoor air stuffy and uncomfortable especially in hot weather. Reliable electricity with backup generators stays unavailable, causing frequent blackouts that halt all operations. Functional computers and internet points miss out completely, blocking digital research and online services for everyone. Security systems like CCTV and alarms do not exist, exposing the building and resources to risks of theft or damage. This pattern points to libraries holding onto core passive spaces but struggling with active support systems needed for full modern use, reflecting wider resource limits faced by these public institutions serving communities daily. The observation confirms availability of the majority of essential facilities including reading rooms, space capacity, shelving, restrooms, and parking, essential for enhanced service delivery.

Empirical studies support these findings through direct observations in Nigerian public libraries. Oyedun (2021) reported similar patterns in revitalization efforts where shelving and space suffice but electricity reliability and ventilation lag severely. Ibe (2014) surveyed multiple branches noting restrooms and parking exist routinely while computers and security systems often fail due to maintenance issues, aligning with the absent modern items here. However, Agodi et al. (2016) examined state libraries and found reading rooms and basic storage present but no working air conditioning or backup power, matching the table's available basic spaces versus missing utilities, confirming the table's split between traditional availabilities and contemporary deficiencies that limit overall library potential.

Research question 2: What is the condition of the physical infrastructural facilities in public libraries?

Table 2: Mean Responses on **the condition of the physical infrastructural facilities in public libraries**

S/N	Items	Mean	SD	Remarks
1	The library building's roof is in good condition with no leaks.	2.80	0.70	Agree
2	Walls and ceilings show no signs of cracks or structural damage.	2.65	0.65	Agree
3	Flooring in the library is even, safe, and well-maintained.	3.20	0.75	Strongly Agree
4	Windows and doors are functional and properly sealed.	2.90	0.72	Agree
5	Electrical wiring and lighting systems work reliably without faults.	2.75	0.68	Agree
6	Plumbing systems (water supply, restrooms) function properly.	2.40	0.55	Disagree
7	Air conditioning/heating systems maintain comfortable temperatures.	2.45	0.58	Disagree
8	Furniture (tables, chairs, shelves) is in good usable condition.	2.85	0.71	Agree
9	The overall cleanliness and maintenance of the library building is satisfactory	2.35	0.52	Disagree
	Grand Mean	**2.71**		**Agree**

The table presents responses from public library staff on the condition of nine key infrastructural elements. Item one scores a mean of 2.80 indicating staff mostly agree the roof holds up without leaks though opinions vary somewhat. Item two at mean 2.65 shows agreement on walls and ceilings lacking major cracks, with moderate consistency in views. Item three stands stronger at mean 3.20 where staff strongly agree flooring remains safe and even, despite some

difference in experiences. Item four mean 2.90 reflects agreement that windows and doors seal and work properly. Item five mean 2.75 captures agreement on reliable electrical and lighting systems free of faults. Item eight mean 2.85 demonstrates agreement that furniture like tables chairs and shelves stays usable. In contrast item six mean 2.40 reveals disagreement that plumbing including water and restrooms works well. Item seven mean 2.45 indicates disagreement on air conditioning or heating providing comfort. Item nine mean 2.35 shows strongest disagreement on overall cleanliness and maintenance satisfaction. Overall the grand mean of 2.71 falling in the agree range show better agreement on good condition which suggests moderate condition in structural and basic elements

Some studies agreed with this result. A study by Agodi et al. (2016) found staff agreeing on acceptable structural conditions like roofs and walls but disagreeing on plumbing reliability and air systems maintenance, much like the current table results showing strengths in basics yet failures in utilities. Anyalebechi and Odu-Anyanwu (2016) reported similar patterns across branches where electrical wiring and furniture drew agreement for functionality while overall cleanliness and climate control faced strong disagreement from workers facing daily issues. Abubakar (2017) confirmed these divides in facility assessments noting strong agreement on flooring safety and window usability but consistent disagreement on heating ventilation and general upkeep, supporting the table's split responses that highlight persistent challenges in modern comfort features despite basic endurance.

Research Question 3: To what extent does infrastructural decay affect service delivery in public libraries?

Table 3: Mean Responses on **extent infrastructural decay affect service delivery in public libraries**

S/N	Items	Mean	SD	Remarks
1	Poor building conditions reduce the number of hours the library can operate.	2.85	0.60	High Extent
2	Damaged infrastructure limits access to library collections and services.	3.15	0.62	Very High Extent
3	Unreliable electricity affects computer and internet services for users.	2.75	0.70	High Extent
4	Poor ventilation/air conditioning reduces user comfort and stay duration.	3.00	0.55	Very High Extent
5	Faulty infrastructure frequently causes service interruptions.	2.95	0.58	High Extent
6	Inadequate facilities discourage users from visiting the library regularly.	3.20	0.62	Very High Extent
7	Infrastructure problems delay response times to user requests.	3.40	0.50	Very High Extent
8	Poor physical conditions affect staff morale and service quality.	2.90	0.65	High Extent
9	Infrastructure decay has led to reduced program activities and events	3.10	0.68	Very High Extent
	Grand Mean	**3.02**		**Very High Extent**

Staff from public libraries rated how much decay in facilities harms service work through nine items. Item one mean 2.85 places high extent on poor buildings cutting operating hours. Item three mean 2.75 hits high extent on power issues hurting computer use. Item five mean 2.95 shows high extent of breakdowns causing frequent stops in service. Item eight mean 2.90 reflects high extent of bad conditions lowering staff spirit and work quality. However, Item two mean 3.15 marks very high extent for damaged setups blocking collection access. Item four mean 3.00 reaches very high extent for bad air flow shortening user stays. Item six mean 3.20 indicates very high extent that poor setups keep users away. Item seven mean 3.40 scores highest very high extent on delays to user needs from problems. Item nine mean 3.10 demonstrates very high extent of decay cutting events and programs. The grand mean is 3.02, signaling very high overall impact of infrastructural decay on service delivery

Some studies agreed to this result. Salman and Moster (2017) found very high extent agreement that facility decay causes service interruptions and user discomfort much like items four five and six here with similar strong means on breakdowns and stay reduction. Okeke, et al (2016) gathered staff views showing high extent impact on morale and operating hours from poor conditions aligning with items one and eight while noting very high delays in responses as in item seven. Aiyebelehin, et al (2018) reported very high extent reductions in programs and access limits due to decay matching items two and nine with staff strongly agreeing on discouragement effects from inadequate setups.

Research Question 4: What are the challenges contributing to infrastructural decay in public library facilities that impacts service delivery?

Table 4: Mean Responses on **the challenges contributing to infrastructural decay in public library facilities that impacts service delivery**

S/N	Items	Mean	SD	Remarks
1	Insufficient government funding is a major cause of infrastructure decay.	2.80	0.75	Agree

2	Lack of regular maintenance contributes to facility deterioration.	3.20	0.70	Strongly Agree
3	Inadequate skilled maintenance personnel is a significant challenge.	2.90	0.80	Agree
4	Vandalism and misuse by users damage library infrastructure.	3.10	0.78	Strongly Agree
5	Natural wear and tear exceeds the library's repair capacity.	2.85	0.65	Agree
6	Delayed response to repair requests worsens infrastructure problems.	3.05	0.82	Strongly Agree
7	Budget constraints prevent timely replacement of damaged equipment.	3.40	0.72	Strongly Agree
8	Lack of spare parts availability delays infrastructure repairs.	2.95	0.68	Agree
9	Poor initial construction quality contributes to ongoing decay problems	3.15	0.70	Strongly Agree
	Grand Mean	**3.04**		**Strongly Agree**

The table captures views from public library staff on nine challenges behind facility decay. Item one mean 2.80 falls in agree for low government money as key cause. Item three mean 2.90 marks agree on few trained fixers posing big hurdles. Item five mean 2.85 indicates agree that normal use outpaces fix abilities. Item eight mean 2.95 places agree on scarce parts slowing work. However, Item two mean 3.20 scores strongly agree on missing routine upkeep leading to breakdowns. Item four mean 3.10 shows strongly agree that user damage worsens setups. Item six mean 3.05 reflects strongly agree on slow repair handling making matters worse. Item seven mean 3.40 hits strongly agree for money limits blocking quick fixes. Item nine mean 3.15 demonstrates strongly agree on bad building start fueling continued issues. The grand mean is 3.04 showing broad agreement on decay causes with finance and upkeep leading the concerns

Some study aligns with this result. Agodi et al. (2016) found strong staff agreement on funding shortfalls and maintenance gaps as prime decay drivers in state libraries, echoing items one two and seven here with similar high means on money and upkeep failures. Abubakar (2017) reported strongly agreed views that skill shortages and repair delays worsen problems just as items three six and eight show with staff pinpointing personnel and response lags. Oyedun (2021) confirmed strong consensus on user misuse budget limits and construction flaws fueling decay matching items four five seven and nine through direct library checks.

Conclusion

This study revealed that infrastructural decay severely undermines public library service delivery across Nigeria, as evidenced by the responses addressing the core objectives. Basic facilities like reading rooms shelving and restrooms exist but modern essentials such as electricity computers ventilation and security remain unavailable limiting operational scope. Facility conditions earn moderate agreement for structural elements including roofs walls flooring windows electrical systems and furniture yet staff disagree on plumbing air conditioning and overall maintenance signaling urgent utility fixes. Decay impacts service delivery to a very high extent through shortened hours collection inaccessibility power disruptions user discomfort interruptions low patronage response delays morale drops and program cancellations confirming profound operational harm. Challenges strongly agreed upon include insufficient funding maintenance neglect skilled personnel shortages vandalism wear beyond capacity repair delays budget limits spare parts scarcity and poor construction all fueling the cycle that hampers nationwide library effectiveness. These findings underscore the need for targeted interventions to restore facilities bolster services and reposition public libraries as vital community assets.

Recommendations

Drawing from the findings of the study, the following recommendations address the identified issues:

1. State governments should allocate dedicated annual budgets for procuring and installing missing facilities like reliable generators computers internet points ventilation systems and security installations in public libraries to ensure comprehensive availability.
2. Library boards must implement routine inspection schedules and minor repair funds to address utility failures in plumbing air conditioning and maintenance practices enhancing overall facility conditions.
3. Public library management should adopt preventive maintenance protocols and backup systems to minimize decay effects on operating hours user access digital services comfort and program delivery.
4. Policymakers ought to establish skilled maintenance teams fund regular upkeep programs and foster public-private partnerships to tackle funding shortages personnel gaps and repair delays driving infrastructural decay.

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RE-ASSESSING THE ADOPTION OF MOBILE AND CLOUD TECHNOLOGIES TOWARDS QUALITY SERVICE DELIVERY IN SPECIAL LIBRARIES OF GWAGWALADA AND KWALI AREA COUNCILS OF FCT

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Abstract

The paper re-assessed the adoption of mobile and cloud technologies towards quality service delivery in special libraries of Gwagwalada and Kwali Area Councils of FCT. Survey research design was adopted for the study with a total population of 50 professional librarians and 100 library users from 7 special libraries of the two Area Councils surveyed. Total enumeration sampling technique was used to select the professional librarians while simple random sampling technique was used to select the users. For the gathering of quantitative data, two questionnaires were used for the librarians and the users. The questionnaires consisted of two sections comprising the demographic data and the variables of the study. The research instrument designed for the study was validated for face validity by two individuals from the department of library and information studies University of Abuja and one measurement and evaluation expert from Nigerian Educational Research and Development Council (NERDC) Sheda, Abuja. Amendments were made to the instruments based on the suggestions and recommendations of the experts before administration. The reliability of the instruments was tested using test and retest method which was employed at 0.05 level of significance. The instruments was trial tested in two special libraries of Abuja municipal Area Councils of FCT that were not be part of the larger population. For the collection of data for the study, the researchers used one week to administer and collect back the data while the collected data was analysed using frequency counts, percentages and mean scores. Findings from the study revealed low level of quality service delivery, high adoption of mobile and cloud technologies and numerous challenges. Based on the findings, it was recommended that special libraries should provide adequate resources, training and retraining of research librarians, adequate funding among others.

Key words: *Mobile, Cloud, Technology, quality service delivery and Special libraries*

Introduction

Special libraries have been established for the specialized needs of the parent institution in order to meet the vision and mission statement of the parent organization. Special libraries belong to particular establishments such as government ministries, research institutes, banks and professional bodies. Libraries based in research institutes such as Nigerian Educational Research and Development Council (NERDC), International Institute of Tropical Agriculture (IITA) Ibadan, Federal Institute of Industrial Research (FIIRO) Oshodi, Lagos are grouped as distinct category known as research libraries and their librarians sometimes designated as research librarians. In today's global competitive environment, library service delivery should be qualitative in nature for the success and survival of libraries.

Sarmah and Singh (2021) described quality as the standard of a thing judged against all other items of a same kind or level of excellence about something. Delivering quality service entails consistently meeting consumers' expectations. According to Emiri and Olise (2023) library service quality is the agreement between users perception, essential services and expected services. How effectively a research library meets the needs of its customers and provide proof of its efficiency and effectiveness is how its performance is evaluated. Opoku and Barti (2022) described quality service delivery as a global judgment or attitude relating to the superiority of a service, difference between customer's expectations for the service encounter and the perceptions of the service received. Even though the concept of service quality is not new, evaluating service quality as a management tool has been increasingly important in most service institutions such as the special library. Quality service delivery has so many indicators, which includes' reliability, responsiveness, assurance, empathy and tangible. The problem of poor quality service delivery in special libraries of FCT, Nigeria cannot be over-emphasized, necessitating the consideration of other factors. Empirical studies and observations indicated a conspicuous literature gap concerning quality service delivery from the perspective of emerging technologies (ET). To facilitate quality service delivery, aspects such as mobile and cloud technologies may be considered.

The rapid rise and spread of mobile technologies create significant opportunities to reshape how special libraries provide information resources. Mobile devices, prized for their portability and constant connectivity, form new channels for delivering instructional materials and supporting curriculum objectives regardless of physical or geographic boundaries (Gambo & Nachandiya, 2016; Sultan, 2010). The integration of these technologies in special libraries enables flexible access to information materials, promotes collaborative learner engagement, and reduces reliance on traditional

infrastructure features, which are especially critical in addressing Nigeria's infrastructural and resource challenges (Agbarakwe, 2025; Adenubi, 2025). Mobile technology is a sophisticated type of technology that relies primarily on wireless technology and smart devices as the tools for quality service delivery. These gadgets combine the capabilities of a computer, DVD player, MP 3 player and gaming console into a single device. They serve as powerful information tools with strong potential to enhance both within and outdoor information delivery, improving overall productivity. Jegbefume, Ikhimeakhu and Muhammad (2025) reported that the extensive use of mobile devices among youth for communication, connectivity, and collaboration raises an insight into identifying their thoughts for its use to enhance learning. Mobile technologies will be looked into under the following indicators: smartphones, tablets, computer, Mp3 player, laptops and DVD. Special libraries, traditionally depended on physical infrastructure for managing collections and delivering services, now leverage cloud computing to overcome limitations related to storage, cost, scalability, and accessibility.

According to Kathika and Dominic (2025) cloud computing has emerged as one of the most transformative technologies of the 21st century, revolutionizing the way information is managed, stored and accessed across various business. In recent years, the library sector has increasingly turned to cloud based solutions to enhance the efficiency of their services, streamline operations, and provide better access to resources. Special libraries have shown significant interest in adopting cloud based services to improve library management and reduce infrastructure cost. Some of the cloud computing technologies are You tube, google drive, OPAC, Google form, one drive, and Gmail

Earlier studies on services delivery in libraries such as Chukwueke (2018), Adigun, Oyewumi, Oladapo and Sobalaje (2015), Nworie,Ubochi, Iwuchukwu and Njoku (2023) focused on effects of library services, challenges and prospects of service delivery. No study was identified by the researcher's focused on mobile and cloud technologies as predictors of quality service delivery among school library personnel in the federal capital territory of Nigeria. This study therefore attempted to bridge that gap. It is on this premise that this study intends to investigate, mobile and cloud technologies as predictors of quality service delivery in special libraries of FCT, Abuja

Statement of problem

Quality service delivery remains central to the effectiveness of special libraries, as it directly influences users' satisfaction, trust, and continued engagement with library services. In libraries, particularly special libraries, mobile and cloud technologies play a critical role in facilitating quality service delivery. However, despite this strategic role, there is a growing concern that the quality of services delivered by special libraries may not be fully aligned with expected professional standards, thereby potentially constraining patrons information demand. Previous efforts at correcting this problem in terms of human and material resources among others have not yielded significant positive outcomes. Existing literature has extensively examined quality service delivery in relation to factors such as soft skills, professional competencies and work motivation. Furthermore, empirical studies focusing specifically on quality service delivery remain limited, with even fewer addressing the combined influence of mobile and cloud technologies. It is against this backdrop that this study seeks to address both the conceptual and methodical gaps by investigating the extent to which mobile and cloud technologies predict quality service delivery in special libraries of FCT, Nigeria

Objectives of the study

The general objective of the study is to investigate the adoption of mobile and cloud technologies towards quality service delivery in special libraries of Gwagwalada and Kwali Area Councils of FCT, Nigeria. The specific objectives of the study are to:

i. find out the level of quality service delivery using mobile and cloud technologies by special libraries of FCT, Nigeria
ii. identify the type of mobile technologies used by special libraries for quality service delivery FCT, Nigeria
iii. identify the type of cloud technologies used by special libraries for quality service delivery in FCT, Nigeria
iv. identify the challenges faced by special libraries in the adoption of mobile and cloud technologies for quality service delivery

Research questions

1. what is the level of quality service delivery by special libraries in FCT, Nigeria?
2. what are the types of mobile technologies used by special libraries in FCT, Nigeria for quality service delivery?
3. what are the types of cloud technologies used by special libraries in FCT, Nigeria for quality service delivery?
4. identify the challenges in adopting mobile and cloud technologies in quality service delivery in special libraries of Gwagwalada and Kwali Area Councils of FCT, Abuja

Literature review

Existing empirical literature related to the study is reviewed below based under the variables of the study.

Umar (2023) examined organizational culture and quality service delivery in teaching hospitals in the North West Nigeria. Survey research design was adopted for the study with a population of 243 health information managers and 443 patients. Proportionate stratified sampling technique was used to administer copies of the questionnaire. Descriptive statistics (frequency counts, percentage, mean and standard deviation were used to analyse the data. Findings from the study revealed that the extent of quality service delivery in the teaching hospitals was high. All the indicators of quality service delivery such as assurance, empathy, tangibles, responsiveness and reliability showed high values. Similarly, Adepoju and Adesina (2017) surveyed the awareness, perception and use of digital library services by University of Ibadan distance learning students. The study adopted descriptive research design with a population of 2,352 students for the 2014/15 academic session. Convenience sampling technique was used for the study. The instrument for data collection was a questionnaire while data was analyzed using frequency counts, percentages, mean and standard deviation. Findings from the study revealed high level of awareness, positive perception, easy and high level of accessibility to digital library services by distance learning students. In addition, Nzenwata (2020) investigated the effectiveness of service delivery system in public service. The study applied secondary method of data collection to analyse the effects of poor service delivery in the development of Nigeria. Findings from the study revealed lack of proper orientation, poor training, ineffective communication channels, attitude of workers and corruption.

Furthermore, Annune and Awujoola (2024) in their study investigated institutional factors that determine perceived quality service delivering by library personnel in University libraries in Benue state, Nigeria. The study adopted the descriptive survey resign design with a study population comprising all 262 library personnel in four University libraries in Benue state, Nigeria. Total enumeration method was adopted while structured questionnaires was used for data collection. Data for the study was analysed using descriptive and inferential statistics. Product moment correlation and multiple regression analysis was used to test the null hypothesis at 0.05 level of significance. The result showed that the most prevailing quality service delivered include: informing users about the service time, library open to users at the appropriate time, users records are appropriately kept and maintained among others. Institutional factors has significant positive relationship with perceived quality service delivery in University libraries in Benue state, Nigeria. In addition, institutional factors determine quality service delivered in University libraries in Benue state, Nigeria. Also, Obiano, Opara, Chima-James, Dike, Ogueri, Nwosu and Moneke (2021) assessed the quality in the library services delivery of the federal University of Technology, Owerri library, Imo state Nigeria. The study adopted a survey research design with a structured questionnaire for data collection. Total enumeration was used to select 130 staff of the University made up of all the full time library staff comprising of professionals and para-professionals and non-professionals excluding 16 registry staff posted to the library. Data collected was analysed using simple descriptive method, percentages. Findings from the study revealed that FUTO library had a lot of challenges that hinder quality library services delivery which included but not limited to poor funding, inconvenient facilities/building, lack of needed skills by staff, lack of mentorship and trainings.

Egbe and Okeoma (2023) surveyed the adoption of mobile reference services as predictors of digital library service delivery in Nigeria using one objective and one hypotheses. Survey research design was adopted with a population of 253 library professional and para-professional. Data collected was analyzed using SPSS, frequency counts, percentages and simple linear regression analysis Findings from their study revealed that mobile reference services significantly predict digital library service delivery. Also, Ocran, Underwood and Arthur (2020) investigated the preparedness of University of Cape Coast library to implement mobile technology based services. The study involved six management members from the library and 15 students comprising undergraduates and five post graduate students. Interview guide was used as tool for data collection. Result indicated that almost every student had at least one mobile device which is a smartphone and can be used to access library services. Though proficiency level among students is high, there would still be need for library management to train users to fully appreciate the use of these gadgets in accessing library services. Examining the adoption of mobile online public access catalogues for digital library services, Odewole and Okwueze (2023) applied a survey research design with a population of 253 library professionals and para professionals in federal universities of South-south. Questionnaire was used as instrument of data collection while simple linear regression was used in the data analysis. Findings from the study revealed that mobile online public access catalogues, significantly predicts digital library service delivery. In addition, Agbetuyi, et al (2025) explored the predictors of librarians adoption of mobile library applications for service delivery in South-west universities, Nigeria. Descriptive survey research design of correlational type, was adopted with a population of 476 librarians. Mixed research method of quantitative and qualitative data was used in gathering data for the study. For data analysis, descriptive statics, PPMC and multiple regression was used to analyze data at 0.05 level of significance. Findings from the study revealed that the mobile-app self efficacy and performance expectancy of librarians mobile –app adoption was high. ($r=0.264$; p 0.05) has a statistically significance influence on librarians adoption of mobile app for service delivery, mobile –app self efficacy ($r=0.095$; p 0.05) have a negative statistical insignificant relationship with librarians adoption of mobile-app for service delivery in south west.

Dumbiri, Babtope, Ihuoma and Owairu (2024) investigated the awareness and utilization of cloud computing technologies for library services using survey research design. Data was collected from 116 para-professionals and professional librarians working in 11 selected federal colleges of education in Nigeria. Findings revealed that You tube,

google drive, Gmail and google scholar are the commonly used cloud computing technologies by librarians in college of education libraries in Nigeria. Findings equally revealed that librarians purpose of using cloud computing technologies is to store and share files, video related to library orientation/other video content, and collaborate with other librarians for research projects. Also Aviamu, Popoola and Atuase (2019) investigated the adoption of cloud computing by academic libraries for research data protection. The purpose of the study was to identify and review possible measures that academic libraries could consider to secure data in the cloud and safeguard research data/assets. The study was guided by descriptive design which made use of secondary data to address the problem of low utilization of the cloud among academic libraries in Africa. Findings from the study revealed a low adoption rate of cloud computing by academic libraries in Africa. It was also proven that major challenges that inhibit the adoption of cloud computing by academic libraries were lack of institutional policy guidelines and authentication procedures from cloud service providers.

Research methodology

Survey research design was adopted for the study with a total population of 50 professional librarians and 100 library users from 7 special libraries of the two Area Councils. Total enumeration sampling technique was used to select the librarians while simple random sampling technique was used to select the users. For the gathering of quantitative data, two questionnaires were used for the librarians and the users. The questionnaires consist of two sections comprising the demographic data and the variables of the study. The research instrument designed for the study was validated for face validity by two individuals from the department of library and information studies University of Abuja and one measurement and evaluation expert from Nigerian Educational Research and Development Council (NERDC) Sheda, Abuja. Amendments were made to the instruments based on the suggestions and recommendations of the experts before administration. The reliability of the instruments was tested using test and retest method which was employed at 0.05 level of significance. The instruments were trial tested in two special libraries of Abuja municipal Area Councils of FCT that was not part of the larger population. For the collection of data for the study, the researchers used one week to administer and collect back the data while the collected data was analyzed using frequency counts, percentages and mean scores.

Results/discussion of findings
Findings

Research Question 1: *what is the level of quality service delivery by special libraries in FCT, Nigeria?*

Table 1.1 *frequencies, and descriptive of quality service delivery in special libraries of FCT*

Statement	SD	D	A	SA	mean	Std. dev.
Reliability	12	18	26	44	3.02	1.05
Responsiveness	20	18	26	36	2.78	1.14
Assurance	20	30	28	22	2.52	1.04
Empathy	46	32	20	1	1.8	1.87
Tangible	56	22	18	2	2	0.9
Grand Mean					**2.42**	

Key: Strongly Disagree (**SD-**1); Disagree **(D-2);** Agree **(A-3);** Strongly Agree **(SA -4)**

Decision Rule ($\bar{x}$): $0 < \bar{x} < 2.5$ = *Low*; $2.5 \leq \bar{x} \leq 4.0$ = *High*

Table 1.1 above presents responses for quality service delivery indicators. Reliability ranks highest with a mean of 3.02 with SD of 1.05. This is followed by responsiveness with a mean average of 2.78 and SD of 1.14. The Assurance indicator has a mean of 2.52 with SD of 1.04 while empathy and tangible ranked the lowest with (m=1.8: SD=1.87) and (m=2; SD=0.9) respectively. The mean average was obtained at approximately 2.42, which explains a low perception of physical resources and lack of empathy among special libraries. Findings from the study revealed that the level of quality service delivery by special libraries of FCT, Nigeria is at low level. It was indicated that reliability and responsiveness played the most prominent role in quality service delivery by special libraries. The findings is in contrast with that of Umar (2023) who examined organizational culture and quality service delivery in teaching hospitals in the North west, Nigeria. His findings revealed that quality service delivery was high and all the indicators such as assurance, empathy, tangible, responsiveness and reliability showed high values. This was collaborated by Adepoju and Adeshina (2017) whose findings revealed high level of awareness, positive perception, easy and high level of accessibility to digital services by distance learning students

Research question 2: *what are the types of mobile technologies used by special libraries in FCT, Nigeria for quality service delivery?*

Table 1.2

Statement	SD	D	A	SA	mean	Std. dev.
Smartphones	4	5	12	29	3.32	0.95
Tablets	10	15	10	15	2.6	1.11
Computer	4	11	15	20	3.02	0.97
Mp3 player	15	13	12	10	2.34	1.11
Laptops	4	12	12	22	3.04	0.99
DVD	20	19	7	4	1.9	0.92
Grand mean					**2.70**	

Source: Field Survey

Key: Strongly Disagree (**SD-**1); Disagree **(D-2);** Agree **(A-3);** Strongly Agree **(SA -4)**

Decision Rule ($\bar{x}$): $0 < \bar{x} < 2.5 = Low$; $2.5 \leq \bar{x} \leq 4.0 = High$

Table 1.2 above presents responses on mobile technologies adoption in special libraries of FCT, Abuja**.** Smartphones and laptops ranks highest with (m=3.32; SD=0.95) and (m=3.04; SD=0.99 respectively. This was followed by computers with (m=3.02; SD=0.97) and Mp3 player with (m=2.34; SD=1.11). Tablets and DVD ranked lowest with (m=2.6; SD=0.99) and (m=1.9; SD=0.92. the mean average was obtained at 2.70 indicating a high adoption of mobile technologies by special libraries in Gwagwalada and Kwali Area Councils of FCT. Findings from the study revealed a high adoption of mobile technologies in special libraries of FCT. The findings is in line with that of Ocran, Underwood and Arthur (2020) that investigated the preparedness of University of Cape Coast library to implement mobile technology based services. Their findings revealed that every student had at least one mobile device which is smartphone that can be used to access library services. Equally, proficiency level among student was high though the users need to be trained to fully appreciate the use of these gadgets in accessing library services. The above findings was collaborated by Egbe and Okeoma (2023) and Odewole and Okwueze (2023) whose findings revealed that mobile online public access catalogue and mobile reference services significantly predicts digital library service delivery

Research question 3: *what are the types of cloud technologies used by special libraries in FCT, Nigeria for quality service delivery?*

Table 1.3

Statement	SD	D	A	SA	mean	Std. dev.
You tube	6	11	13	20	2.94	1.05
Google drive	10	13	15	12	2.62	1.09
OPAC	18	16	11	5	1.96	0.94
Google form	6	8	16	20	3	1.02
Gmail	9	16	10	15	2.62	1.09
Facebook	4	12	13	21	3.02	0.99
Grand mean					**2.69**	

Source: Field Survey

Key: Strongly Disagree (**SD-**1); Disagree **(D-2);** Agree **(A-3);** Strongly Agree **(SA -4)**

Decision Rule ($\bar{x}$): $0 < \bar{x} < 2.5 = Low$; $2.5 \leq \bar{x} \leq 4.0 = High$

Above table 1.3 presents responses on the adoption of cloud technology in special libraries of Gwagwalada and Kwali Area Councils of FCT. The indicator face book ranked highest with (m=3.02; SD=0.99) while google form ranked second with (mean=3; SD=1.02). This was followed by You tube with (mean=2.94; SD=1.05). Google drive and Gmail ranked same with (mean=2.62; SD=1.09). the least in ranking is OPAC (mean=1.96; SD=0.94). The mean average was obtained at 2.69 indicating a very high adoption of cloud technologies by special libraries in Gwagwalada and Kwali Area Councils of FCT. Findings revealed that the adoption of cloud technology is very high. It was indicated that face book and google form played the most prominent role in cloud technology adoption by special libraries. The findings is in tandem with that of Dumbiri, Babatope, Ihuoma and Owairu (2024) that investigated the awareness of cloud computing technologies for library services using survey research design. Their findings revealed that You tube, google drive, Gmail and google scholar are the commonly used cloud computing technologies by libraries in College of education libraries in Nigeria. Their findings is in contrast with that of Aviamu, Popoola and Atuase (2019) that

investigated the adoption of cloud computing by academic libraries for research data protection. Their findings revealed low adoption rate of cloud computing by academic libraries in Africa.

Research question 4: identify the challenges in adopting mobile and cloud technologies in quality service delivery in special libraries of Gwagwalada and Kwali Area Councils of FCT, Abuja

Table 1.4

Statement	SD	D	A	SA	mean	Std. dev.
Persistence internet dependency	7	21	10	12	2.54	1.00
Security and privacy rule	3	7	20	20	3.14	0.87
Complex regulatory complains	16	18	8	8	2.16	1.05
Rapid battery drain	7	11	12	20	2.9	1.08
Vendor lock in	5	11	15	19	2.96	0.99
Average mean					**2.74**	

Source: Field Survey

Key: Strongly Disagree (**SD-**1); Disagree **(D-2);** Agree **(A-3);** Strongly Agree **(SA -4)**

Decision Rule ($\bar{x}$): $0 < \bar{x} < 2.5 = Low$; $2.5 \leq \bar{x} \leq 4.0 = High$

Above table 1.4 presents responses on challenges facing adoption of mobile and cloud technologies. Security and privacy rule has the highest ranking of (mean=3.14; SD=0.81) while vendor lock in ranked second with (mean=2.96; SD=0.99). Persistence internet dependency and complex regulatory complains ranked (mean=2.54; SD= 1.00) and (mean=2.16; SD= 1.05). The lowest in rank is rapid battery drain with a mean and SD of (mean=2.9; SD=1.08). The average mean was obtained at 2.74 indicating a high prediction of challenges in the adoption of mobile and cloud technology. Findings from the study indicated a very high challenges in the adoption of mobile and cloud technology. It was indicated that security and privacy rule and vendor lock in played the most prominent role in the challenges facing the adoption of mobile and cloud technologies. The findings is in line with that of Aviamu, Popoola and Atuase (2019) that investigated the adoption of cloud computing by academic libraries for research data protection. Their findings revealed major challenges that inhibit the adoption of cloud computing by academic libraries where lack of institutional policy guidelines and authentication procedures from cloud service providers constitute major challenges.

Conclusion

The study investigated the independent variables (mobile and cloud technologies) as determinants of dependent variable (quality service delivery) among special libraries in Gwagwalada and Kwali Area Councils of FCT, The independent variables did not significantly predic quality service delivery in special libraries of FCT. Based on the findings, it could be concluded that, quality service delivery was low even with the awareness and adoption of mobile and cloud technologies. The low indicator could be as a result of the various challenges facing the adoption of mobile and cloud technologies in FCT, Abuja.

Recommendations

Based on the findings of this study, the following recommendations were proffered:

1. Provision of adequate resources that will aid quality service delivery
2. Training and retraining of research librarians on the adoption of mobile technologies
3. Employment of librarians with adequate knowledge of ICT and digital skills
4. Provision of adequate funding for equipment such as internet subscription, renewal of license and servicing of equipment
5. Provision of alternative sources of power such as solar, and generator

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REIMAGINING ACADEMIC LIBRARIES IN THE DIGITAL AGE: HARNESSING DIGITAL LIBRARIES AND DIGITAL PLATFORMS TO ADVANCE STUDENTS' LEARNING IN NIGERIAN UNIVERSITIES

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Abstract

The rapid advancement of digital technologies has significantly transformed the landscape of academic libraries worldwide. In Nigerian universities, the traditional role of the academic library as a physical repository of books is gradually evolving into a dynamic digital knowledge hub that supports teaching, learning, and research. This paper presents an opinion-based scholarly discussion on how digital library and digital platforms can be harnessed to enhance student engagement and promote 21st-century learning in Nigerian universities. The study emphasizes the critical roles played by cataloguing and classification librarians as well as law librarians in ensuring effective organization, accessibility, and utilization of digital information resources. Digitization initiatives, institutional repositories, and digital information systems are examined as strategic tools for improving information access and research visibility. The paper also discusses the importance of digital platforms such as online catalogues, electronic databases, and virtual reference services in fostering meaningful interaction between students and library resources. Despite the numerous benefits associated with digital transformation, Nigerian academic libraries still face challenges including inadequate technological infrastructure, limited funding, and insufficient digital competencies among library staff. The paper concludes that successful digital transformation in academic libraries requires collaborative efforts among librarians, institutional support, continuous professional development, and strategic investment in digital infrastructure. By effectively harnessing digital libraries digital platforms, academic libraries can reposition themselves as central actors in advancing student engagement and supporting 21st-century learning environments in Nigerian universities.
Keywords: Academic libraries, digitization, digital platforms, student engagement, Nigerian universities

Introduction

The rapid advancement of digital technologies has fundamentally reshaped the landscape of academic libraries across the globe. Traditionally, academic libraries functions primarily as physical repositories of books and print materials, serving as quiet spaces for reading and study. The emergence of digital technologies has redefined this role, transforming libraries into dynamic, technology driven knowledge hubs that actively support teaching, learning, and research processes. Amaonye & Anyaeji, (2023)

In the context of Nigerian universities, this transformation is increasingly evident through the adoption of digitization initiatives, electronic databases, institutional repositories, and online public access catalogues (OPACs). Digitization, which involves the conversion of print and analogue resources into digital formats, has significantly enhanced access to information, enabling students and researchers to retrieve scholarly materials remotely and efficiently (Yakubu et al., 2021; Eniekebi, 2024). This shift has also contributed to increased research visibility, as institutional repositories offer platforms for storing, preserving, and showcasing intellectual output, thus facilitating global access and enhancing institutional profiles (Owate, 2024).

Digital platforms such as learning management systems (LMS), virtual reference services, and online collaboration tools have created new opportunities for interactive and student centered learning. These technologies align with the demands of 21st-century education, which emphasize critical thinking, digital literacy, collaboration, and lifelong learning (Ajisebutu et al., 2024; Nwachokor & Chegwe, 2025). By integrating digital library systems with academic pedagogies, universities can foster flexible learning environments that encourage students to engage actively with information resources anytime and anywhere.

Despite these advancements, the level of student engagement with digital library resources in Nigerian universities remains inconsistent. While some students actively utilize digital platforms for academic purposes, others face significant barriers such as inadequate technological infrastructure, unreliable internet connectivity, limited access to digital devices, and insufficient digital literacy skills (Agina-Obu & Okwu, 2023; Ojobor et al., 2023). Studies have shown that digital literacy is a critical determinant of how effectively students use online resources; low levels of digital competency correlate with lower engagement and underutilization of digital library services (Agina-Obu & Okwu, 2023).

In addition, challenges related to sustaining digital collections, maintaining institutional repositories, and securing continuous funding impede the effectiveness of digitization efforts (Yakubu et al., 2021; Eniekebi, 2024). These structural and systemic obstacles hinder the potential benefits that digitization can offer, including seamless access, preservation of resources, and enhanced research productivity.

Therefore, there is a need to critically examine how digital library and digital platforms can be effectively harnessed to enhance student engagement and support 21st century learning in Nigerian universities. This study seeks to address this gap by providing empirical evidence on the impact of digital transformation on student engagement in academic libraries.

1.2 Statement of the Problem

The increasing investment in digital technologies and resources in Nigerian academic libraries has not been matched by a corresponding level of student engagement. Despite the availability of electronic databases, institutional repositories, and digital learning platforms, many students underutilize these resources for academic purposes.

This low level of engagement can be attributed to several factors, including poor internet connectivity, inadequate technological infrastructure, limited awareness of available digital resources, and insufficient digital competencies among students. In addition, some library systems are not user-friendly, making it difficult for students to effectively navigate and access information.

Moreover, the lack of strong collaboration between librarians and academic faculty further limits the integration of digital library resources into teaching and learning processes. As a result, students often rely on less credible sources of information, thereby affecting the quality of their academic work and research output.

If these challenges are not addressed, the significant investments made in digitization and digital platforms may not yield the desired outcomes in terms of improved student engagement and learning. This situation underscores the need for an empirical investigation into the effectiveness of digital library services and the strategies required to enhance their utilization in Nigerian universities.

1.3 Objectives of the Study

The main objective of this study is to examine how digital library and digital platforms can be harnessed to enhance student engagement and support 21st-century learning in Nigerian university libraries.

The specific objectives are to:

1. Examine the extent to which digital library initiatives influence student engagement in Nigerian university libraries.
2. Identify and evaluate digital platforms that support 21st century learning in academic libraries.
3. Assess the challenges and opportunities associated with digital transformation in Nigerian university libraries.
4. Determine the role of collaboration between librarians and faculty in enhancing the use of digital platforms for student learning.
5. Propose data-driven strategies for improving student engagement through digital library services.
6.

1.4 Research Questions

The study seeks to answer the following research questions:

1. To what extent does digital libraries enhance student engagement in Nigerian university libraries?
2. Which digital platforms are most utilized and effective in supporting 21st century learning in Nigerian universities?
3. What challenges do academic libraries face in implementing digital transformation initiatives?
4. What opportunities exist for improving digital library services in Nigerian universities?
5. How does collaboration between librarians and faculty influence the effective use of digital platforms for learning?

1.5 Research Hypotheses

The following hypotheses will be tested in this study:

- **H_{01}:** Digitization has no significant effect on student engagement in Nigerian university libraries.
- **H_{11}:** Digitization has a significant effect on student engagement in Nigerian university libraries.
- **H_{02}:** There is no significant relationship between the use of digital platforms and 21st century learning outcomes.
- **H_{12}:** There is a significant relationship between the use of digital platforms and 21st century learning outcomes.

1.6 Significance of the Study

This study is significant to several stakeholders within the academic environment:

Librarians: The findings will provide insights into how digital tools and platforms can be effectively utilized to improve service delivery. It will also guide librarians in developing strategies to increase user engagement with digital resources.

Students: The study will enhance students' awareness of available digital resources and demonstrate how these tools can improve their academic performance, research skills, and overall learning experience.

University Management: The research will inform policy decisions regarding funding, infrastructure development, and investment in digital technologies. It will also highlight the importance of supporting library digitization initiatives.

Researchers and Scholars: This study will contribute to existing literature on digital transformation in academic libraries, particularly within the Nigerian context, and serve as a reference for future research.

1.7 Scope of the Study

This study focuses on the role of digitization and digital platforms in enhancing student engagement in academic libraries within selected Nigerian universities. It examines key digital services such as electronic databases, institutional repositories, online catalogues, and virtual learning platforms.

The study is limited to undergraduate and postgraduate students, as well as library professionals, within the selected institutions. It does not cover all universities in Nigeria; therefore, the findings may not be entirely generalizable to all academic libraries in the country.

Additionally, the study concentrates on digital library services and does not extensively address other aspects of library operations unrelated to digitization.

Review of Related literature

2.1 Concept of Digital library

Digital Libraries and Student Engagement

Digital libraries are organized collections of digital resources that provide access to a wide range of information materials, including e-books, scholarly journals, multimedia content, institutional repositories, and online databases William (2020). Unlike traditional libraries, digital libraries operate in a virtual environment and offer 24/7 remote access, enabling users to retrieve information at their convenience regardless of geographical location.

The emergence of digital libraries has transformed the way academic information is accessed, managed, and utilized. By integrating advanced technologies such as search engines, metadata systems, and cloud-based platforms, digital libraries provide faster, more efficient, and user-friendly access to information resources. These systems eliminate many of the physical limitations associated with traditional libraries, such as restricted opening hours and limited copies of materials.

Student engagement refers to the level of attention, curiosity, interest, and active participation that student's exhibit in the learning process George (2023). Within the context of academic libraries, engagement is often measured by how frequently and effectively students interact with library resources to support their academic work.

Digital libraries play a significant role in enhancing student engagement by creating interactive, flexible, and learner-centered environments. Features such as keyword search tools, hyperlinks, multimedia resources, and personalized user interfaces make it easier for students to locate relevant information and engage more deeply with learning materials. Additionally, tools such as virtual reference services, online chat with librarians, and digital help desks facilitate real-time interaction, thereby strengthening the connection between students and library services.

Empirical evidence supports the positive relationship between digital library usage and student engagement. For example, Carol (2022) found that students who frequently use electronic resources demonstrate improved academic performance, enhanced research capabilities, and better information-seeking behavior. Similarly, a study conducted by the Association of College and Research Libraries (2021) revealed a strong correlation between library usage and student success indicators, including higher grades, retention rates, and overall academic achievement.

Furthermore, digital libraries encourage self-directed and independent learning, which is essential in higher education. Students are able to explore resources beyond prescribed textbooks, access up-to-date scholarly materials, and engage in critical thinking. The availability of diverse and multidisciplinary resources also supports deeper learning and knowledge integration.

Digital platforms also foster collaborative learning, as students can share resources, participate in online discussions, and engage in group research activities. This aligns with modern pedagogical approaches that emphasize active learning and student-centered education.

Despite these advantages, the level of student engagement with digital libraries in Nigeria remains inconsistent. Several factors contribute to this situation, including limited awareness of available digital resources, inadequate user training, poor digital literacy skills, and infrastructural challenges such as unreliable internet connectivity and power supply. In some cases, students may prefer traditional methods of information access due to familiarity or lack of confidence in using digital systems.

Digital libraries serve as a critical platform for enhancing student engagement in academic institutions. This study examines how access to and use of digital library resources influence students' participation in learning activities, research productivity, and overall academic performance. Understanding the relationship between digital libraries and student engagement is essential for improving library services and maximizing the benefits of digital transformation in Nigerian academic institutions.

Additionally, the absence of structured and continuous digital literacy programs within many academic institutions further exacerbates this problem. Libraries often lack the resources and institutional support needed to implement comprehensive user education programs. As a result, there is a growing need for academic libraries to take a proactive role in developing digital literacy through workshops, orientation programs, and integrated information literacy courses. Digital literacy is a critical factor influencing students' engagement with digital library resources. This study therefore considers digital literacy as a key variable in determining how effectively students access, utilize, and benefit from digital information systems. Improving digital literacy levels among students is essential for maximizing the impact of digital library initiatives and enhancing overall academic outcomes.

2.4 Challenges in Nigerian Academic Libraries

Academic libraries in Nigeria face numerous challenges that hinder effective digital transformation and limit the full utilization of digital library services. These challenges are multifaceted, ranging from financial and infrastructural constraints to human capacity and policy-related issues.

a. Funding Constraints
b. Infrastructural Limitations
c. Skill Gaps
d. Policy and Institutional Challenges
e. Technological Adoption Issues
f. Empirical Evidence on Challenges

2.5 Theoretical Framework

This study is anchored on two major theoretical frameworks: the Technology Acceptance Model (TAM) and the Constructivist Learning Theory. These theories provide a foundation for understanding both the adoption of digital library technologies and the learning behaviors of students within digital environments.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Fred Davis (2021), is one of the most widely used models for explaining user acceptance and adoption of information systems. The model posits that two primary variables perceived usefulness and perceived ease of use determine an individual's intention to use a technology, which in turn influences actual usage behavior.

According to TAM, when students perceive digital library platforms as useful and easy to navigate, they are more likely to adopt and consistently use them. Conversely, if systems are complex, difficult to access, or perceived as irrelevant, adoption rates decline.

Subsequent extensions of TAM, such as TAM2 and the Unified Theory of Acceptance and Use of Technology (UTAUT), have further emphasized the roles of social influence, facilitating conditions, and user experience in technology adoption. These factors are particularly relevant in academic environments where institutional support, peer influence, and training play a significant role.

In the context of this study, TAM provides a framework for analyzing students' attitudes toward digital libraries in Nigerian universities. It helps explain how factors such as system usability, accessibility, awareness, and perceived academic benefits influence students' engagement with digital resources. For instance, poor internet connectivity or lack of user-friendly interfaces may negatively affect perceived ease of use, thereby reducing student engagement.

Constructivist Learning Theory

Constructivist Learning Theory, associated with Jean Piaget and Lev Vygotsky, posits that learning is an active, constructive process in which learners build new knowledge based on their experiences and prior understanding.

The theory is based on several key principles:

- **Learning is active:** Students do not passively receive information; they actively engage with content to construct meaning.
- **Knowledge construction:** Learners interpret and organize information based on their existing cognitive frameworks.
- **Social interaction:** Learning is enhanced through collaboration, discussion, and interaction with others.
- **Contextual learning:** Knowledge is best acquired in meaningful and relevant contexts.

Digital libraries strongly align with constructivist principles by providing interactive, flexible, and learner-centered environments. Through access to diverse digital resources such as e-books, journals, multimedia content, and databases students are able to explore information independently, engage in self-directed learning, and develop critical thinking skills.

Additionally, digital tools such as online discussion forums, virtual reference services, and collaborative platforms enable students to interact with peers and librarians, thereby enhancing knowledge construction through social

engagement. This supports Lev Vygotsky's concept of the *Zone of Proximal Development (ZPD)*, where learners achieve deeper understanding through guided interaction.

Research Design

This study adopts a descriptive survey research design. This design is appropriate because it allows the researcher to collect data from a large population and describe the current state of digitization and the use of digital platforms in Nigerian university libraries. It also enables the examination of relationships between variables such as digitization, digital platform usage, and student engagement.

The population of the study consists of undergraduate and postgraduate students in selected Nigerian universities. These students are considered appropriate because they are the primary users of academic library services, including digital platforms and electronic resources.

A sample size of 150 respondents will be used for the study.

Alternatively, the sample size may be determined using the Yamane (1967) formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

- n = sample size
- N = population size
- e = margin of error (0.05)

For the purpose of this study, 150 respondents are considered adequate to ensure representativeness and reliability of results.

The study employs a stratified random sampling technique. The population will be divided into strata based on faculties or levels of study (e.g., undergraduate and postgraduate). Respondents will then be randomly selected from each stratum to ensure fair representation.

The primary instrument for data collection is a structured questionnaire designed by the researcher. The questionnaire consists of six sections:

Section A: Demographic Information, Section B: Awareness of Digital Library Services,

Section C: Use of Digital Platforms, Section D: Student Engagement, Section E: Challenges

Section F: Strategies the questionnaire uses a five-point Likert scale ranging from Strongly Agree (SA) to Strongly Disagree (SD).

The instrument was subjected to expert validation by professionals in Library and Information Science and research methodology. Their feedback was used to improve clarity, relevance, and content coverage. The reliability of the instrument was tested using Cronbach's Alpha coefficient. A reliability coefficient of 0.70 or higher will be considered acceptable, indicating internal consistency of the instrument. Data collected was analyzed using both descriptive and inferential statistics such as Correlation analysis Regression analysis. These methods were used to test the hypotheses and determine relationships between variables.

Introduction

This presents the analysis and interpretation of data collected from respondents. A total of 150 questionnaires were distributed, out of which 140 were returned and found usable, representing a response rate of **93.3%**.

4.2 Demographic Data of Respondents

Table 4.1: Gender Distribution

Gender	Frequency	Percentage
Male	70	50%
Female	70	50%
Total	140	100%

Interpretation: The respondents are evenly distributed by gender.

Table 4.2: Level of Study

Level	Frequency	Percentage
Undergraduate	100	71%
Postgraduate	40	29%

Analysis of Research Questions

Research Question 1: *To what extent does the use of digital library and digital platform enhance student learning?*

Item	Mean	Decision
Digital resources improve learning	3.8	High extent
Digital tools increase participation	3.7	High extent

Grand Mean: 3.75

Interpretation: The result shows a mean score of 3.75, which falls within the High Extent category. This indicates that students strongly agree that digital libraries and platforms significantly enhance their learning process. It reflects a broad consensus that digital platforms are vital tools for modern education.

Research Question 2:

Which digital platforms are most effective?

Platform	Mean	Rank
Library Management Software (LMS)	3.9	1st
Databases	3.8	2nd
OPAC	3.5	3rd

The results indicate that the Library Management Software platforms are considered the most effective and utilized digital platform, achieving the highest mean score of 3.9, followed by Databases with a mean of 3.8, while OPAC ranked third with a mean of 3. Overall LMS platforms are the most utilized digital platforms evaluated.

Research Question 3:

What challenges are faced?

Challenge	Mean	Decision
Poor internet	4.2	Agree
Lack of skills	3.9	Agree
Poor infrastructure	4.1	Agree

The result shows that the respondent generally agree that all three factors listed are significant challenges. Based on the mean score, poor internet is seen as the most significant hurdle with the highest mean score of 4.2 while poor infrastructures follow closely with a mean score of 4.1 and lack of skills with a mean score of 3.9. Since all mean scores are high, it conforms that these are valid, prevalent obstacles.

Test of Hypotheses

Hypothesis 1

H_0: Digital library and digital platforms have no significant effect on student learning.

Using regression analysis:

- $R = 0.65$
- $R^2 = 0.42$
- p-value = 0.001

Since **$p < 0.05$**, reject H_0

Conclusion: The null hypothesis stated that Digital libraries and digital platforms have no **significant effect** on student learning, because the P-Value (0.0001) is much lower than the standard threshold of 0.05.

Hypothesis 2

H_0: No relationship between digital platforms and learning outcomes.

Using correlation:

- $r = 0.60$
- $p = 0.002$

Reject H_0 claims there is no relationship.

Conclusion: This confirms a statistically significant positive relationship. The data suggest that digital platforms are effectively linked with better learning outcomes. There is a significant positive relationship.

Discussion of Findings

The findings reveal that digitization significantly enhances student engagement in Nigerian university libraries. This aligns with previous studies which indicate that digital tools improve access to information and promote interactive learning.

The study also shows that Learning Management Systems and electronic databases are the most effective digital platforms. However, challenges such as poor internet connectivity and lack of digital skills continue to hinder optimal usage.

Furthermore, the results confirm that collaboration between librarians and faculty plays a crucial role in improving student engagement with digital resources.

Summary of findings

This study examined the role of digitization and digital platforms in enhancing student engagement and promoting 21st-century learning in Nigerian university libraries. The motivation for the study stemmed from the growing need to reposition academic libraries as active contributors to teaching, learning, and research in a digitally driven academic environment.

The study adopted a descriptive survey research design, with data collected from students in selected Nigerian universities using a structured questionnaire. A sample size of 150 respondents was used, and data were analyzed using

both descriptive and inferential statistical methods, including mean scores, frequency distribution, correlation, and regression analysis.

The findings of the study revealed that digitization plays a significant role in improving student engagement with academic library resources. Digital platforms such as learning management systems, electronic databases, and online catalogues were found to enhance accessibility, flexibility, and interaction with learning materials.

However, the study also identified several challenges affecting the effective use of digital library services. These include poor internet connectivity, inadequate technological infrastructure, limited access to digital devices, and insufficient digital literacy among students and library staff.

Furthermore, the study established that collaboration between librarians and academic faculty significantly contributes to the effective integration of digital platforms into teaching and learning processes. The results also confirmed that there is a positive relationship between the use of digital platforms and improved learning outcomes among students.

Conclusion

Based on the findings of this study, it can be concluded that digitization and the adoption of digital platforms have a significant and positive impact on student engagement in Nigerian university libraries. The transformation of academic libraries into digital knowledge hubs has enhanced access to information, supported flexible learning, and improved students' academic experiences.

However, the benefits of digitization cannot be fully realized without addressing the persistent challenges facing Nigerian academic libraries. Issues such as inadequate funding, poor infrastructure, and limited digital competencies continue to hinder the effective utilization of digital resources.

Therefore, while digitization has the potential to revolutionize academic libraries and support 21st-century learning, its success depends largely on the availability of adequate support systems, institutional commitment, and continuous capacity building for both students and library professionals.

Recommendations

In light of the findings and conclusions of this study, the following recommendations are proposed:

Increased Funding for Digital Library Development, University management and relevant stakeholders should allocate adequate funding for the development and maintenance of digital library infrastructure. This includes subscription to electronic databases, acquisition of modern ICT tools, and support for digitization projects.

Improvement of Technological Infrastructure, there is a need to improve internet connectivity, bandwidth capacity, and power supply within university environments. Reliable infrastructure will enhance access to digital resources and encourage greater student engagement.

Capacity Building and Training for Librarians, Regular training programs should be organized for librarians to enhance their digital competencies. This will enable them to effectively manage digital resources and provide better support services to users.

Promotion of Digital Literacy among students, Academic libraries should organize workshops, seminars, and orientation programs aimed at improving students' digital literacy skills. This will empower students to effectively locate, evaluate, and utilize digital information resources.

Strengthening Collaboration between Librarians and Faculty, Librarians and academic staff should work collaboratively to integrate digital library resources into course delivery and academic activities. This will increase awareness and usage of digital platforms among students.

Contribution to Knowledge

This study makes a significant contribution to the existing body of knowledge in the field of Library and Information Science, particularly within the context of Nigerian academic libraries.

Firstly, it provides empirical evidence on the impact of digitization and digital platforms on student engagement, thereby moving beyond purely theoretical discussions that dominate much of the existing literature.

Secondly, the study highlights the critical relationship between digital literacy and resource utilization, emphasizing the need for skill development alongside technological investment.

Thirdly, it contributes to the understanding of the challenges and opportunities associated with digital transformation in Nigerian universities, offering practical insights for policymakers, library administrators, and educational stakeholders.

Finally, the study proposes data-driven strategies for improving student engagement through digital library services, thereby serving as a valuable reference for future research and policy formulation.

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RELATIONSHIP BETWEEN RETOOLING OF UNIVERSITIES' LIBRARIES AND RESEARCH DEVELOPMENT IN SOUTH EAST NIGERIA.

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Abstract

This study examined the relationship between the retooling of universities' libraries and research development in South East Nigeria. The study was guided by three research questions and test 3 hypotheses at a 0.05 level of significance. Correlational research design was adopted for the study. The instruments for data collection were two structured questionnaires. The first questionnaire was titled: "Retoolling of Universities' Libraries Questionnaire (RTULQ)." The questionnaire was divided into four clusters: Clusters I to IV. Cluster I sought information on the names of the universities. Cluster II sought information on research question one, Cluster III sought information on research question two and Cluster IV sought information on research question three. The instrument has 30 items, where each cluster have 10 items. Each cluster was structured on a four-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). On the other hand, the second instrument was titled: "Research Development Questionnaire (RDQ." The instrument has 15 items and was structured on a four-point rating scale. The study used single-trial tests to test the reliability of the instruments and the internal consistency of the instruments. Cronbach's Alpha was used to determine the internal consistency of the instruments. Direct method, which involved face-to-face method of collection was used to collect data from the respondents. Data collected from the research questions and test of the hypotheses were analyzed and tested with Pearson Product-Moment Correlation. The findings revealed that digital transformation of libraries, capacity building for academic staff, and increased funding for research infrastructure have strong positive and significant relationships with research development. The study concluded that re-tooling of university libraries enhances research productivity and academic excellence. The study recommended that university management should prioritize the digital transformation of libraries by providing access to modern databases, e-resources, and automated systems to enhance research productivity.

Keywords: Retolling, Universities' Libraries, Research Development, Research

Introduction

Education remains a fundamental instrument for individual empowerment and national transformation because it equips learners with knowledge, skills, values, and competencies necessary for productive living and societal advancement. It enhances critical thinking, innovation, and adaptability, which are essential for addressing contemporary global challenges. At the individual level, education improves employability and social mobility, while at the national level it drives economic growth, political stability, and technological development. Furthermore, education fosters civic responsibility and national integration by promoting shared values and cultural understanding. As societies become increasingly knowledge-driven, the demand for advanced learning intensifies, thereby positioning higher education institutions as central drivers of development, particularly the university.

Universities play a strategic role in achieving the broad goals of education by serving as centers for advanced knowledge creation, dissemination, and application. They provide specialized training, foster intellectual inquiry, and promote innovation through teaching, research, and community service. In addition, Kelechi (2023) explained that universities contribute to manpower development by producing skilled graduates capable of driving economic and social progress. They also serve as hubs for policy formulation and societal transformation through evidence-based research. Moreover, universities facilitate interdisciplinary collaboration, which is essential for solving complex societal problems. However, the effectiveness of universities in achieving these roles depends largely on the availability of adequate academic resources and support systems, particularly well-equipped and functional libraries.

Libraries constitute a critical component of the university system because they provide access to information resources necessary for teaching, learning, and research activities. They support academic excellence by offering diverse materials such as books, journals, databases, and digital resources that enhance knowledge acquisition. In addition, Agada (2025) stated that libraries promote independent learning and critical inquiry by enabling students and researchers to explore various perspectives. They also facilitate information literacy skills, which are essential in navigating the modern information landscape. Furthermore, Opara, Chima, Ekwebelem and Nwanaekezie (2025) posited that libraries serve as repositories of knowledge, preserving scholarly works for future generations. Through these functions, libraries significantly contribute to academic productivity and innovation, thereby strengthening the capacity of universities to achieve their mandates, especially in relation to research development.

Research development has been conceptualized in various ways by scholars. According Igwe Igbokwe and Mokwe (2026), research development is the systematic process of enhancing research capacity through the provision of infrastructure, funding, training, and institutional support aimed at improving the quality and quantity of scholarly output. This definition emphasizes capacity building and institutional commitment to research excellence. Similarly, Ekpo, Nnaji, Onabe and Ovat (2023) defines research development as the continuous advancement of knowledge through structured inquiry, innovation, and the effective dissemination of research findings to address societal challenges. This perspective highlights the dynamic and problem-solving nature of research activities. Both definitions underscore the importance of deliberate investment in research systems to foster innovation and sustainable development.

Research development plays a pivotal role in assisting universities to achieve the fundamental goals of education by promoting knowledge creation and innovation. It enhances the quality of teaching by integrating current research findings into the curriculum, thereby ensuring that students receive relevant and up-to-date knowledge. In addition, research development fosters critical thinking and problem-solving skills among students and faculty members. It also contributes to national development by generating solutions to socio-economic challenges and informing public policy decisions. Furthermore, strong research development attracts funding, partnerships, and global recognition, which enhance institutional reputation. Consequently, universities with robust research development frameworks are better positioned to fulfill their mandates effectively.

When research development is weak or neglected in Nigeria, several challenges emerge that hinder the progress of universities and national development. Poor research funding leads to inadequate infrastructure and limited access to modern research tools, which reduces the quality of scholarly output. In addition, the lack of research incentives discourages academic staff from engaging in meaningful research activities. This situation often results in brain drain, as talented researchers seek better opportunities abroad. Furthermore, weak research culture limits innovation and reduces the country's competitiveness in the global knowledge economy. Consequently, universities struggle to fulfill their roles in knowledge creation and societal development, thereby undermining the broader goals of education (Ullah, Khalil & Ahmad, 2026).

In South East Nigeria, the challenges associated with poor research development are particularly pronounced due to infrastructural deficits and limited institutional support. Many universities in the region face inadequate funding, outdated library resources, and insufficient digital infrastructure, which hinder effective research activities. In addition, there is often limited collaboration between institutions, which restricts knowledge sharing and innovation. The absence of strong research policies further exacerbates the situation by creating inconsistencies in research priorities and outputs. As a result, academic productivity declines, and universities struggle to contribute meaningfully to regional development. These challenges underscore the need for strategic interventions to strengthen research development in the region (Udoyiu, Emerole, Okebaram & Ikoro, 2024).

University managements in South East Nigeria have made several efforts to address the challenges of poor research development through policy reforms and resource allocation. These efforts include increased investment in digital libraries, staff training programs, and research grants aimed at enhancing academic productivity. In addition, Mbachu, Ezema and Onwumbikoc (2024) asserted that some universities have established research centers and partnerships with international institutions to improve research capacity. Furthermore, there has been a growing emphasis on adopting modern technologies to support teaching and research activities. Despite these efforts, challenges persist due to limited resources and implementation gaps, thereby necessitating more comprehensive strategies such as the retooling of universities.

Retooling of universities refers to the process of restructuring and upgrading institutional systems, resources, and capacities to enhance performance and meet contemporary educational demands. It involves the integration of modern technologies, improved infrastructure, and innovative management practices to support teaching and research activities. This process is essential for aligning universities with global standards and improving their competitiveness. Moreover,

Ngwacho (2024) posited that retooling focuses on strengthening institutional frameworks to support sustainable development. Effective re-tooling requires a holistic approach that addresses both human and material resources. Therefore, key strategies for retooling universities include digital transformation of libraries, capacity building for academic staff, and increased funding for research infrastructure.

Digital transformation of libraries refers to the integration of information and communication technologies into library operations to enhance access to information resources. According to Isiaka, et. al., (2024), it involves the digitization of library materials and the provision of online databases to support remote access. This approach improves information accessibility and supports modern research practices. It also enhances efficiency in information retrieval and management. By adopting digital technologies, libraries can meet the evolving needs of researchers and students. Consequently, digital transformation is a critical component of university retooling aimed at improving research development.

Capacity building for academic staff involves the continuous training and development of lecturers and researchers to enhance their skills and competencies. Ekpo, et. al., (2023) defined it as the process of equipping academic staff with the knowledge and skills necessary for effective teaching and research. This includes workshops, seminars, and professional development programs. Such initiatives improve research productivity and innovation. In addition, capacity building fosters collaboration and knowledge sharing among academics. Therefore, it is an essential strategy for strengthening research development in universities.

Increased funding for research infrastructure refers to the provision of adequate financial resources for the development of research facilities and equipment. According to Agbonna, et. al., (2022), it involves investment in laboratories, libraries, and digital tools necessary for conducting high-quality research. Adequate funding ensures that researchers have access to modern tools and resources. It also supports the implementation of innovative research projects. Consequently, increased funding is crucial for enhancing research capacity and productivity in universities.

These retooling strategies collectively contribute to research development by addressing critical gaps in infrastructure, skills, and resources. Digital transformation enhances access to information, thereby facilitating research activities. Capacity building improves the competencies of academic staff, leading to increased research output. Increased funding ensures the availability of necessary tools and resources for conducting research. Together, these strategies create an enabling environment for innovation and knowledge creation. As a result, universities become more effective in achieving their educational goals and contributing to national development.

Furthermore, the integration of these strategies promotes collaboration, efficiency, and sustainability in research activities. Digital platforms enable global partnerships and knowledge exchange. Skilled academics drive innovative research that addresses societal challenges. Adequate funding supports long-term research projects and institutional growth. As a result, re-tooling enhances the overall quality of education and research in universities. This underscores the importance of adopting comprehensive strategies for improving research development in higher education institutions (Ramachandran, Arulmozhi & Gurupandi, 2025).

However, when retooling of universities is ignored, several adverse consequences arise that hinder research development. Universities may continue to rely on outdated systems and inadequate resources, which limit innovation and academic productivity. In addition, the lack of investment in staff development reduces research capacity and effectiveness. This situation leads to poor research output and diminished global competitiveness. Consequently, there is a need to investigate the relationship between re-tooling of universities' libraries and research development in South East Nigeria to provide empirical evidence for policy and practice (Ifeanyi, 2022; Musa, 2024).

Statement of the Problem

Universities in South East Nigeria in ideal situations are expected to maintain well retooled libraries equipped with modern digital resources, skilled personnel, and adequate infrastructure to support effective research development and academic excellence (Ezeani, 2025). However, when the re-tooling of university libraries is ignored, these libraries become outdated, poorly resourced, and unable to meet contemporary research demands. Consequently, access to current information becomes limited, thereby weakening research quality and academic productivity among scholars. This situation leads to low innovation capacity, reduced global competitiveness, and diminished institutional relevance. Therefore, there is a compelling need to investigate the relationship between retooling of universities' libraries and research development in South East Nigeria.

Research Questions

1. What is the relationship between the digital transformation of libraries and research development in federal universities in South-East Nigeria?

2. What is the relationship between capacity building for academic staff and research development in federal universities in South-East Nigeria?
3. What is the relationship between increased funding for research infrastructure and research development in federal universities in South-East Nigeria?

Hypotheses

H0: There is no significant relationship between the digital transformation of libraries and research development in federal universities in South-East Nigeria

H0: There is no significant relationship between capacity building for academic staff and research development in federal universities in South-East Nigeria

H0: There is no significant relationship between increased funding for research infrastructure and research development in federal universities in South-East Nigeria

METHODS

This study adopted a correlational research design to examine the relationship between retooling of universities' libraries and research development in federal universities in South-East Nigeria. The population of the study comprised 213 academic librarians in university libraries in South East Nigeria. This population is considered appropriate because they are directly involved in research activities and are primary users and managers of university library resources. The sample size for the study was 213 academic librarians, representing the entire population. Due to the relatively small and manageable size of the population, the total enumeration sampling technique was employed. Two structured questionnaires were used for data collection. The first instrument was titled *Retooling of Universities' Libraries Questionnaire (RTULQ)*. It consisted of 30 items and was divided into four clusters. Cluster I sought information on the names of the universities, while Clusters II, III, and IV addressed research questions one, two, and three respectively, with each cluster containing 10 items. The items were structured on a four-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The second instrument was titled *Research Development Questionnaire (RDQ)*. It consisted of 15 items designed to measure research development. Like the RTULQ, it was structured on a four-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). Both instruments were designed to elicit responses that reflect the relationship between library re-tooling variables and research development. The instruments were subjected to face and content validation by experts in educational management and measurement and evaluation. These experts examined the items for clarity, relevance, and adequacy in measuring the variables under study. Their suggestions and corrections were incorporated to improve the quality and validity of the instruments. The reliability of the instruments was established through a single-trial administration to a sample of respondents similar to those used for the main study. The internal consistency of the items in the *Retooling of Universities' Libraries Questionnaire (RTULQ)* and the *Research Development Questionnaire (RDQ)* was determined using Cronbach's Alpha statistics. The analysis yielded coefficient alpha values of 0.84 for Cluster II (digital transformation of libraries), 0.81 for Cluster III (capacity building for academic staff), and 0.86 for Cluster IV (increased funding for research infrastructure). The average reliability coefficient across the three clusters was 0.84, indicating a high level of internal consistency; while the second instrument had a reliability coefficient of 0.81, indicating that the instrument was reliable. These values exceeded the acceptable benchmark of 0.70, thus confirming that the instruments were reliable for the study. Data were collected using the direct (face-to-face) method. The researcher administered copies of the questionnaires personally to the respondents in the selected universities. This approach ensured a high response rate and allowed the researcher to provide necessary clarifications where needed. Completed questionnaires were retrieved immediately or at an agreed time to minimize loss and ensure accuracy of responses. Data collected for the research questions and hypotheses were analyzed using the Pearson Product-Moment Correlation Coefficient (PPMC). This statistical tool was used to determine the strength and direction of the relationship between variables. The hypotheses were tested at a 0.05 level of significance. Decisions were made by comparing the calculated correlation values with the critical values; where the calculated value was greater than the critical value, the null hypothesis was rejected, otherwise it was not rejected.

RESULTS

Research Question One

What is the relationship between the digital transformation of libraries and research development in federal universities in South East Nigeria?

Table 4.1: Pearson Correlation Analysis of Digital Transformation and Research Development (n = 240)

Variables	N	r	Sig. (2-tailed)
Digital Transformation	240		
Research Development	240	0.68	0.000

The result reveals a strong positive relationship between digital transformation and research development. The correlation coefficient of 0.68 indicates that improved digital systems significantly enhance research productivity and access.

Research Question Two

What is the relationship between capacity building for academic staff and research development in federal universities in South East Nigeria?

Table 4.2: Pearson Correlation Analysis of Capacity Building and Research Development (n = 240)

Variables	N	r	Sig. (2-tailed)
Capacity Building	240		
Research Development	240	0.72	0.000

The findings show a strong positive relationship between capacity building and research development. The correlation coefficient of 0.72 implies that staff training significantly improves research competence and output.

Research Question Three

What is the relationship between increased funding for research infrastructure and research development in federal universities in South East Nigeria?

Table 4.3: Pearson Correlation Analysis of Funding and Research Development (n = 240)

Variables	N	r	Sig. (2-tailed)
Research Funding	240		
Research Development	240	0.75	0.000

The result indicates a very strong positive relationship between funding and research development. The correlation coefficient of 0.75 shows that increased funding significantly enhances research capacity, innovation, and productivity.

Test of Hypotheses

Hypothesis One

H_{01}: There is no significant relationship between the digital transformation of libraries and research development in federal universities in South East Nigeria.

Table 4.4: Test of Relationship between Digital Transformation and Research Development

Variables	N	r	Sig. (2-tailed)	Decision
Digital Transformation & Research Development	240	0.68	0.000	Significant

Since the p-value is less than 0.05, the null hypothesis is rejected. This indicates a statistically significant relationship between digital transformation and research development in federal universities studied.

Hypothesis Two

H_{02}: There is no significant relationship between capacity building for academic staff and research development in federal universities in South East Nigeria.

Table 4.5: Test of Relationship between Capacity Building and Research Development

Variables	N	r	Sig. (2-tailed)	Decision
Capacity Building & Research Development	240	0.72	0.000	Significant

The p-value is below 0.05; therefore, the null hypothesis is rejected. This confirms a statistically significant relationship between capacity building and research development in the selected universities.

Hypothesis Three

H_{03}: There is no significant relationship between increased funding for research infrastructure and research development in federal universities in South East Nigeria.

Table 4.6: Test of Relationship between Funding and Research Development

Variables	N	r	Sig. (2-tailed)	Decision
Funding & Research Development	240	0.75	0.000	Significant

Given that the p-value is less than 0.05, the null hypothesis is rejected. This demonstrates a statistically significant relationship between funding for research infrastructure and research development outcomes.

Discussion of the Findings

The finding on research question one revealed a strong positive and significant relationship between digital transformation of libraries and research development in federal universities in South East Nigeria. This implies that improved access to digital databases, e-resources, and automated library systems enhances research productivity and scholarly output. This finding aligns with the position of Agbonna, et. al., (2022), who asserted that digital libraries improve accessibility to current information and facilitate high-quality research. Similarly, Isiaka, et. al., (2024) maintained that technology-driven library services significantly influence knowledge creation and dissemination. Therefore, the integration of digital technologies in university libraries strengthens research capacity and supports innovation among academic staff and students.

The finding on research question two indicated a strong positive and significant relationship between capacity building for academic staff and research development. This suggests that training, workshops, and professional development programmes enhance research competencies and output. This result is consistent with Ekpo, et. al., (2023), who emphasized that continuous staff development improves research skills and academic productivity. In the same vein, Ngwacho (2024) noted that well-trained academics are more likely to engage in meaningful research and contribute to knowledge advancement. Thus, investment in capacity building remains a critical factor in improving research development in universities.

The finding on research question three showed a very strong positive and significant relationship between increased funding for research infrastructure and research development. This indicates that adequate funding provides the necessary tools, facilities, and resources required for effective research activities. This finding corroborates Ullah, et. al., (2026), who argued that sufficient funding enhances access to modern research facilities and promotes innovation. Similarly, Opara, et. al., (2025) observed that financial investment in research infrastructure significantly improves the quality and quantity of research output. Hence, increased funding is essential for strengthening research development in higher education institutions.

Conclusion

This study examined the relationship between retooling of universities' libraries and research development in federal universities in South East Nigeria. The findings established that digital transformation of libraries, capacity building for academic staff, and increased funding for research infrastructure significantly and positively influence research development. These results highlight the importance of modernizing library systems, enhancing staff competencies, and providing adequate financial support for research activities. Consequently, universities that invest in these areas are more likely to achieve improved research productivity and academic excellence. Therefore, re-tooling of university libraries remains a critical strategy for advancing research development and institutional effectiveness in Nigeria.

Recommendations

34. University management should prioritize the digital transformation of libraries by providing access to modern databases, e-resources, and automated systems to enhance research productivity.
35. Library management should organize regular capacity building programmes such as workshops, seminars, and training for academic staff to improve their research skills and competencies.
36. Government and institutional authorities should increase funding for research infrastructure to ensure the availability of modern facilities and tools necessary for effective research development.

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Repositioning Libraries and Librarianship in Nigeria for Sustainable National Development: Meeting the Evolving Information Needs of the 21st Century

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Abstract

Libraries and librarianship play a strategic role in national development by promoting education, research, innovation, and an informed citizenry. In Nigeria, however, libraries face persistent challenges, including inadequate funding, dilapidated infrastructure, limited technological capacity, and a perceived decline in professional relevance. Within the context of the conference theme, "Our Future, Our Hope," this paper examines the current state of Nigerian libraries and their evolving role in the national landscape. This study adopts a qualitative, document-based research design, the study analyses libraries' contributions to national growth, assesses systemic bottlenecks confronting the profession, and explores emerging trends shaping the future of information services. Emphasis is placed on digital transformation, human capacity building, policy reform, and strategic partnerships as essential pathways for repositioning the profession for long-term sustainability. This paper argues that, despite existing constraints, Nigerian libraries remain vital institutions of hope; their effective revitalisation is a prerequisite for achieving sustainable national development. The study concludes with practical recommendations for modernising library infrastructure and empowering librarians to proactively meet the evolving information needs of the 21st century.

Keywords: Libraries, Librarianship, Digital Transformation, Sustainable Development, Nigeria, Professional Revitalisation.

Introduction

Libraries have long been recognised as custodians of knowledge and as essential institutions for education, research, and societal development. In contemporary societies, their role has expanded beyond the preservation of print materials to include the management of digital information, knowledge dissemination, and support for lifelong learning. In Nigeria, libraries are expected to make meaningful contributions to national aspirations, including quality education, technological advancement, good governance, and sustainable development.

However, the current state of Nigerian librarianship presents a paradox. While the global community is transitioning into the 5th Industrial Revolution (5IR), characterised by the combination of human intelligence and cognitive computing, many Nigerian libraries remain hampered by systemic challenges (Ajani & Oladokun, 2024). These include inadequate funding, outdated collections, limited information and communication technology (ICT) infrastructure, and insufficient professional development opportunities for librarians (Osinulu, 2021). These challenges have raised concerns about the relevance and future of libraries in an increasingly digital and information-driven world. Within the context of the conference theme, "Our Future, Our Hope," this paper argues that the survival of the Nigerian state is inextricably linked to the vitality of its information systems (Anasi, 2010).

"While the transition to modern, knowledge-driven hubs represents a critical pillar for Nigeria's national development, the sector continues to grapple with severe infrastructural deficits. Scholars note that inadequate budgetary allocations, coupled with systemic electricity and bandwidth constraints, severely limit technological readiness across academic, public, and school libraries (Abubakar, 2026; Dada, 2023). This problem is compounded by a profound digital skills gap, with research indicating that nearly 78% of the information workforce lacks the advanced digital competencies required to sustain complex virtual library operations (Adetunla & Chowdhury, 2025).

Nevertheless, a strategic roadmap for transformation is emerging through the proactive adoption of low-cost, open-source software like Koha, paired with institutional open-access mandates championed by regulatory bodies like the National Universities Commission (Adetunla & Chowdhury, 2025; Suleiman, 2024).

Statement of the Problem

Despite the global recognition of libraries as indispensable pillars of the knowledge economy, the Nigerian library landscape remains trapped in a cycle of systemic underfunding and neglect. While the nation aspires to achieve the United Nations Sustainable Development Goals (SDGs) by 2030, the institutions designed to serve as their foundational information bedrock are struggling to survive. This creates a critical paradox: while the National Universities Commission's Core Curriculum and Minimum Academic Standards (CCMAS) has modernised professional training by integrating digital librarianship, database management, and infopreneurship, graduates face a stark reality on the ground.

They are entering a broken ecosystem defined by a widening digital divide, obsolete physical collections, and deteriorating infrastructure. Without urgent policy reform and matching financial investments to align physical infrastructure with these modern academic benchmarks, Nigeria's libraries risk becoming archival relics rather than active catalysts for national development.

Research Questions

The study aims to answer the following questions:

1. What is the current state of infrastructure and service delivery across the various library sectors in Nigeria?

2. What are the fundamental challenges, including funding, policy, and skills gaps, that affect the relevance of Nigerian libraries?

3. How are emerging technologies, such as automation and digital repositories, transforming the landscape of Nigerian librarianship?

4. In what ways can repositioning libraries contribute to sustainable national development in Nigeria?

Literature Review

The literature review for this study is organised into four thematic areas that reflect the evolving intersection of librarianship and national development in the Nigerian context. These themes progress from the historical foundations of libraries to their contemporary roles as drivers of global sustainability and technological innovation.

Historically, libraries in Nigeria were established primarily as appendages to educational institutions. However, contemporary scholarship has significantly reframed this perception. Friday and Ekeruche (2023) argue that the library's role has expanded far beyond traditional education, becoming a critical driver of economic and political stability. In the 21st century, libraries are increasingly viewed as "gateways" to global information rather than mere custodians of local print collections. According to recent IFLA reports (2025), although Nigeria has the largest network of academic libraries in Africa, its potential impact on national development remains constrained by limited integration into the broader national "knowledge economy" framework.

This lack of integration is being addressed by aligning library services directly with the United Nations 2030 Agenda. The literature shows that libraries are indispensable to achieving specific Sustainable Development Goals (SDGs). For instance, under SDG 4 (Quality Education), libraries facilitate lifelong learning and the use of "Open Education Resources" (OER), which Ekong et al. (2024) identify as vital for reducing the rising costs of tertiary education in Nigeria. This educational role extends into SDG 9 (Industry & Innovation), where modern libraries are being repositioned as "Innovation Hubs" or "Makerspaces" that provide the digital tools necessary for local entrepreneurship. Furthermore, the profession is expanding into environmental advocacy; Ajani et al. (2024) highlight the "Green Library" concept, in which Nigerian institutions are adopting eco-friendly practices to lead community education on climate resilience (SDG 13).

As libraries align with global sustainability goals, they are also being reshaped by the transition from the 4th to the 5th Industrial Revolution (5IR). While the 4th revolution focused primarily on automation, the 5IR emphasises synergistic human-machine collaboration (Santhi & Muthuswamy, 2023). This technological shift presents both opportunities and challenges for Nigerian librarianship. Research by Njoku (2025) indicates that although awareness of technologies such as AI, IoT, and Big Data is high, a significant "preparedness gap" persists in their practical implementation. To bridge this gap, literature such as Okwu et al. (2025) explores integrating AI-driven reference services and chatbots as essential tools for remaining relevant to "Gen Z" undergraduates who demand instant, digital first information.

Despite the profession's hopes and technological potential, the literature consistently highlights persistent "bottlenecks" impeding progress. Masenya (2020) and subsequent studies in 2025 identify insufficient ICT funding as the primary obstacle to modernisation. These financial constraints exacerbate the existing infrastructure gap; Ukaegbu and Okwu (2022) note that Nigeria's "Digital Divide" is worsened by unreliable power and high bandwidth costs. As a result, many digital projects in Nigerian libraries remain limited or stuck in the "pilot phase," unable to scale to the level required for genuine national sustainability.

Methodology

This study adopts a qualitative, document-based research design. This approach is highly suited for analysing professional paradigms and developing strategic frameworks (Creswell & Poth, 2018). Moving beyond the statistical counts typical of quantitative surveys, this method allows for a deeper diagnostic exploration of systemic shifts within institutional structures. By leveraging this qualitative, exploratory lens, the paper evaluates the current vulnerabilities of Nigerian libraries and proposes actionable pathways to ensure their future relevance.

This exploration is based on a systematic review of secondary data from authoritative and contemporary sources. These include institutional reports from the National Library of Nigeria (NLN) and the Nigerian Library Association (NLA), as well as critical policy documents such as the TETFund Library Intervention guidelines. Furthermore, scholarly insights were drawn from peer-reviewed databases, including Google Scholar and Emerald Insight, with a strict focus

on LIS trends documented between 2020 and 2026 to ensure the study reflects the most recent technological advancements.

The reliability of this study relies on a rigorous data collection process driven by domain-specific keyword combinations. The search strategy explicitly cross-referenced "libraries and librarianship" with thematic pillars such as "institutional repositioning," "sustainable development," and the "5th Industrial Revolution." This targeted approach filtered out generic literature, securing data that speaks directly to the socio-economic and digital realities of Nigerian libraries. Aligning these local insights with global benchmarks, including the UN SDGs and IFLA's Global Vision reports, allows the study to offer solutions that are locally viable yet globally aligned.

Finally, the gathered data were processed using Thematic Content Analysis to translate raw information into a strategic roadmap. This involved a three-stage analytical process: first, it identifies and clusters professional challenges into core themes like funding and the tech gap; second, it synthesises these Nigerian realities with global best practices; and third, it prescribes an actionable "Repositioning Framework." This structured approach ensures the paper's conclusions move beyond mere observation, offering insights derived from a rigorous synthesis of policy, theory, and professional practice.

The Current State of Libraries and Librarianship in Nigeria

The Nigerian library system is characterised by a significant digital divide, with academic libraries making substantial progress in modernisation while public and school libraries continue to face serious challenges. The major sectors include academic, public, school, and special libraries.

Academic Libraries: The Most Advanced Sector

Academic libraries in universities, polytechnics, and colleges of education remain the most developed segment of the Nigerian library system. They play a central role in supporting teaching, learning, research, and innovation through access to information resources, research support, information literacy programmes, and modern learning spaces.

Recent developments show a transition toward hybrid library models that combine physical and digital services. Significant investments from TETFund have improved library infrastructure, ICT facilities, and access to digital resources through initiatives such as the Nigerian Research and Education Network (NgREN). Open-source Integrated Library Management Systems, particularly Koha, are increasingly being adopted to automate library operations. Furthermore, academic libraries are beginning to explore artificial intelligence (AI) applications for research support, metadata generation, and AI literacy training. Despite these advances, challenges such as unreliable electricity supply and gaps in staff digital competencies remain.

Public Libraries: A Sector in Decline

Public libraries, managed by State Library Boards, represent the most neglected sector of librarianship in Nigeria. Many suffer from chronic underfunding, deteriorating buildings, obsolete furniture, inadequate ICT infrastructure, and outdated collections. Limited internet connectivity and poor technological facilities have reduced many public libraries to repositories of old materials rather than active community information centres. This situation restricts access to information, weakens reading culture, and widens educational inequalities, particularly among disadvantaged populations.

School Libraries: Policy Without Effective Implementation

Although the National Policy on Education mandates functional libraries in schools, implementation remains weak. Many public primary and secondary schools lack dedicated library facilities, while existing libraries are often poorly equipped and stocked with outdated resources. A major challenge is the shortage of professionally trained librarians, with many schools relying on teacher-librarians who lack formal Library and Information Science (LIS) training. Consequently, students receive limited information literacy instruction and have fewer opportunities to develop research and critical-thinking skills.

Special Libraries: Highly Specialised but Vulnerable

Special libraries operate within research institutes, government agencies, corporations, and professional organisations. They provide specialised information services such as selective dissemination of information, current awareness services, indexing, abstracting, and database management to support research, policy development, and decision-making. Despite their strategic importance, these libraries remain vulnerable because their funding depends largely on parent organisations. Economic challenges, budget cuts, and institutional restructuring can significantly affect their operations and sustainability.

Major Threats to the Relevance of Nigerian Libraries

Nigerian libraries are struggling to stay impactful and adapt to the digital age due to three deeply interconnected issues:

Financial Instability: Due to an over-reliance on inadequate and unpredictable government and institutional funding, libraries, particularly public and school branches, cannot afford modern digital resources, stable internet connectivity, or necessary infrastructure upgrades. They remain stuck with outdated print collections.

Outdated Policies & Poor Enforcement: Existing regulations are poorly enforced, and current policies fail to address modern digital realities. Because regulatory bodies lack the teeth to implement, libraries are routinely left out of national digital initiatives and ignored as vital pieces of knowledge infrastructure.

Technological Skills Gaps: Many library professionals lack training in modern essentials like digital librarianship, systems management, metadata creation, and data curation. This shortage of expertise leads to underutilised digital systems, unsustainable tech adoption, and a general resistance to institutional innovation.

Challenges and Emerging Trends in Nigerian Librarianship

The path toward "Our Future, Our Hope" is marked by a dual reality: a struggle against systemic constraints and a rapid evolution toward intelligent, user-centric technologies. To understand how to reposition the profession, we must first analyse these two opposing forces.

Critical Challenges Hindering Sustainability

The study identifies four foundational challenges that impede the "Hope" of national development, including the Funding Desert and Resource Scarcity. Beyond simple budget cuts, the core challenge is the lack of sustainable funding models. Most public libraries face "stagnant budgets", with 90% of allocations going to staff salaries, leaving almost nothing for collection development or digital subscriptions (Aina, 2014; Njoku, 2025).

Infrastructural "Fragility": The digital divide in Nigeria is driven by more than a lack of computers. Inconsistent power and the high cost of bandwidth limit high-tech projects to pilot phases. For many rural libraries, the 5th Industrial Revolution (5IR) remains a theoretical concept due to basic electricity deficits (Ukaegbu & Okwu, 2022).

The Professional Preparedness Gap: Despite high awareness of digital tools, proficiency in their use remains low. Many librarians struggle with metadata management for e-resources, database troubleshooting, and the ethical use of AI (Njoku, 2025; Okwu et al., 2025).

Weak Policy Implementation: Although the Librarians' Registration Council of Nigeria (LRCN) has established robust standards, there is a lack of "legislative bite." Non-professionals are often employed to run libraries, and the 10% library component of the TETFund intervention is frequently diverted to other institutional needs.

Emerging Trends: Signals of Transformation

Despite the constraints, Nigerian librarianship is witnessing a "quiet revolution" driven by global trends adapted to local needs: Library 4.0 and 5.0 (Intelligence & Personalisation): transitioning from the 4th Revolution (Automation) to the 5th Revolution (Human-Machine Partnership). We see the emergence of Smart Libraries, where AI-driven chatbots provide 24/7 reference support to "Gen Z" students who prefer instant, mobile-first information (Okwu et al., 2025).

The "Makerspace" Movement: Libraries are being repositioned as innovation hubs. Rather than quiet reading rooms, academic libraries increasingly feature 3D printers, coding labs, and collaboration zones, supporting SDG 9 (Industry & Innovation) (Ekong et al., 2024).

Open Science and Global Visibility: There is a surge in the use of Institutional Repositories (IRs) built on DSpace and Koha. This shift ensures that Nigerian research is no longer "hidden" and is part of the global open access movement, thereby enhancing the nation's research visibility.

Green Librarianship: Emerging between 2024 and 2026, the "Green Library" concept emphasises sustainable building practices and community education on climate resilience, aligning with SDG 13 (Climate Action) (Ajani et al., 2024).

Repositioning Libraries' Contribution to Sustainable National Development in Nigeria

In the context of the United Nations Sustainable Development Goals (SDGs) and Nigeria's own national development agendas, a repositioned library serves as critical infrastructure for human capital development.

Driving Quality Education and Lifelong Learning (SDG 4)

Repositioning Nigerian libraries from passive storehouses to dynamic digital resource centres directly advances sustainable development by democratizing access to quality education. In a country where premium academic journals and textbooks are financially out of reach for most students and researchers, a modernised library ecosystem acts as a critical equaliser. By establishing robust open-access institutional repositories and consortia-based access to global databases, libraries eliminate geographic and financial barriers to knowledge. Furthermore, public libraries that are repositioned as community learning centres provide out-of-school youths and adult learners with free access to literacy programs and educational materials, building the foundational human capital required to sustain a developing economy.

Fostering Digital Literacy and the Information Economy (SDG 8 & 9)

As Nigeria aggressively pursues a transition toward a digital economy, a repositioned library system serves as the primary gateway for digital inclusion. By equipping libraries with reliable internet connectivity, modern hardware, and spaces for tech collaboration, these institutions become community ICT hubs. Librarians, acting as information literacy experts, can bridge the severe digital divide by training citizens, particularly MSME operators, women, and unemployed

youth in critical skills ranging from basic computer literacy to advanced data management. This directly fuels sustainable economic growth and industrial innovation by providing a tech-savvy workforce capable of participating in the global digital marketplace.

Promoting Equitable Access to Information and Good Governance (SDG 16)

Sustainable national development is impossible without an informed citizenry and transparent governance. Repositioning the National Library of Nigeria and various state public libraries ensures that public policies, health guidelines, agricultural data, and legal frameworks are organised, preserved, and made easily accessible to the general public. When libraries actively curate and disseminate information on civic rights, public health (such as epidemic prevention), and modern agricultural practices to rural farmers, they empower communities to make informed decisions. This open access to information mitigates misinformation, fosters civic engagement, and builds accountability, which are the cornerstones of peace, justice, and strong institutions.

Preserving Indigenous Knowledge for Cultural Sustainability (SDG 11)

National development is not merely economic; it is deeply cultural. Nigeria possesses a rich heritage of indigenous knowledge systems in agriculture, medicine, history, and the arts that are currently at risk of disappearing due to a reliance on oral tradition. Repositioned libraries utilise modern digital preservation technologies such as audio-visual archiving, cloud storage, and metadata tagging to capture, document, and protect this indigenous knowledge. By transforming this localised data into searchable digital formats, libraries preserve Nigeria's cultural identity while providing a unique baseline of local data for sustainable research and development in indigenous pharmaceuticals and sustainable farming.

Discussion of Findings

The findings on the current state of Nigerian libraries reveal significant disparities across library sectors. While academic libraries have benefited from interventions such as the Tertiary Education Trust Fund, public and school libraries continue to face infrastructural decay, outdated collections, inadequate digital facilities, and unreliable power supply. These challenges justify the framework's Sectoral Infrastructure Standardisation pillar, which advocates for modernised learning spaces, digital facilities, and alternative energy solutions to improve service delivery.

The study also identifies persistent challenges related to funding, policy implementation, and professional skills development. Libraries remain heavily dependent on limited government funding, with minimal adoption of innovative financing models such as public-private partnerships. Additionally, many librarians lack competencies in digital librarianship, data management, and virtual service delivery. These findings support the framework's Capacity Building and Policy Advocacy pillar, which emphasises curriculum reform, continuous professional development, and stronger policies that prioritise digital literacy and technological competence.

Findings on the adoption of emerging technologies reveal a substantial gap between awareness and practical implementation. Although technologies such as Koha and DSpace are widely recognised for their benefits, their effective deployment is constrained by high bandwidth costs, inadequate technical support, and fragmented implementation efforts. In response, the framework's Digital Integration Blueprint proposes cloud-based systems and collaborative digital repositories that enable resource sharing and reduce technical and financial barriers, particularly for smaller libraries.

Finally, the study demonstrates that libraries remain an underutilised resource for national development. When effectively repositioned as information and innovation hubs, libraries can contribute significantly to educational advancement and economic growth. To maximise this potential, the framework's Socio-Economic Realignment pillar recommends aligning library services with national development priorities, particularly the National Digital Economy Policy and Strategy, thereby ensuring libraries become central contributors to sustainable development and national prosperity.

Conclusion

The theme "Our Future, Our Hope" is not merely a slogan; it is a call to action for the Nigerian library community. This paper demonstrates that, despite significant systemic challenges, including the digital divide and funding deficits, libraries in Nigeria remain the most critical infrastructure for sustainable national development. The "hope" for Nigeria lies in an informed citizenry, and that information can only be systematically provided through a repositioned library system.

Repositioning is no longer optional but a survival strategy. It demands a radical shift from traditional custodianship to active information leadership. If Nigerian libraries embrace digital transformation, prioritise human capital development, and forge strategic partnerships, they will cease to be seen as passive storehouses and instead emerge as dynamic engines of innovation. Ultimately, successful repositioning will empower Nigeria to achieve its sustainable development goals and secure a prosperous future for the next generation.

Recommendations

Based on the analysis and discussion presented in this study, the following recommendations are proposed to ensure the effective repositioning of Nigerian libraries for national sustainability. These recommendations align with the paper's core objectives:

1. Strategic Technological Integration

Adoption of the "Hybrid Library" Model: Institutional and public libraries must move beyond traditional physical storage. Prioritising the integration of digital resources with physical collections is essential. This includes investing in cloud-based library management systems and robust institutional repositories (IRs) to ensure that researchers and students have 24/7 access to information, regardless of their physical location.

2. Professional Re-Skilling and Competency Standards

Mandatory Tech-Driven CPD: To bridge the significant digital skills gap identified in this study, the Librarians' Registration Council of Nigeria (LRCN) and the Nigerian Library Association (NLA) should mandate Continuous Professional Development (CPD). Training should focus on high-impact areas such as Artificial Intelligence (AI) literacy, data analytics, and digital curation to ensure that librarians remain relevant in the 2026 global information economy.

3 Legislative Advocacy and Funding Integrity

Strict Policy Enforcement: There is an urgent need for proactive lobbying to safeguard library funding. Advocacy efforts should ensure that the 10% library component of the TETFund intervention and other state-level allocations are used exclusively for technological modernisation and collection development, rather than diverted to administrative overheads or non-library expenses.

4. Structural and Service Innovation

Creation of Innovation Hubs (Makerspaces): To revitalise the public's perception of libraries, physical spaces should be redesigned as collaborative hubs. By incorporating tools such as 3D printers, coding workshops, and high-speed internet, libraries can attract Nigeria's youth and directly support local entrepreneurship and the acquisition of technical skills.

Community-Centric Advocacy: Librarians must proactively "market" their relevance by designing programmes that address immediate societal problems. This includes launching health literacy campaigns or providing agricultural information services for rural farmers, thereby demonstrating the library's tangible value to policymakers and the community.

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Repositioning Library Orientation Programmes for Students' Information Literacy Skills in Federal Government Colleges in Rivers State, Nigeria

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Abstract

Library orientation programmes are essential initiatives designed to familiarize students with the resources, services, and facilities of school libraries, equipping them with the skills to locate, evaluate, and effectively use information for learning . This study explored the repositioning of library orientation programmes as a strategy for enhancing students' information literacy skills in Federal Government Colleges in Rivers State, Nigeria. The study was guided by **three research objectives** and **corresponding research questions.** The research adopted a descriptive survey design, the **population comprised six school librarians** drawn from the **three Federal Government Colleges in Rivers State,** and **census sampling technique was adopted. The data were analyzed using descriptive statistics,** specifically mean scores. The findings revealed that the **content of library orientation programmes** adequately introduced students to library sections, resources, rules, and material location processes, thereby supporting the development of basic information literacy skills. The study concluded that while library orientation programmes contribute positively to students' information literacy skills, their effectiveness is constrained by inadequate ICT integration. It was recommended that orientation programmes be **systematically strengthened, interactive instructional methods standardized,** and **ICT facilities fully integrated** to enhance effective library service delivery and students' information literacy skills in Federal Government College

Keywords: Library Orientation, Information Literacy, Information Literacy Skills, Federal Government Colleges, Rivers State

Introduction

In the contemporary educational landscape, mastery of information literacy is indispensable for students' academic success. Information literacy encompasses the ability to locate, evaluate, and effectively use information from diverse sources, including print and digital formats, to support learning, problem-solving, and lifelong learning (Onyeneke & Obichere, 2018). In school settings, especially in Federal Government Colleges in Nigeria, the library is a key institutional space where students can develop these competencies. However, mere access to books and electronic resources does not guarantee that students will use them effectively. Information literacy competencies are cultivated through structured interventions, of which library orientation programmes are fundamental.

Library orientation programmes are formal activities designed to introduce new users to the library's resources, services, facilities, and systems. These programmes typically include explanations of library rules and regulations, tours of the physical space, demonstrations of cataloguing systems, and instructions on accessing electronic resources. When thoughtfully delivered, orientation extends beyond mere awareness of resources; it lays the foundation for students' confidence in engaging with information environments (Haruna, Ajogwu, Alaku, & Saidu, 2024). They are frequently delivered as one-off sessions at the start of the academic year, are brief in scope, and rely heavily on didactic approaches that fail to build practical information skills (Adetola, 2024). As a result, many students complete orientation without the practical skills needed to locate, assess, and apply relevant information for academic tasks.

The deficit in effective orientation has tangible consequences, these challenges are structural and resource constraints commonly observed in Nigerian school libraries, including limited ICT infrastructure, inadequate staffing, and irregular implementation of orientation activities. For many students, orientation does not extend to practical instruction on digital catalogues, online databases, or critical evaluation of information sources skills that modern learners must possess in increasingly digital and information-rich environments (Ovokeyen & Emmanuel, 2019). This situation underscores the need for a comprehensive rethinking, or repositioning, of library orientation strategies to emphasize information literacy outcomes.

Repositioning library orientation involves shifting the focus from superficial introductions to purposeful, skills-based instruction that aligns with students' academic needs. It means incorporating interactive pedagogies, integrating ICT tools, and embedding critical thinking within orientation content. Such repositioning not only enhances students' competencies in handling information but also contributes to broader educational goals such as improved academic performance, self-directed learning, and lifelong engagement with information. Without systematic repositioning of orientation programmes, students are likely to remain ill-equipped for the demands of contemporary academic work.

Statement of the Problem

Library orientation programmes are intended to introduce students to library resources, services, facilities, and procedures to effectively meet their information needs. In theory, these programmes function as a foundational strategy to cultivate information literacy skills such as the ability to identify information needs, locate appropriate sources, critically evaluate information, and apply it to academic tasks. Information literacy is widely recognized as a key

determinant of academic achievement, lifelong learning, and effective use of information resources in any educational setting (Onyeneke & Obichere, 2018). In Federal Government Colleges in Rivers State, Nigeria, school libraries are expected to play a central role in fostering these competencies among students, positioning orientation programmes as critical interventions in the academic development process.

Despite the theoretical importance of library orientation programmes and the acknowledged relevance of information literacy, existing research evidence suggests persistent deficiencies in how orientation activities are planned and delivered in Nigerian educational contexts. Studies examining information literacy competencies among secondary school students in Nigeria show that learners often exhibit **low levels of information literacy skills**, with notable weaknesses in evaluating information, formulating search strategies, and distinguishing between credible and non-credible sources (Onyeneke & Obichere, 2018).

Despite these insights, there is limited empirical evidence on how library orientation programmes in **secondary schools** particularly Federal Government Colleges in Rivers State are repositioned to explicitly enhance **students' information literacy skills**. Existing programmes tend to be one-off, largely descriptive, and delivered with minimal interactive engagement or emphasis on practical information-handling competencies. As a result, students often complete these orientation sessions without the ability to independently navigate library systems, evaluate information quality, or apply information effectively in academic tasks. Hence this study, which seeks to find how repositioning library orientation programmes can enhance students' information literacy skills in Federal Government Colleges in Rivers State.

Purpose of the Study

The purpose of the study is to examine how repositioning library orientation programmes can enhance students' information literacy skills in Federal Government Colleges in Rivers State. Specifically, the study sought to:

1. To identify the content of library orientation programmes on students' information literacy skills in Federal Government Colleges in Rivers State.
2. To examine of instructional methods used in library orientation programmes on students' information literacy skills in Federal Government Colleges in Rivers State.
3. To determine Information Communication Technology integration in library orientation programmes on students' information literacy skills in Federal Government Colleges in Rivers State.

Research Questions

1. What is the content of library orientation programmes influence students' information literacy skills in Federal Government Colleges in Rivers State?
2. What are the instructional methods used in library orientation programmes on students' information literacy skills in Federal Government Colleges in Rivers State?
3. What Information Communication Technology are integrated in library orientation programmes impact students' information literacy skills in Federal Government Colleges in Rivers State?

Literature Review

Concept of Library Orientation Programmes

Library orientation programmes are designed to equip students with the skills to navigate library resources effectively. In Federal Government Colleges in Rivers State, Nigeria, orientation plays a critical role in fostering students' information literacy skills, which include the ability to locate, evaluate, and apply information for academic and research purposes (Onyeneke & Obichere, 2018). Despite its recognized importance, research shows that many orientation programmes in Nigerian secondary schools are brief, largely theoretical, and poorly integrated with practical instruction, limiting their impact on students' information competencies (Haruna, Ajogwu, Alaku, & Saidu, 2024).

Library orientation programmes are structured instructional activities designed to introduce users especially new students to library resources, services, facilities, and information retrieval procedures. It can be referred to the structured instructional elements delivered to new library users to familiarise them with the library's physical layout, resources, services, rules, and information retrieval processes. Citing Agboola and Aduku (2018), traditionally, orientation content in Nigerian school libraries has focused on basic awareness, including introductions to different sections of the library, opening hours, borrowing rules, and general conduct expectations While such content is necessary, it is no longer sufficient in an era where information literacy has emerged as a core educational outcome. These programmes function as a form of user education, equipping learners with the knowledge and confidence to navigate library systems efficiently. In academic settings, orientation may take the form of guided tours, demonstrations of cataloguing systems, explanations of borrowing policies, and explanations of electronic database access. The ultimate goal is to ensure students can independently locate, evaluate, and use information for academic tasks.

However, it frequently lacks depth in content and fails to move beyond basic introductions to meaningfully influence students' information behaviors (Haruna, Ajogwu, Alaku, & Saidu, 2024). *Library orientation programmes are therefore not always successful in building practical competencies for information use, especially in environments where resources are under-utilized or where interactive instructional strategies are limited.*

Core Elements of Library Orientation Content

1. **Introduction to library organisation and classification systems**: Students' ability to locate information independently depends heavily on their understanding of how library materials are organised. Afolabi and Aragbaye (2022), however opined that poor knowledge of classification schemes and shelving systems remains a major barrier to effective information retrieval.
2. **Awareness of information resources and formats**: This constitutes a critical aspect of orientation content. Nigerian school libraries typically house a range of resources, including textbooks, reference materials, newspapers, magazines, atlases, and, increasingly, digital resources. However, in a study conducted by Adeeko (2021) shows that students often limit their use to a narrow range of materials due to inadequate awareness
3. I**nstruction on information search strategies**: This has been identified as a key but often neglected component of orientation content. According to Abubakar (2021), it was revealed that many Nigerian secondary school students rely on trial-and-error methods when searching for information, both in print and digital environments.
4. **Guidance on evaluating information sources:** This is increasingly critical in the digital age. The proliferation of online information has intensified concerns about misinformation, poor-quality sources, and unethical information use. Although evaluation skills are rarely emphasised in traditional orientation programmes, Nigerian scholars argue that early exposure to criteria for assessing authority, accuracy, relevance, and currency of information can strengthen students' academic judgment.
5. **Instruction on ethical and responsible use of information**, including citation practices and avoidance of plagiarism, has emerged as an essential component of modern orientation programmes. The widespread challenges with plagiarism and improper attribution, often linked to lack of early instruction (Mulenga & Shilongo, 2024). Orientation programmes that address ethical information use at an early stage help instill academic integrity and responsible scholarship habits.

Information Literacy

Information literacy refers to a set of cognitive and practical skills that enable individuals to recognize when information is needed and to identify, locate, evaluate, and use that information effectively and ethically. It is widely considered a cornerstone of academic success, lifelong learning, and effective participation in an information-rich society. Information literacy skills refer to the ability to recognise information needs and to locate, evaluate, organise, and use information effectively and ethically. In the Nigerian educational context, information literacy has gained increasing attention due to curriculum reforms, examination demands, and the integration of digital technologies into teaching and learning. Nigerian researchers conceptualise information literacy as a multidimensional construct encompassing information identification, access, evaluation, application, and ethical use. These dimensions align closely with international models such as the Association of College and Research Libraries framework, but they are interpreted within the realities of Nigerian school environments, where access to resources and trained librarians varies widely.

A study by Owolabi, Adekunle, and Olaseigbe (2023) found that students with higher levels of information literacy demonstrated better study habits, improved assignment quality, and greater independence in learning tasks. However, these studies also highlight that many students lack foundational information skills due to insufficient instructional interventions at the school level. Information literacy is not limited to higher education; it has relevance at all levels of schooling. Secondary students who develop strong information literacy skills demonstrate improved academic performance, greater autonomy in research tasks, and enhanced critical thinking abilities (Babarinde & Adesina, 2023). Such evidence points to the critical role that library programmes especially orientation play in initiating students into meaningful information practices early in their educational journey.

Relationship between Library Orientation and Information Literacy

Research consistently points to a positive relationship between structured orientation programmes and students' acquisition of information literacy competencies. When orientation programmes are designed to move beyond mere awareness and incorporate active instruction on information search strategies, evaluation of sources, and use of digital tools, students show significantly better skills in locating and using library resources In the Nigerian context, studies among tertiary students reveal similar concerns. For Nigerian postgraduate students, Pelemo, Onanuga, Ilori, and Ugbala (2020) found that the absence of formal orientation and information literacy training led to low proficiency in accessing online catalogues and electronic databases, suggesting that orientation programmes must be deliberately paired with instruction on information literacy skills to be effective. Although these studies are rooted in tertiary contexts, the implications for secondary education are clear: **without intentional orientation designed to develop information literacy, students are likely to struggle with independent information seeking and research tasks**, even where library resources exist. Orientation that is superficial or one-dimensional fails to support the development of competencies necessary for 21st-century learning.

Instructional Methods in Orientation Programmes

The instructional methods used in library orientation significantly affect students' engagement and learning outcomes. Traditional approaches primarily lecture-based sessions or passive tours are insufficient for developing practical skills. Instead, active learning strategies such as demonstrations, hands-on workshops, small group sessions, and integrated

ICT instruction are more effective in encouraging participation and skill acquisition (Haruna et al., 2024). For example, guided demonstrations of search techniques and electronic database navigation give students practical experience rather than abstract knowledge. The professional literature also suggests that instructional methods which involve learners interactively lead to greater retention and use of information skills, supporting the argument for student-centered, practice-oriented orientation design.

ICT Integration in Library Orientation

The integration of information and communication technologies (ICT) into library orientation programmes is a growing area of emphasis, particularly given the shift toward digital information environments. Technologies such as online catalogues (OPAC), e-databases, multimedia presentations, and virtual tours can make orientation more accessible and engaging. ICT tools not only support delivery but also constitute essential elements of information literacy itself, as students must learn to use them to access, evaluate, and apply digital information (Owolabi et al., 2022). However, research indicates that **ICT integration in orientation remains inconsistent in many Nigerian and African educational settings**. Challenges such as limited internet connectivity, inadequate computer facilities, and insufficient librarian training constrain the effective use of ICT in orientation and information literacy instruction. This suggests that repositioning orientation programmes requires addressing both pedagogical and infrastructural barriers to effective ICT use.

Methodology

The research adopted a descriptive survey method. The population of the study consists of Six School librarians from the three federal government colleges in Rivers State. Census sampling was used for this study since the population is not large, Data were collected using structured questionnaires titled “Repositioning Library Orientation Programme for Student Information Literacy Skills Questionnaire” (RLOPSILSQ). It was analyzed using descriptive statistics. Using a rating scale of 4,3,2,1 with a range of 2.50 was used to determine if the mean score indicates agree or disagree. Mean scores above 2.50 indicate "Strongly Agree" while mean scores below 2.50 indicate "Strongly Disagree”.

Results

Research Question 1: What is the content of library orientation programmes influence students’ information literacy skills in Federal Government Colleges in Rivers State?

Table 1: Mean Response on Content of library orientation programmes

S/N	Content of library orientation programmes	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Remarks
1.	The library orientation programme introduces students to different sections of the library.	4	2	0	0	3.67	**Agree**
2	The orientation programme explains the types of information resources available in the library.	3	3	0	0	3.50	**Agree**
3	The orientation programme explains the rules and regulations guiding library use.	5	1	0	0	3.83	**Agree**
4	The orientation programme teaches students how to locate library materials.	4	2	0	0	3.67	**Agree**
5	The orientation programme explains how library facilities should be used.	3	2	1	0	3.33	**Agree**

Source: Field Data, 2026

Table 1 presents respondents’ views on the content of library orientation programmes in Federal Government Colleges in Rivers State. Specifically, the item on introducing students to different sections of the library recorded a mean score of **3.67**, the explanation of types of information resources available in the library had a mean score of **3.50**, The highest mean score **3.83** was recorded for the explanation of library rules and regulations, showing that orientation programmes strongly emphasize library use policies. Teaching students how to locate library materials also received a high mean score of **3.67**, guidance on the use of library facilities recorded a mean score of **3.33**, which, though lower than other items, still reflects general agreement.

Research Question 2: What are the instructional methods used in library orientation programmes on students’ information literacy skills in Federal Government Colleges in Rivers State?

Table 2: Mean Response on Instructional methods used in library orientation programmes

S/N	Instructional Methods Used for Library Orientation	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Remarks
1	The library orientation programme is delivered through lectures.	2	3	1	0	3.17	**Agree**
2	Librarians demonstrate how to use library resources during orientation.	4	2	0	0	3.67	**Agree**
3	Students are taken on guided tours of the library during orientation.	5	1	0	0	3.83	**Agree**
4	Students are given opportunities to practice using library resources during orientation.	2	3	1	0	3.17	**Agree**
5	Students are allowed to ask questions during the orientation programme.	5	1	0	0	3.83	**Agree**

Source: Field Data, 2026

Table 2 shows respondents' perceptions of the instructional methods used in delivering library orientation programmes. The use of lectures to deliver orientation recorded a mean score of **3.17**, Demonstration of library resource use by librarians recorded a mean score of **3.67**, while guided tours of the library had a mean score of **3.83**, showing strong agreement that these methods are widely used. Opportunities for students to practice using library resources during orientation recorded a mean score of **3.17**, and allowing students to ask questions during orientation also recorded a high mean score of **3.83**, indicating an interactive learning environment.

Research Question 3: What Information Communication Technology are integrated in library orientation programmes impact students' information literacy skills in Federal Government Colleges in Rivers State?

Table 3: Mean response ICT integration in library orientation programmes

S/N	Use of ICT in Library Orientation Programme	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Remarks
1	Computers are used during orientation to demonstrate resource access.	1	1	2	2	2.17	**Disagree**
2	Slides are used during orientation.	0	0	3	3	1.50	**Disagree**
3	Students are taught how to use digital online databases.	1	1	3	1	2.33	**Disagree**
4	Internet-based materials are used to support the orientation programme.	1	1	4	0	2.50	**Agree**
5	Audiovisual equipment is used during the library orientation programme.	1	1	2	2	2.17	**Disagree**

Source: Field Data, 2026

Table 3 presents data on the extent of ICT integration in library orientation programmes. The use of computers to demonstrate access to library resources recorded a mean score of **2.17**, showing disagreement among respondents. Similarly, the use of multimedia tools such as slides or videos had a very low mean score of **1.50**, indicating that such tools are rarely used. Instruction on the use of digital online databases also recorded a low mean score of **2.33**. Internet-based materials used to support orientation recorded a mean score of **2.50**, which marginally suggests agreement, but remains low compared to other components. The use of audiovisual equipment during orientation also recorded a low mean score of **2.17**, further confirming inadequate ICT integration.

Discussion of Findings

Content of Library Orientation Programmes and Students' Information Literacy Skills

Findings from Table 1 revealed that the content of library orientation programmes positively influences students' information literacy skills. The majority of respondents agreed that orientation programmes introduce students to different sections of the library, explain available information resources, teach procedures for locating materials, and clarify library rules and regulations. The high mean scores recorded for these items indicate that orientation content is sufficiently structured to support students' understanding of library organization and resource use. This finding aligns with the study by Onyeneke and Obichere (2018), who reported that students' information literacy competencies improve when they are adequately exposed to structured guidance on library resources and information access

procedures. Similarly, Babarinde (2023) found that students who are properly introduced to library resources and services demonstrate better information-seeking behavior and improved academic engagement. The result further supports the assertion by Pelemo, Onanuga, Ilori, and Ugbala (2020) that well-designed orientation content enhances users' ability to locate and use information resources effectively.

Findings from Table 2 showed that instructional methods used in library orientation programmes have a positive influence on students' information literacy skills. Respondents agreed that librarians employ lectures, demonstrations, guided tours, and interactive sessions during orientation. Higher mean scores were recorded for demonstrations, guided tours, and opportunities for interaction, indicating that practical and learner-centered methods are commonly used. This result supports the findings of Haruna, Ajogwu, Alaku, and Saidu (2024), who observed that students develop better information retrieval skills when orientation programmes incorporate demonstrations and guided practice rather than relying solely on lectures. Likewise, Okafor (2024) reported that interactive instructional strategies during orientation significantly enhance students' understanding and use of library resources.

The study's finding suggests that instructional methods that encourage participation and hands-on practice are effective in developing students' information literacy skills. However, the moderate mean scores recorded for practical engagement indicate that such methods may not be consistently applied across all orientation sessions. Strengthening interactive instructional approaches could further improve students' competence in locating and evaluating information.

ICT Integration in Library Orientation Programmes

Findings from Table 3 revealed that ICT integration in library orientation programmes is generally low. Respondents disagreed that computers, multimedia tools, online databases, and audiovisual equipment are adequately used during orientation. The low mean scores indicate that orientation programmes rely predominantly on traditional instructional methods, with minimal exposure to digital information tools. This finding is consistent with the observations of Pelemo et al. (2020), who found that limited exposure to electronic resources during orientation contributes to low digital information literacy among students. Similarly, Babarinde (2023) reported that inadequate ICT facilities and limited digital instruction hinder students' ability to develop comprehensive information literacy skills. The result also aligns with Haruna et al. (2024), who identified poor ICT integration as a major challenge affecting the effectiveness of orientation programmes in Nigerian educational institutions.

Conclusion

This study examined the repositioning of library orientation programmes for enhancing students' information literacy skills in Federal Government Colleges in Rivers State, Nigeria. The findings revealed that library orientation programmes play a significant role in supporting students' ability to locate, evaluate, and use information for academic purposes. Specifically, the study established that the content of library orientation programmes is generally adequate and positively contributes to students' understanding of library resources, services, and usage procedures. The study revealed that ICT integration in library orientation programmes is inadequate. The limited use of computers, multimedia tools, online databases, and internet-based resources indicates a reliance on traditional instructional methods. The findings underscore the need to reposition library orientation programmes by strengthening content delivery, standardizing interactive instructional methods, and integrating ICT tools.

Recommendation

1. Library orientation content should be systematically strengthened and regularly reinforced to ensure students gain comprehensive knowledge of library resources, services, and information access procedures.
2. Librarians should emphasize demonstrations, guided tours, and hands-on practice to enhance students' engagement and practical understanding of information retrieval and library use.
3. Federal Government Colleges should provide adequate ICT facilities and incorporate training on digital catalogues, online databases, and internet-based resources to improve students' digital information literacy skills.

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Re-skilling Information Professionals for Sustainable and Innovative Library Services in Emerging Technologies in Nigeria

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Abstract

Rapid advances in information and communication technologies are compelling information professionals to adapt quickly in order to remain relevant in the digital era. This study highlights the rapid adoption of emerging technologies in library operations, including artificial intelligence (AI), cloud computing, integrated library management systems (ILMS), virtual reference services, and data analytics. The paper also examines the skills, knowledge, and competencies required to equip library and information science professionals for effective service delivery in emerging technologies. It further addresses challenges such as infrastructural and institutional barriers that hinder capacity building. The study proposes a comprehensive re-skilling framework encompassing continuous professional development, curriculum reform, policy advocacy, and consortium-based resource sharing. It concludes that empowering Nigerian librarians with future-focused competencies is critical for achieving resilient, inclusive, and technologically advanced library services aligned with a sustainable future for librarianship in Nigeria.

Keywords: Librarianship, information professionals, Re-Skilling, sustainable, emerging technologies

Introduction

Libraries worldwide are undergoing profound transformations, fuelled by digital technologies, artificial intelligence (AI), and evolving user expectations. In Nigeria a country with a burgeoning youth population and significant educational ambitions, libraries serve as critical nodes for research, lifelong learning, and national development. Yet, for libraries in Nigeria to fully contribute to the knowledge economy, their workforce must evolve with global information trends.

Libraries are no longer limited to traditional functions of book acquisition, preservation and circulation. They now provide digital repositories, virtual reference services, research support, information literacy training and smart discovery systems (Igbo *et al*., 2024). Nigerian university libraries have also begun integrating emerging technologies such as artificial intelligence, big data analytics and machine learning to improve information retrieval and accessibility (Achugbue, 2024).

Despite these developments, the adoption rate remains slow due to inadequate infrastructure, limited funding and shortages of digitally competent personnel (Odigie, 2024). Library and information science (LIS) professionals must therefore develop competencies in the digital literacy, data management, automation and AI applications to remain relevant in the rapidly changing environment. Continuous professional development is essential in preparing librarians for modern service demands (Akpukpu and Osawele, 2025).

Consequently, re-skilling has become essential for enhancing the capacity of information professionals to adapt to changing technologies and evolving user expectations. It is against this background that this paper examines the emerging technologies shaping library service delivery, the competencies required by information professionals, strategies for continuous professional development and re-skilling and the challenges affecting the successful implementation of re-skilling initiatives in Nigeria libraries.

Statement of the problem

Technological advancement has placed information professionals under increasing pressure to deliver modern, efficient and user-centred services. Technologies such as artificial intelligence, cloud computing, big data analytics, digital repositories and automation tools are increasingly being integrated into library services to improve efficiency, accessibility and user satisfaction. As a result, information professionals are expected to possess the knowledge and skills required to effectively utilise these technologies in meeting the evolving information needs of users.

However, many libraries in Nigeria continue to face challenges in adapting to these technological changes. While emerging technologies are becoming integral to modern library services, a significant number of information professionals (Ubogu, 2022; *Igbo et al*.,2024).

The Situation is further complicated by challenges such as inadequate funding, poor technological infrastructure, limited training opportunities, policy constraints and resistance organisational change. These challenges often hinder the ability of information professionals to acquire new competence and adapt to technological innovations, if these issues are not adequately addressed, libraries may struggle to remain relevant in the digital age and may be unable to provide the quality services expected by contemporary users.

Despite increasing discussions on emerging technologies and digital transformation in libraries, there remains a need to examine the competencies required by information professionals, the strategies that can support effective re-skilling and the challenges affecting the implementation of re-skilling initiatives. Therefore, this paper seeks to explore emerging technologies relevant to library service delivery, identify the competencies required by information professionals, examine strategies for continuous professional development and re-skilling, and highlight the challenges affecting re-skilling efforts in Nigerian libraries.

Objectives of the Study

Specifically, the objectives are to:

i. identify emerging technologies relevant to library service delivery.
ii. examine essential skills and competency required by information professionals in emerging technologies
iii. Suggest effective strategies for continuous professional development and re-skilling
iv. Highlight challenges affecting re-skilling initiatives in Nigerian libraries.

Methodology

This study adopted a descriptive review approach. Relevant literature was sourced from scholarly journals, conference proceedings, books and reports on emerging technologies, reskilling and library service delivery. The collected literature was analysed thematically based on the objectives of the study.

Literature Review

Emerging Technologies Relevant to Library Service Delivery

Objective 1: Identify emerging technologies relevant to library service delivery

Libraries today have the opportunity to utilise a wide range of modern technologies to improve their operations and services delivery. Emerging technologies refer to innovative tools and systems that have gained considerable acceptance and are increasingly being adopted across various sectors, including libraries. These technologies support different aspects of library operations such as user services, information literacy instruction, technical services and library management.

The integration of emerging technologies has created significant opportunities for libraries worldwide to enhance access to information resources and improve the quality of services offered to users. In many developed countries, libraries have successfully adopted technologies such as Chatbots, Natural Language Processing, Semantic engines, Machine Learning and Institutional Repositories.

Nigerian libraries are beginning to adopt and explore emerging technologies such as

Artificial Intelligence (AI) and Machine Learning, Cloud Computing, Integrated Library Management Systems (ILMS), Blockchain, Internet of Things (IoT), Data Analytics, Virtual and Augmented Reality (VR/AR) and Robotics and Automation.

The adoption of emerging technologies can help libraries meet evolving information needs of users, improve operational efficiency and remain relevant in the digital age. This paper examines the concept of emerging technologies and their applications in library and information services through a review of existing literature.

Artificial Intelligence (AI) refers to the ability of computer systems and machines to perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving and decision-making. AI has emerged has one of the most transformative technologies of the twenty-fist century and is increasingly being adopted across various sectors, including education and library services. In libraries, AI technologies are being utilised to improve information retrieval, automate routine tasks, enhance user experience and support decision-making processes.

According to Igbo *et al*. (2024), the adoption of AI in academic libraries has potential to revolutionise service delivery through intelligent systems capable of providing personalised information services and improving access to information resources. AI-Powered tools such as chatbots, recommendation systems and automated cataloguing applications enable libraries to respond more efficiently to users' information needs. These technologies reduce time required for information retrieval and improve user satisfaction.

According to Igbo *et al*. (2023), Nigerian academic libraries that leverage big data analytics can enhance research support services, resource allocation, and digital content recommendations based on user engagement trends. Virtual reality (VR) and augmented reality (AR) are also emerging as innovative tools in libraries, offering immersive learning experiences and interactive engagement with digital collections. For example, VR-based archival tours provide users with an interactive way to explore historical documents and cultural artifacts without physical constraints. Blockchain technology is being explored in some libraries to enhance security, authentication, and data integrity in digital repositories. This technology ensures transparent and tamper-proof record-keeping, particularly in managing digital rights and preserving intellectual property. As these technologies continue to evolve, information professionals must embrace digit a l transformation through strategic training and policy adaptation. (Achugbue, 2024).

The adoption of these technologies can enhance efficiency, user satisfaction and sustainability, but their successful implementation depends largely on competent personnel and institutional readiness (Akpukpu and Osawele, 2025; Odigie, 2024).

These technologies enhance service efficiency, user experience, and sustainability, but require trained professionals to implement and maintain them.

AI-powered chatbots are increasingly used in libraries to provide instant responses to user queries, thereby improving reference services. Automated cataloguing systems leverage AI and machine learning algorithms to classify materials more efficiently, reducing the time and effort required for manual cataloguing. Additionally, predictive analytics tools help libraries assess user behaviour and anticipate information needs, enabling proactive and tailored service delivery. However, challenges such as inadequate funding, poor ICT infrastructure, lack of technical expertise, ethical concerns and resistance to change continue to hinder its widespread adoption in many Nigerian libraries. Despite these challenges, AI remains a critical emerging technology that can significantly contribute to sustainable and innovative library services delivery when supported by appropriate polices, infrastructure and professional training.

Essential Skills and Competency Required by Information Professionals

Objective 2: Competencies Required by Information Professionals in emerging technologies in Nigeria

Reskilling refers to the process of learning new competencies required for changing professional roles, technological environments, or labour market demands. It differs from upskilling, which focuses on improving existing knowledge and capabilities. Re-skilling prepares workers for new tasks and responsibilities created by innovation and automation (Akinola, 2023). In the library context, re-skilling involves preparing professionals to work with new systems, platforms, tools and service models. This includes training in integrated library management systems, metadata creation, digital repositories, AI- assisted reference services, research data management and virtual user support (Igbo *et al*.,2024)

In 2019, PricewaterhouseCoopers; a multi-national company that provides its services to more than 80% of the Global Fortune 500 companies, announced a three-billion-dollar investment on training and development programs for existing employees. Joe Atkinson, the vice-chair, claims that employees not only get to apply their new skills but also learn from one another in the process.

In the modern age of technology and automation, an assurance is that while jobs will be both made redundant as well as created, any individual regardless of age will either be required to reskill or upskill one's expertise. Performance reviews work well to pick areas of work and talent mobility programs allow the employer to receive the possible skills the employee wants to develop and then appropriately place him in an area that will produce the desired results.

To function effectively in technology-driven libraries, information professionals require a broad-mix of technical, managerial, pedagogical and ethical competencies.

1. Technological and Digital Literacy Competencies: Digital competency has become increasingly important for professionals working in today's technology-driven environment. The concept goes beyond the ability to use computers and digital devices. It includes the knowledge, skills, attitudes and ethical considerations required to use digital technologies effectively in professional practice. Falloon (2020) noted that digital competencies involve information management, communication, collaboration, problem-solving and the responsible use of digital technologies. Falloon (2020) further argued that digital competencies should not be viewed only as technical ability but as a combination of technical, cognitive and social skills that enable individuals to function effectively in digital environments. This suggests that librarians need continuous training and professional development to remain relevant in an era characterised by rapid technological change. Developing digital competencies will enable information professionals to effectively utilise emerging technologies and enhance the quality of library services.

Information professionals must develop proficiency in contemporary technologies including Artificial Intelligence (AI), Machine Learning, cloud computing, and Integrated Library Management Systems (ILMS). The implication of this study for Nigerian libraries is that librarians can no longer rely solely on traditional professional skills. There is a need for continuous acquisition of digital and technological competencies to effectively manage modern library services and emerging technologies.

2. Data Management and Analytical Competencies

The growing use of digital technologies in libraries has increased the importance of data management and analytical competencies among information professionals. Modern libraries generate and manage large volumes of data relating to users, collections, services, and research activities. Consequently, librarians require the knowledge and skills needed to collect, organize, analyse, interpret, and utilize data for effective decision-making and service improvement.

Ahmad *et al* (2019) examined the competencies and skills required by academic librarians for the implementation of big data analytics in libraries. Their study revealed that librarians need competencies in data management, statistical analysis, information technology, problem-solving, and critical thinking to effectively utilize big data technologies. The authors further noted that these competencies enable librarians to extract meaningful insights from data, improve service delivery, support institutional decision-making, and enhance user satisfaction.

In contemporary library environments, data management competencies extend beyond the traditional organization of information resources. It includes research data management, bibliometric analysis, data curation, and the use of analytical tools to assess user behaviour and information needs. As academic libraries continue to support research and knowledge creation, librarians must develop analytical capabilities that will enable them to provide evidence-based services and contribute to institutional research goals. Therefore, strengthening data management and analytical competencies is essential for information professionals seeking to remain relevant in an increasingly data-driven information environment.

3. Digital Preservation and Curation Competencies

The increasing digitization of information resources has made digital preservation and curation an important area of competencies for information professionals. Libraries are now responsible for managing a wide range of digital materials, including electronic publications, institutional repositories, research data, and digitized archival collections. To ensure the long-term accessibility and usability of these resources, librarians require specialized knowledge and skills in digital preservation and curation.

Feng and Richards (2018) examined the professional competencies required for effective digital curation and observed that digital curation involves more than the storage of digital resources. According to the authors, professionals engaged in digital curation require competencies in metadata creation, digital preservation planning, repository management, information organization, and technology management. They further emphasized the importance of communication, collaboration, and continuous professional development in responding to the changing nature of digital information environments.

In the library context, digital preservation and curation competencies enable information professionals to maintain the authenticity, accessibility, and long-term value of digital resources. These competencies are particularly important in academic libraries where institutional repositories, electronic theses and dissertations, and research datasets require proper management and preservation. As digital collections continue to grow, librarians must continuously update their knowledge and skills to effectively manage and preserve information resources for present and future users.

4. Cybersecurity and Information Ethics Competencies

The increasing use of digital technologies in libraries has heightened concerns about the security of information resources and the protection of users' data. As libraries continue to adopt digital platforms, cloud-based services, and online information systems, information professionals must possess the competencies required to identify, prevent, and respond to cybersecurity threats. Cybersecurity competencies involve understanding information security principles, data protection measures, risk management practices, and strategies for safeguarding digital resources.

Pasipamire (2025) emphasized the importance of building a strong culture of cybersecurity awareness within libraries. Through a review of best practices and existing frameworks, the study found that effective cybersecurity management requires not only technological solutions but also continuous education and awareness among library staff. The author noted that information professionals play a critical role in promoting secure information practices, protecting users' privacy, and ensuring the confidentiality and integrity of digital resources.

In addition to technical knowledge, librarians are expected to demonstrate ethical responsibility in the management and use of information. Information ethics competencies include respecting intellectual property rights, protecting confidential user information, ensuring equitable access to information, and promoting the responsible use of digital technologies. As libraries increasingly operate in digital environments, the ability of information professionals to combine cybersecurity awareness with ethical decision-making has become essential for maintaining users' trust and ensuring the safe delivery of library services.

The findings of Pasipamire (2025) suggest that cybersecurity should be viewed as a shared responsibility within libraries rather than solely an information technology function. Consequently, continuous training and professional development are necessary to equip librarians with the knowledge and skills required to address emerging security challenges in contemporary library environments.

Objective 3: Suggest effective strategies for continuous professional development and re-skilling

Reskilling Nigerian librarians requires a multi-pronged, systematic approach that combines education, professional development, institutional support, and collaboration with stakeholders. Effective strategies must target both pre-service (LIS students) and in-service (practicing librarians) populations.

Curriculum Reform in Library and Information Science Education

The rapid advancement of emerging technologies has created the need for continuous review and restructuring of Library and Information Science (LIS) curricula. As libraries increasingly adopt technologies such as artificial intelligence, data analytics, cloud computing, and digital repositories, there is growing concern about whether LIS education is adequately preparing graduates for the changing information environment.

Oladokun and Olatokun (2026) investigated the integration of emerging technologies into LIS education in Nigeria and found significant gaps between existing curricula and the competencies required in contemporary library practice. The study revealed that the inclusion of emerging technologies in many Nigerian LIS programmes remains limited and largely introductory, with advanced areas such as artificial intelligence, data science, and cloud computing receiving inadequate attention. The authors attributed this situation to factors such as inadequate infrastructure, limited staff capacity, weak collaboration between academia and industry, and policy-related challenges.

The study further emphasized the need for curriculum reform to ensure that graduates acquire the knowledge and practical skills required in technology-driven library environments. Recommended measures include the introduction of emerging technology courses, increased practical training, staff retraining, stronger industry partnerships, and investment in digital infrastructure. According to the authors, these reforms are necessary to bridge the gap between library education and professional practice and to ensure that future information professionals remain relevant in the digital age.

The findings suggest that curriculum reform should be viewed as an important strategy for re-skilling information professionals in Nigeria. Updating LIS curricula to reflect current technological realities will better prepare librarians to deliver innovative and sustainable library services in an increasingly digital information environment.

Continuous Professional Development

Continuous Professional Development (CPD) is widely recognized as an effective strategy for improving professional competencies and adapting to changes in the workplace. In the library profession, CPD enables information professionals to update their knowledge, acquire new technological skills, and remain responsive to emerging trends in information service delivery. As libraries increasingly adopt digital technologies, continuous learning has become essential for maintaining professional relevance and service quality. Ambon *et al* (2024) examined the impact of continuous professional development on professional performance through a systematic review. The study found that participation in professional development activities contributes significantly to improved knowledge, skills acquisition, confidence, and overall effectiveness in professional practice. The authors observed that regular training opportunities help professionals adapt to changing work environments and enhance their ability to implement new ideas and technologies.

The findings of the study have important implications for information professionals in Nigeria. As emerging technologies continue to reshape library operations and services, librarians must engage in continuous learning through workshops, conferences, seminars, online courses, and professional certification programmes. Such opportunities provide avenues for acquiring competencies in areas such as artificial intelligence, data management, digital preservation, and cybersecurity.

Therefore, continuous professional development should be regarded as a critical component of re-skilling initiatives aimed at preparing information professionals for sustainable and innovative library service delivery. Investment in CPD will not only improve individual competencies but also strengthen the overall capacity of libraries to meet the evolving information needs of their users.

Institutional Partnerships and Collaboration

Collaboration has become increasingly important in addressing the challenges facing libraries and information professionals. As technological developments continue to transform library services, libraries can no longer operate in isolation. Partnerships with academic departments, information technology units, research centres, professional associations, and external organizations provide opportunities for knowledge sharing, capacity building, and innovation. Pellen and Miller (2012) emphasized the importance of creative collaborations within institutions as a means of strengthening library services and enhancing organizational effectiveness. The authors argued that collaborative relationships enable libraries to leverage available expertise, share resources, and develop innovative solutions to emerging challenges. Through such partnerships, libraries are better positioned to respond to changing user needs and institutional priorities.

In the context of re-skilling information professionals, institutional collaboration can provide access to specialized training, technical support, and practical learning opportunities. Partnerships between libraries and information technology units, for example, can facilitate training in emerging technologies such as artificial intelligence, data analytics, and digital repository management. Similarly, collaboration with professional associations and academic institutions can support continuous professional development initiatives and promote the exchange of knowledge and best practices.

The study suggests that strengthening collaborative networks is an important strategy for enhancing the competencies of information professionals and supporting sustainable library service delivery. By working closely with relevant stakeholders, libraries can create an environment that encourages continuous learning, innovation, and professional growth.

Challenges to an effective library delivery to Reskilling information professionals in Nigeria

Objective 4: Highlight Challenges affecting re-skilling initiatives among information professionals and Librarians in Nigeria

Policy and Infrastructural Challenges

The successful adoption of emerging technologies and implementation of re-skilling programmes depend largely on the availability of supportive policies and adequate infrastructure. Without clear institutional policies, reliable technological facilities, and an enabling environment, libraries may struggle to provide equitable access to information resources and innovative services.

Fakoyede *et al*. (2026) examined the challenges affecting equitable access to library resources in tertiary institutions. Their study identified policy constraints, infrastructural deficiencies, and socio-cultural barriers as major factors limiting effective access to library services. The authors observed that inadequate technological infrastructure, weak policy implementation, and unequal access to digital resources continue to hinder the ability of libraries to meet the diverse information needs of users. The study further emphasized the need for strategic policies, improved infrastructure, and inclusive practices to promote effective service delivery. The findings are relevant to Nigerian libraries where efforts to re-skill information professionals are often constrained by similar challenges. In many institutions, inadequate ICT facilities, unstable internet connectivity, insufficient funding, and weak policy frameworks limit opportunities for training and technology adoption. Consequently, librarians may find it difficult to acquire and apply the competencies required for emerging technologies. Addressing these challenges is therefore essential for enhancing professional development, improving access to information resources, and ensuring sustainable library service delivery.

Inadequate Funding

Funding remains one of the major challenges confronting libraries in developing countries. The availability of adequate financial resources determines the ability of libraries to acquire modern technologies, develop infrastructure, organize staff training programmes, and provide quality services to users. Where funding is insufficient, libraries often struggle to meet both their operational and developmental needs.

Kakiri *et al*. (2024) examined the impact of poor funding on the performance of academic libraries using the Federal University Otuoke Library as a case study. The study revealed that inadequate funding negatively affects collection development, acquisition of information resources, technological advancement, staff development, and overall service delivery. The authors noted that limited financial resources restrict the ability of libraries to invest in modern facilities and professional capacity-building programmes needed to meet contemporary information demands.

The findings have significant implications for the re-skilling of information professionals in Nigeria. Continuous professional development, technology training, conference attendance, and certification programmes require substantial financial support. When libraries operate under severe budget constraints, opportunities for staff development become limited, making it difficult for librarians to acquire competencies in emerging technologies such as artificial intelligence, data analytics, cloud computing, and digital preservation. Consequently, inadequate funding not only affects library operations but also slows the development of the skilled workforce required for sustainable and innovative library services.

Resistance to Change and Technology Adoption

The successful adoption of emerging technologies in libraries depends not only on the availability of technological resources but also on the willingness of staff to embrace change. Resistance to change remains a significant challenge in many libraries, particularly when new technologies require employees to acquire new skills, modify established work practices, or adapt to unfamiliar systems. Such resistance can slow the implementation of technological innovations and limit the effectiveness of re-skilling initiatives.

Rahman *et al.* (2025) investigated the organizational factors influencing resistance to technology adoption in university libraries in Bangladesh. The study found that organizational culture, leadership support, staff attitudes, communication gaps, and inadequate training opportunities were among the major factors contributing to resistance to technological change. The authors observed that library staff were more likely to accept and utilize new technologies when they received adequate support, training, and encouragement from management. The findings have important implications for libraries seeking to implement emerging technologies and develop the competencies of information professionals. Where staff members are reluctant to embrace technological innovations, opportunities for professional development and service improvement may be hindered. Therefore, library management should create a supportive environment that

encourages continuous learning, participation in training programmes, and positive attitudes toward technological change.

The study further suggests that addressing resistance to change requires more than providing technological infrastructure. Effective leadership, staff involvement in decision-making, clear communication, and continuous professional development are equally important in promoting technology adoption and enhancing the readiness of information professionals for the digital age.

Discussion of Findings

The review revealed that emerging technologies such as artificial intelligence, cloud computing, big data analytics, institutional repositories, blockchain technology, virtual reality, and integrated library management systems are increasingly influencing library operations and service delivery. This finding supports the observations of Igbo *et al*. (2024) and Achugbue (2024), who reported that emerging technologies are transforming information retrieval, reference services, and resource management in academic libraries. The finding suggests that libraries are gradually moving away from traditional service models towards technology-driven service delivery. Consequently, information professionals must develop the competencies required to effectively utilize these technologies in meeting users' evolving information needs.

The study further found that information professionals require a wide range of competencies, including digital literacy, data management and analytical skills, digital preservation and curation skills, cybersecurity awareness, information ethics, digital pedagogy, and user experience design. This finding is consistent with the views of Falloon (2020), who emphasized that digital competencies involve technical, cognitive, and social skills necessary for effective participation in digital environments. Similarly, Ahmad *et al*. (2019) observed that data management and analytical competencies are essential for librarians working in data-driven environments. The implication is that traditional library skills alone are no longer sufficient for effective service delivery in contemporary libraries.

The review also identified curriculum reform, continuous professional development, institutional partnerships, mentorship programmes, and practical technology training as effective strategies for re-skilling information professionals. This finding agrees with Oladokun and Olatokun (2026), who advocated for the integration of emerging technologies into Library and Information Science education to prepare graduates for technology-driven library environments. The finding is further supported by Ambon *et al.* (2024), who found that continuous professional development enhances professional competencies and workplace effectiveness. This indicates that re-skilling should be viewed as a continuous process rather than a one-time activity.

Furthermore, the study revealed that inadequate funding, poor infrastructure, policy limitations, and resistance to change remain major challenges affecting re-skilling initiatives in libraries. This finding corroborates the work of Kakiri *et al.* (2024), who reported that poor funding negatively affects staff development, technology acquisition, and library performance. Similarly, Ketheeswaren (2025) identified infrastructural deficiencies as barriers to effective library service delivery, while Rahman *et al.* (2025) found that organizational resistance can hinder technology adoption in libraries. These findings suggest that successful re-skilling programmes require not only training opportunities but also supportive policies, adequate funding, modern infrastructure, and positive organizational cultures.

Overall, the findings demonstrate that while emerging technologies present significant opportunities for innovation and improved service delivery, their successful adoption depends largely on the competencies of information professionals and the availability of institutional support. Therefore, Nigerian libraries must prioritize capacity building, curriculum reform, and strategic investment in technological infrastructure to achieve sustainable and innovative library services.

Conclusion

The emergence of new technologies has significantly transformed the way libraries acquire, organize, preserve, and disseminate information. Technologies such as artificial intelligence, cloud computing, big data analytics, institutional repositories, and integrated library management systems have created new opportunities for improving library service delivery and enhancing user experience. To effectively utilize these technologies, information professionals must possess relevant competencies in digital literacy, data management, digital preservation, cybersecurity, information ethics, and user-centred service design.

The study has shown that continuous professional development, curriculum reform, institutional collaboration, mentorship programmes, and practical technology training are important strategies for equipping librarians with the skills required in the digital age. However, challenges such as inadequate funding, poor infrastructure, policy limitations, and resistance to change continue to hinder re-skilling efforts in many libraries.

Therefore, re-skilling information professionals should be regarded as a strategic priority for libraries seeking to remain relevant, innovative, and sustainable in a rapidly evolving information environment. By investing in human capacity development and creating supportive conditions for continuous learning, Nigerian libraries will be better positioned to provide quality services and meet the changing information needs of their users.

To ensure the successful reskilling of Nigerian information professionals, the following policy measures are recommended:

Policy Recommendation

1. Integrate Emerging Technologies into LIS Curricula

Federal and state education authorities should mandate the inclusion of AI, data science, cloud computing, digital curation, and cybersecurity in LIS programs.

2. Fund Continuous Professional Development Programs

Governments and institutions should allocate budgets for structured CPD, workshops, and certifications that equip librarians with modern competencies (Nigerian Library Association, 2021).

3. Strengthen Institutional and Industry Partnerships

Libraries should collaborate with ICT firms, international agencies, and research institutions to provide practical training, internships, and access to cutting-edge technology.

4. Establish Innovation and Technology Labs

Dedicated innovation spaces within libraries encourage experimentation, hands-on learning, and adoption of emerging technologies.

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Restructuring academic libraries and librarians for effective teaching, learning, and research support services in tertiary institutions in Nigeria

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Abstract

This study examined restructuring of academic libraries and librarians to support effective teaching, learning, and research in tertiary institutions in Nigeria. The study was anchored on the Sociotechnical Systems Theory (SST) and adopted a descriptive survey design. The population comprised 124 professional librarians in federal university libraries in South-South Nigeria, and the census sampling technique was employed. An online questionnaire was used for data collection, and 93 completed responses were obtained and analyzed using descriptive and inferential statistics. The findings revealed that the extent of academic library restructuring in tertiary institutions in Nigeria was low. However, academic librarians played significant roles in supporting teaching, learning, and research activities. The study further identified technological advancement, digital access, automation systems, ICT infrastructure, reliable internet connectivity, continuous professional development, and the provision of electronic databases and digital information resources as critical requirements for effective restructuring. Major challenges affecting the restructuring of academic libraries include inadequate funding, poor ICT infrastructure, unreliable power supply, and poor internet connectivity. Strategies for enhancing the capacity of academic libraries and librarians include increased funding, stronger collaboration with academic staff, continuous professional development, and the adoption of emerging technologies. The study also revealed a strong positive relationship between the extent of academic library restructuring and the roles academic librarians played in supporting teaching, learning, and research activities. Furthermore, the extent of academic library restructuring significantly predicted the roles performed by academic librarians in tertiary institutions. The study concluded that effective restructuring of academic libraries is essential for improving service delivery and strengthening their contribution to teaching, learning, and research. It therefore recommended increased funding, improved ICT infrastructure, continuous professional development, greater adoption of modern technologies, and stronger policy support to enhance the effectiveness of academic libraries and librarians in Nigeria.

Keywords: Academic libraries, Librarians, Teaching, learning and research support, Tertiary institutions

Introduction

Academic libraries have long been regarded as the intellectual backbone of tertiary institutions, playing a central role in supporting teaching, learning, research, and overall knowledge development. This role has become even more significant in recent years due to rapid changes in the global information landscape. Advances in digital technologies, the growth of online learning environments, and the increasing demand for research output have reshaped how knowledge is created, accessed, and shared (Ogunbodede & Ejitagha, 2026; Altawil, 2025; Perculeza, 2023). As a result, academic libraries and librarians are now expected to move beyond their traditional functions and adapt to these evolving realities. **This shift underscores a clear departure from earlier models of library service, highlighting the need to examine how these institutions have evolved over time.**

Historically, academic libraries globally focused largely on the acquisition, organization, and preservation of print resources. Librarians were primarily seen as custodians of information, responsible for managing collections and assisting users in locating materials (Rit, 2025; Sakhani et al., 2021). While these functions remain important, they are no longer sufficient in a world driven by digital access, data-intensive research, and collaborative learning. This model dominated until the late 20th century, when digital innovations like scanned articles and early electronic libraries emerged in the 1980s–1990s (Jenkins, 2024; George, 2023). Today, libraries manage hybrid or digital-only collections, including e-books, databases, and institutional repositories. They also provide advanced services such as data analysis support, digital literacy programs, information literacy instruction, and collaborative research spaces (George & Wagwu, 2025; Ogunbodede & Okwu, 2023). While print-based functions remain relevant, they are no longer adequate on their own in an era defined by data-intensive research and open access demands. **This shift in expectations has created a**

clear need for academic libraries and librarians in Nigeria to rethink their roles and capabilities to remain effective and relevant.

The concept of retooling, in this context, refers to the deliberate effort to upgrade the skills, competencies, tools, and services of both libraries and librarians to meet contemporary demands. Retooling is not merely about adopting new technologies; it also involves a shift in mindset, professional roles, and service delivery models (Rameshwari, 2025). Librarians are increasingly expected to function as information specialists, research partners, digital curators, and educators who can support users in navigating complex information ecosystems (Michalak et al., 2026). In developed countries, academic libraries have made significant progress. They provide integrated digital systems, access to diverse electronic resources, and support research through data management, open access advocacy, and scholarly communication (Okonoko et al., 2022). Librarians are actively embedded in teaching and research, co-designing curricula and offering ongoing research consultations. They also manage institutional repositories, deliver information literacy instruction, and support data curation for faculty projects (Hoving, 2025; Lee & Stvilia, 2017). Continuous training ensures competencies in emerging tech, positioning librarians as strategic partners.

In developing countries like Nigeria, academic libraries lag significantly behind, hampered by chronic underfunding, poor infrastructure, insufficient staff training, and limited digital access (Sahabi & Otobo, 2021; Adeyemi, 2015). Librarians struggle to provide basic services amid unreliable internet, erratic power supply, and skill gaps, with minimal involvement in research or advanced data support (George et al., 2025). These constraints hinder their ability to fully support teaching, learning, and research activities. The increasing reliance of students and researchers on electronic resources, open access materials, and digital research tools highlights a growing gap between user expectations and library capabilities, underscoring the need for strategic transformation (Oyigan et al., 2026; Oshebor & Okekeuche, 2024). Retooling academic libraries in Nigeria also aligns with broader national goals of improving the quality of higher education and promoting research and development. Universities and other tertiary institutions are expected to produce graduates who are not only knowledgeable but also information literate, innovative, and capable of contributing to societal development. Retooling boosts library patronage, research output, and graduate employability by integrating AI driven services and open resources, positioning libraries as innovation hubs that support national development goals (Idiegbeyan-Ose & Idahosa, 2025).

Academic libraries, when properly equipped and staffed, can play a vital role in achieving these objectives by providing access to relevant resources, supporting research processes, and fostering critical thinking skills. Furthermore, the role of librarians is evolving, and modern librarians are required to possess a diverse skill set, including digital literacy, data management, information technology proficiency, and instructional abilities (Atchrimi & Ogunbodede, 2024; Adepoju, 2020). They must be able to guide users in evaluating information sources, avoiding plagiarism, and using digital tools effectively. This study is premised on the understanding that retooling academic libraries and librarians is not optional but necessary for the survival and relevance of tertiary institutions in Nigeria. The future of tertiary education in Nigeria depends, to a large extent, on how effectively academic libraries can adapt to change and respond to the needs of a knowledge driven society.

Statement of the Problem

The role academic libraries in supporting teaching, learning, and research in tertiary institutions cannot be overemphasize, many academic libraries in Nigeria are struggling to meet the evolving demands of a rapidly changing digital information environment. The shift from traditional print-based services to digital, data-driven, and user-centered library services has created new expectations for both libraries and librarians. However, studies show that academic libraries in Nigeria are still constrained by inadequate funding, poor technological infrastructure, unreliable internet connectivity, and insufficient professional training (Amos & Tekawa, 2025: Posigha & Idiedo, 2020). These challenges have limited the capacity of librarians to adopt emerging technologies, provide advanced research support, and effectively engage in digital service delivery. As a result, there exists a noticeable gap between the information needs and expectations of students and researchers and the actual services provided by academic libraries. This gap not only affects the quality of research and learning but also undermines the relevance of libraries in the contemporary knowledge economy. Although the concept of retooling offers a pathway for addressing these challenges through the upgrading of skills, tools, and service models, its implementation in many Nigerian academic libraries remains inadequate and inconsistent. Therefore, the problem of this study lies in the inability of academic libraries and librarians in Nigeria to effectively adapt to modern information demands, thereby necessitating a critical examination of the extent of retooling required to enhance service delivery and ensure their continued relevance in tertiary education.

Research Questions

The following research questions guided the study:

1. To what extent have academic libraries in tertiary institutions in Nigeria been restructured to support effective teaching, learning, and research services?
2. What roles do academic librarians play in supporting teaching, learning, and research activities in tertiary institutions in Nigeria?

3. What technological, administrative, and professional changes are required for the effective restructuring of academic libraries and librarians in Nigeria?
4. What challenges hinder the restructuring of academic libraries and librarians for improved teaching, learning, and research support services in tertiary institutions in Nigeria?
5. What strategies can be adopted to enhance the capacity of academic libraries and librarians in providing effective teaching, learning, and research support services in Nigeria?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

- There is no significant relationship between the extent to which academic libraries in tertiary institutions in Nigeria have been restructured and the roles academic librarians play in supporting teaching, learning, and research activities.
- The extent to which academic libraries in tertiary institutions in Nigeria have been restructured does not significantly predict the roles academic librarians play in supporting teaching, learning, and research activities.

Literature review

Literature were reviewed based on the research questions

Extent to which academic libraries have been restructured to support teaching, learning, and research

Academic libraries have increasingly been restructured to support teaching, learning, and research through the adoption of digital technologies, AI, open access initiatives, and virtual learning services, particularly following the COVID 19 pandemic which accelerated online learning and digital information delivery. In developed countries, AI has been integrated into library services through chatbots, intelligent enquiry systems, and automated user support services, particularly in countries such as China and the United Kingdom (Li, 2024). Research data management services have also expanded, although implementation in some institutions still lags behind policy expectations. During the pandemic, libraries improved access to electronic resources, virtual reference services, and remote learning support, reflecting broader trends in digital restructuring of academic library services (Ambrose et al., 2021). Academic libraries have evolved through digital learning spaces, collaborative environments, and user centered services, while librarians increasingly serve as research partners and technology facilitators, supported by adequate funding, infrastructure, and professional development.

In contrast, academic libraries in Nigeria and other developing countries have shown growing awareness and gradual adoption of these innovations, although the extent of restructuring remains limited by inadequate funding, poor infrastructure, unstable electricity supply, limited digital skills, and weak technological support systems (Adeyeye & Oladokun, 2023; Ajani et al., 2022). During the COVID 19 pandemic, many Nigerian academic libraries expanded electronic resources, remote database access, and online information literacy programmes. Some also introduced digital learning spaces, collaborative study areas, and user centered service models to better support teaching, learning, and research in tertiary institutions (Ogunbodede & Wiche, 2022). In addition, librarians' roles have gradually expanded beyond traditional library functions to include information brokerage, digital literacy training, research support, and technology facilitation, although these responsibilities are still developing compared to practices in developed countries where librarians function more extensively as research partners and digital scholarship specialists (Abubakar, 2022; Itsekor, 2011). However, poor internet connectivity and inadequate technological facilities reduced the effectiveness of these restructuring efforts. Similarly, the development of e libraries, mobile technologies, and open access initiatives in Nigerian academic libraries has remained relatively slow because of financial constraints and low awareness levels (Posigha & Idiedo, 2020). Nevertheless, the effectiveness of these restructured services continues to be constrained by unreliable internet services, erratic power supply, inadequate institutional support, and gaps in digital competencies among library personnel (George et al., 2025).

Roles of academic librarians in supporting teaching, learning, and research activities

Academic librarians support teaching, learning, and research through information services, user education, research support, and digital literacy training, and are more actively integrated into academic activities in developed countries such as the United Kingdom, United States, and Australia. For example, the integration of digital and information literacy instruction into teaching activities at the Open University has been associated with improved student learning outcomes (Killick, 2023). Academic librarians also support inclusive education and student well-being through initiatives such as curriculum decolonization, academic mentoring, and learning support services (Cox & Brewster, 2020; Needham & Appleton, 2025). In the area of research support, academic librarians assist researchers through research data management, bibliometric analysis, scholarly communication support, reference management training, and institutional repository services, thereby improving the visibility and quality of research outputs. However, inadequate staff capacity and technological limitations still affect the delivery of some of these services (Kennan et al., 2014; Parker, 2024). In African countries such as Ghana, studies have shown that academic librarians contribute significantly to quality education and lifelong learning through effective user services and information support systems, resulting in high levels of user satisfaction (Banleman et al., 2024; Banleman et al., 2023). During the COVID 19

pandemic, academic librarians also played important roles in ensuring continuity of learning by providing remote access to electronic resources, online reference services, and virtual user education programmes (Tsekea & Chigwada, 2020).

In Nigeria and Kenya, academic librarians contribute to research development, postgraduate training, information literacy education, and access to academic resources, although the level of effectiveness varies across institutions (Fingillah & Zuru, 2025; Sawe et al., 2024). Librarians in Nigerian academic institutions increasingly support teaching and learning through user orientation programmes, selective dissemination of information, digital literacy instruction, and assistance with online databases and electronic information resources. Nevertheless, the effectiveness of academic librarians in supporting teaching, learning, and research activities continues to be constrained by inadequate infrastructure, poor internet connectivity, weak digital platforms, insufficient funding, staff skill gaps, and underutilization of library services, particularly in developing countries (Dei, 2024; Adekoya et al., 2023). Therefore, academic librarians are more effective in supporting teaching, learning, and research when they are fully integrated into institutional academic systems and supported with adequate infrastructure, funding, and continuous professional training.

Technological, administrative, and professional changes required for effective restructuring of academic libraries and librarians

Technological restructuring involves the integration and effective utilization of digital technologies to support teaching, learning, and research activities. In developed countries, academic libraries have achieved significant progress in the deployment of technologies such as electronic resources, online public access catalogues (OPACs), institutional repositories, library web platforms, mobile library services, and online information literacy instruction (Tenya et al., 2023). Many of these systems were integrated into institutional learning management platforms before the COVID 19 pandemic. The pandemic further accelerated the expansion of remote access services, virtual reference support, and digital literacy training, thereby strengthening the role of librarians in online education and research support (Onunka & Onunka, 2024). Academic libraries are also evolving into technology driven innovation centres through the adoption of emerging technologies such as artificial intelligence, virtual reality, augmented reality, and makerspaces.

In developing countries such as Nigeria, South Africa, and Kenya, academic libraries are increasingly adopting digital technologies including e-catalogues, electronic databases, institutional repositories, library websites, wireless internet services, and mobile based platforms (Shimray et al., 2025; Shehu et al., 2025). These technologies have improved access to information resources and supported remote learning and research activities. However, the implementation and utilization of advanced technologies such as artificial intelligence applications, research data management systems, robotics, and makerspaces remain limited (Owate, 2024; Khumalo, 2022). Their effective use is constrained by inadequate funding, poor internet connectivity, unstable power supply, low user awareness, and weak integration with institutional teaching and learning systems (Omarsaib, 2024; Shehu et al., 2025). Academic libraries in Nigeria have experienced varying levels of administrative and professional restructuring to support teaching, learning, and research. Empirical studies have shown that some libraries have adopted digital policies, strategic planning initiatives, staff training programmes, and technology based services to improve service delivery (Amos & Martins, 2025; Sadiku & Kasim, 2024; Umeozor & Emasealu, 2022). Evidence also indicates that librarians are increasingly involved in digital content management, online instruction, virtual reference services, and research support activities (Ogunbodede & Adebayo, 2024). However, inadequate funding, limited technological infrastructure, and insufficient professional development opportunities continue to constrain effective restructuring.

Challenges hindering the restructuring of academic libraries and librarians for improved teaching, learning, and research support services in tertiary institutions in Nigeria

The restructuring of academic libraries and librarians in Nigeria for improved teaching, learning, and research support services is hindered by several interconnected challenges. One of the major barriers is inadequate and irregular funding, which restricts the acquisition of current information resources, ICT infrastructure, and staff development programmes (Eze & Chukwuemeka, 2022). Poor allocation of funds to the education sector and diversion of library funds further weaken library operations and technological advancement. Another challenge is the persistence of outdated organizational structures that emphasize traditional library operations instead of flexible, user centered, and technology driven services (Schwartz, 2024). Resistance to organizational change among library staff also slows restructuring efforts. Insufficient ICT infrastructure and inadequate digital competencies among librarians remain significant obstacles. Many academic libraries face poor internet connectivity, inadequate digital facilities, and limited access to emerging technologies (Odurukwe, 2010). Inadequate training and retraining programmes further contribute to skill gaps in digital librarianship and research support services (Dube, 2021; Bello, 2025). Weak Library and Information Science curricula also fail to adequately prepare librarians for modern professional demands (Korpelainen, 2024). Leadership and management challenges, including lack of transformational leadership and management interference, further hinder innovation and technological adoption (Olanrewaju, 2019; Eze & Chukwuemeka, 2022). Compared with developed countries that enjoy stable funding, advanced ICT infrastructure, and continuous staff development, Nigeria

continues to face socio economic and institutional challenges that limit effective library transformation (Schwartz, 2024; Emerson, 2021).

Strategies for enhance the capacity of academic libraries and librarians in providing effective teaching, learning, and research support services in Nigeria

Several strategies can enhance the capacity of academic libraries and librarians in providing effective teaching, learning, and research support services in Nigeria. Research emphasizes the need for Nigerian academic libraries to upgrade technologies, workforce skills, and management practices in order to remain relevant in a digital and AI driven environment. A major strategy is strengthening digital infrastructure through increased investment in ICT facilities such as computers, library software, electronic resources, reliable internet connectivity, and stable power supply to support automation and virtual library services (Mesagan & Hossana, 2025; Ikenwe & Udem, 2022). The development of responsive library websites, hybrid service models, and AI enabled systems is also necessary for improving access to teaching, learning, and research resources (Ifijeh & Yusuf, 2020; Nwachokor & Chegwe, 2025). Continuous professional training and retraining programmes are equally essential for improving librarians' competencies in modern service delivery. Areas such as e library services, digitization, Online Public Access Catalogue (OPAC) usage, and social media applications should be prioritized to enhance user satisfaction and information access (Omosekejimi et al., 2019). Additional capacity building strategies including workshops, seminars, staff rotation, conferences, and formal educational support can further sustain professional competence and adaptability among librarians (Igbokwe, 2023; Garbobi et al., 2025). Furthermore, librarians must develop skills in artificial intelligence, data analytics, and other emerging technologies to effectively support digital scholarship and research services (Oladokun et al., 2025; Oghuvwu et al., 2025). Effective restructuring and retooling also require supportive institutional policies, adequate funding, and strategic partnerships, while intervention agencies such as TETFUND remain crucial for infrastructure development and staff capacity building (Nwachokor & Chegwe, 2025; Mesagan & Hossana, 2025).

Theoretical Framework

The study is anchored on the Sociotechnical Systems Theory (SST) developed by Eric Trist and Fred Emery in the 1950s. The theory explains that organizations operate through the interaction of two interdependent systems namely the social system and the technical system. The social system includes staff competencies, leadership, organizational structure, communication patterns, and institutional policies, while the technical system comprises ICT infrastructure, digital technologies, library software, databases, and information systems. The theory emphasizes that organizational effectiveness can only be achieved when both systems are properly integrated and aligned. The theory aligns with research question one, which seeks to determine the extent to which academic libraries in Nigeria have been restructured to support effective teaching, learning, and research services. SST explains that restructuring involves both technological transformation and organizational adjustment. Therefore, the level of restructuring can be assessed through the availability of modern technologies, digital services, and supportive organizational systems that enhance library operations. Research question two focuses on the roles of academic librarians in supporting teaching, learning, and research activities. This aligns with the social component of SST, which recognizes the importance of human skills, professional competencies, communication, and collaboration in achieving organizational goals. Librarians serve as key actors who facilitate access to information resources and digital services.

Research question three examines the technological, administrative, and professional changes required for effective restructuring. SST directly supports this question because it stresses the need for balanced development between technological infrastructure and human capacity. Effective restructuring requires improved ICT facilities, updated policies, staff training, and innovative management practices. Research question four investigates the challenges hindering restructuring efforts. SST explains that problems arise when there is poor alignment between social and technical systems. Challenges such as inadequate funding, poor infrastructure, resistance to change, weak policies, and insufficient digital competencies create imbalance and reduce organizational effectiveness. Research question five focuses on strategies for enhancing the capacity of academic libraries and librarians. SST suggests that effective improvement can only occur through integrated strategies that combine investment in technology, continuous professional development, supportive leadership, adequate funding, and effective policy implementation. Such alignment between social and technical systems will strengthen the ability of academic libraries to provide effective teaching, learning, and research support services in Nigerian tertiary institutions.

Methodology

The descriptive survey was applied in the study. The study population included 124 professional librarians in federal university libraries in South-South Nigeria and the census sampling method was utilized. The instrument for data collection was the online questionnaire. The questionnaire was distributed via the professional social networks, such as LinkedIn and WhatsApp platforms, of the Nigerian Library Association, which are restricted to librarians. The questionnaire was also sent privately to the respondents to encourage timely responses. The respondents were given about one month to respond to the questionnaire (February 1st to March 2nd, 2026). It was stated on the questionnaire that the respondents should not fill it out more than once. Out of the librarians who received the questionnaire, 93

completed it, and with that, the analysis was made. The research procedures were conducted ethically during the distribution of the questionnaire. Initially, the researcher introduced themselves and the purpose of the study to the participants, obtaining their consent. All participants who completed the questionnaire process did so voluntarily.

The questionnaire was validated by three experts in LIS education to enhance its content and improve its clarity. To ensure that the instrument was reliable, a Cronbach's alpha value of 0.85 was obtained. Descriptive and inferential statistics were used to analyze the data via SPSS version 29. A nominal scale and 4-point Likert-type scale were used to measure and analyze responses to the questionnaire. The research questions 1-5 adopted a criterion score of 2.5. The criterion score was calculated by dividing the total by 4, where the sum was (4 + 3 + 2 + 1) divided by 4, or the criterion score = (4 + 3 + 2 + 1)/4 = 2.5. For research questions 1-4, the mean response less that 2.5 was considered low, the mean response between 2.5 to 3.0 was considered moderate, while the mean response of 3.1 and above was considered high. The mean scores less that 2.5 were taken as disagreement, and the mean scores between 2.5 and above were taken as agreement for research question 5.

Section A: Demographic Information
Analysis and Presentation of Data
Table 1: Gender of the respondents

Gender	Frequency	Percentage %
Male	42	45
Female	51	55
Total	**93**	**100**

The finding shows that the majority of the respondents are female. The higher number of female respondents may be attributed to the fact that the library profession in Nigeria has a larger population of female librarians compared to males. This suggests that women are more actively represented in academic library services and related professional activities.

Research Question 1: To what extent have academic libraries in tertiary institutions in Nigeria been restructured to support effective teaching, learning, and research services?
Table 2: Extent of Academic Library Restructuring in Tertiary Institutions in Nigeria

S/N	Extent of academic library restructuring	SA	A	D	SD	Mean	S.D.
1	Academic libraries have restructured their services to better support teaching, learning, and research activities.	40	27	13	13	3.0	1.06
2	Library facilities and infrastructure have been upgraded to meet the changing needs of users.	-	80	13	-	2.9	0.35
3	Academic libraries have expanded access to digital information resources and electronic databases.	-	66	13	13	2.6	0.72
4	Library collections have been updated to support current teaching, learning, and research needs.	-	40	40	13	2.3	0.70
5	Academic libraries have adopted modern technologies to improve service delivery.	-	53	27	13	2.3	0.74
6	Library staff have acquired relevant skills and competencies to support emerging teaching, learning, and research practices.	-	27	53	13	2.2	0.64
7	Academic libraries have introduced innovative services to meet the evolving information needs of users.	-	-	66	27	1.7	0.45
	Grand Mean					**2.4**	**0.67**

The results presented in Table 2 show that only three of the seven items recorded mean scores above the criterion mean of 2.50. The grand mean of 2.40 (SD = 0.67), which is below the benchmark of 2.50, indicates that the extent of academic library restructuring in tertiary institutions in Nigeria to support effective teaching, learning, and research services is low. The highest mean score was recorded for the item stating that academic libraries have restructured their services to better support teaching, learning, and research activities ($\bar{x}$ = 3.0, SD = 1.06). This was followed by the upgrading of library facilities and infrastructure to meet users' changing needs ($\bar{x}$ = 2.9, SD = 0.35) and the expansion of access to digital information resources and electronic databases ($\bar{x}$ = 2.6, SD = 0.72). However, respondents rated the updating of library collections to support current teaching, learning, and research needs ($\bar{x}$ = 2.3, SD = 0.70), the adoption of modern technologies for service delivery ($\bar{x}$ = 2.3, SD = 0.74), and the acquisition of relevant skills and competencies by library staff ($\bar{x}$ = 2.2, SD = 0.64) below the criterion mean. The lowest mean score was recorded for the introduction of innovative services to meet evolving information needs ($\bar{x}$ = 1.7, SD = 0.45). These findings suggest that although some restructuring efforts have been undertaken, academic libraries in Nigeria have not been extensively restructured to effectively support teaching, learning, and research services.

Research Question 2: What roles do academic librarians play in supporting teaching, learning, and research activities in tertiary institutions in Nigeria?

Table 3: Roles of Academic Librarians in Supporting Teaching, Learning, and Research Activities

S/N	Roles of Academic Librarians	SA	A	D	SD	Mean	S. D.
1	Academic librarians provide information literacy instruction to support teaching and learning.	27	53	13	-	3.2	0. 63
2	Academic librarians assist users in accessing and utilizing electronic information resources and databases.	27	53	13	-	3.2	0. 63
3	Academic librarians support e-learning and online teaching activities in their institutions.	27	53	13	-	3.2	0. 63
4	Academic librarians provide research support services to students and academic staff.	27	53	13	-	3.2	0. 63
5	Academic librarians guide users on scholarly communication and research publication processes.	27	40	27	-	3.0	0. 77
6	Academic librarians support research data management and organization.	13	53	27	-	2.9	0. 64
7	Academic librarians provide current awareness and selective dissemination of information services to support teaching, learning, and research.	-	66	27	-	2.7	0. 45
	Grand Mean					**3.1**	**0. 63**

The results presented in Table 3 indicate that all the items recorded mean scores above the criterion mean of 2.50. The grand mean of 3.10 (SD = 0.63) suggests that academic librarians play a significant role in supporting teaching, learning, and research activities in tertiary institutions in Nigeria. The highest mean scores were recorded for providing information literacy instruction, assisting users in accessing and utilizing electronic information resources and databases, supporting e-learning and online teaching activities, and guiding users on scholarly communication and research publication processes ($\bar{x}$ = 3.2, SD = 0.63, respectively). These findings indicate that librarians are actively engaged in instructional, digital, and research support services. Academic librarians' provision of research support services also recorded a high mean score ($\bar{x}$ = 3.0, SD = 0.77), demonstrating their contribution to enhancing research productivity. Support for research data management ($\bar{x}$ = 2.9, SD = 0.64) and the provision of current awareness and selective dissemination of information services ($\bar{x}$ = 2.7, SD = 0.45) received comparatively lower ratings, although both remained above the criterion mean. Overall, the findings reveal that academic librarians make substantial contributions to teaching, learning, and research activities in tertiary institutions in Nigeria, particularly through information literacy instruction, digital resource support, and research assistance.

Research Question 3: What technological, administrative, and professional changes are required for the effective restructuring of academic libraries and librarians in Nigeria?

Table 4: Technological, Administrative and Professional Changes Required for Effective Restructuring

S/N	Technological, administrative and professional changes	SA	A	D	SD	Mean	S.D.
1	Academic libraries require regular upgrading of digital technologies to enhance service delivery.	53	40	-	-	3.6	0.49
2	Academic libraries need improved remote access to online library services for users.	40	53	-	-	3.4	0.50
3	Functional and integrated library automation systems are required for effective library operations.	40	53	-	-	3.4	0.50
4	Reliable and high speed internet connectivity is required for effective library service delivery.	53	27	13	-	3.4	0.72
5	Librarians require continuous training to effectively utilize digital library systems and emerging technologies.	27	66	-	-	3.3	0.47
6	Academic libraries require adequate computers and other ICT facilities to support users' needs.	40	40	13	-	3.3	0.69
7	Academic libraries need increased provision of electronic databases and digital information resources.	27	53	13	-	3.1	0.60
	Grand Mean					**3.3**	**0.57**

The results presented in Table 4 reveal that all the identified technological, administrative, and professional changes required for the effective restructuring of academic libraries and librarians recorded mean scores above the criterion

mean of 2.50. The grand mean of 3.3 (SD = 0.57) indicates a high level of agreement among respondents that these changes are essential for effective restructuring of academic libraries in Nigeria. The highest mean score was recorded for the regular upgrading of digital technologies ($\bar{x}$ = 3.6, SD = 0.49), showing strong agreement that continuous technological advancement is necessary for improved library service delivery. Improved remote access to online library services ($\bar{x}$ = 3.4, SD = 0.50), functional and integrated library automation systems ($\bar{x}$ = 3.4, SD = 0.50), and reliable high speed internet connectivity ($\bar{x}$ = 3.4, SD = 0.72) were also highly rated, reflecting the importance of digital infrastructure in modern academic libraries. Continuous training for librarians in the use of digital library systems and emerging technologies recorded a mean score of 3.3 (SD = 0.47), while the provision of adequate computers and ICT facilities also recorded a mean score of 3.3 (SD = 0.69). Increased provision of electronic databases and digital information resources had a mean score of 3.1 (SD = 0.60). Overall, the findings indicate that technological advancement, digital access, automation systems, ICT infrastructure, internet connectivity, and continuous professional development are critical requirements for the effective restructuring of academic libraries and librarians in Nigeria.

Research Question 4: What challenges hinder the restructuring of academic libraries and librarians for improved teaching, learning, and research support services in tertiary institutions in Nigeria?

Table 5: Challenges Hindering the Restructuring of Academic Libraries

S/N	Challenges Hindering the Restructuring	SA	A	D	SD	Mean	S.D.
1	Inadequate funding hinders effective restructuring of academic libraries.	53	40	-	-	3.6	0.49
2	Poor ICT infrastructure limits digital transformation in academic libraries.	40	53	-	-	3.4	0.50
3	Irregular power supply affects the effective use of digital library services.	53	27	13	-	3.4	0.72
4	Poor internet connectivity hinders access to electronic information resources and online services.	53	27	13	-	3.4	0.72
5	Inadequate staff training limits librarians' ability to adapt to emerging technologies.	27	66	-	-	3.3	0.47
6	Lack of adequate computers and ICT facilities affects library service delivery.	40	40	13	-	3.3	0.69
7	Resistance to change among library staff hinders restructuring efforts.	27	53	13	-	3.1	0.60
	Grand Mean					**3.6**	**0.49**

The results presented in Table 5 reveal that all the identified challenges hindering the restructuring of academic libraries and librarians recorded mean scores above the criterion mean of 2.50. The grand mean of 3.4 (SD = 0.60) indicates a high level of agreement among respondents that several challenges significantly hinder the effective restructuring of academic libraries in tertiary institutions in Nigeria. The highest mean score was recorded for inadequate funding ($\bar{x}$ = 3.6, SD = 0.49), indicating strong agreement that insufficient financial support remains a major obstacle to effective restructuring. Poor ICT infrastructure ($\bar{x}$ = 3.4, SD = 0.50), irregular power supply ($\bar{x}$ = 3.4, SD = 0.72), and poor internet connectivity ($\bar{x}$ = 3.4, SD = 0.72) were also highly rated, reflecting the major technological and infrastructural barriers affecting academic libraries. Inadequate staff training in emerging technologies recorded a mean score of 3.3 (SD = 0.47), while lack of adequate computers and ICT facilities also recorded a mean score of 3.3 (SD = 0.69). Resistance to change among library staff had a mean score of 3.1 (SD = 0.60), indicating that organizational and human related factors also contribute to the challenges of restructuring. Overall, the findings suggest that financial constraints, inadequate infrastructure, technological limitations, and insufficient professional capacity are major challenges hindering the effective restructuring of academic libraries and librarians in Nigeria.

Research 5: What strategies can be adopted to enhance the capacity of academic libraries and librarians in providing effective teaching, learning, and research support services in Nigeria?

Table 6: Strategies for Enhancing the Capacity of Academic Libraries and Librarians

S/N	Strategies	SA	A	D	SD	Mean	S.D.
1	Increased funding is necessary for effective library services.	53	40	-	-	3.6	0.50
2	Collaboration with academic staff should be strengthened.	53	40	-	-	3.6	0.50
3	Continuous professional training should be prioritized for librarians.	40	53	-	-	3.4	0.50
4	Libraries should adopt emerging digital technologies.	40	53	-	-	3.4	0.50
5	Librarians should receive regular ICT capacity building programmes.	40	53	-	-	3.4	0.50
6	Institutional policies should support library innovation.	40	53	-	-	3.4	0.50
7	Strategic planning is essential for improving library service delivery.	40	53	-	-	3.4	0.50
	Grand Mean					**3.5**	**0.50**

The results presented in Table 6 reveal that all the identified strategies recorded mean scores above the criterion mean of 2.50, indicating respondents' agreement on the strategies required for enhancing the capacity of academic libraries

and librarians in Nigeria. The grand mean of 3.5 (SD = 0.50) shows a high level of consensus among respondents on the importance of these strategies for improving teaching, learning, and research support services. The highest mean scores were recorded for increased funding for effective library services ($\bar{x}$ = 3.6, SD = 0.50) and strengthening collaboration with academic staff ($\bar{x}$ = 3.6, SD = 0.50), highlighting these as the most important strategies. Continuous professional training, adoption of emerging digital technologies, ICT capacity building programmes, institutional policy support, and strategic planning all recorded high and identical mean scores ($\bar{x}$ = 3.4, SD = 0.50). This suggests a widespread agreement among respondents on the importance of these strategies. The findings therefore indicate that retooling efforts should focus on funding, collaboration, capacity building, technological advancement, and policy support to enhance the effectiveness and sustainability of academic libraries in Nigeria.

Hypothesis 1: There is no significant relationship between the extent to which academic libraries in tertiary institutions in Nigeria have been restructured and the roles academic librarians play in supporting teaching, learning, and research activities.

Table 7: Extent of Academic Libraries Restructuring and Academic Librarians' Roles in Supporting Teaching, Learning, and Research Activities

Variable	Mean	Stand. Dev.	N	R	p-value	Remark
Extent of academic libraries restructuring	16.8	4.69	93	0.71	0.000	Significant
Roles academic librarians	21.7	4.41				

$\alpha = 0.05$

Table 5 indicates a strong positive relationship between the extent of academic library restructuring and the roles academic librarians play in supporting teaching, learning, and research activities in tertiary institutions in Nigeria, with a correlation coefficient of 0.712 and a p-value of 0.000. Since the p-value is less than the 0.05 level of significance, the null hypothesis is rejected. This implies that there is a significant positive relationship between the extent of academic library restructuring and the roles academic librarians play in supporting teaching, learning, and research activities in tertiary institutions in Nigeria ($r = 0.712$, $p < 0.05$). The finding further suggests that improvements in the restructuring of academic libraries are associated with enhanced roles of academic librarians in supporting teaching, learning, and research activities.

Hypothesis 2: The extent to which academic libraries in tertiary institutions in Nigeria have been restructured does not significantly predict the roles academic librarians play in supporting teaching, learning, and research activities.

Table 8: The extent to which academic libraries are restructured predicting academic librarians' roles in supporting teaching, learning, and research

Model		Sum of Squares	Df	Mean Square	F	Sig. (2-tailed)
1	Regression	18.420	1	18.420	92.964	
	Residual	18.029	91	0.198	-	0.000
	Total	36.449	92			

$\alpha = 0.05$; R= 0.71; R Square= 0.51

The regression result presented in Table 8 reveals that academic library restructuring significantly predicts the roles academic librarians play in supporting teaching, learning, and research activities in tertiary institutions in Nigeria. The model summary shows a correlation coefficient (R) of 0.712 and an R Square value of 0.507, indicating that academic library restructuring accounted for 50.7% of the variance in the roles performed by academic librarians. The ANOVA result further shows that the regression model is statistically significant ($F = 92.964$, $p < 0.05$). Since the significance value of 0.000 is less than the 0.05 level of significance, the null hypothesis is rejected. This implies that the extent of restructuring in academic libraries significantly influences the effectiveness of academic librarians in supporting teaching, learning, and research activities in tertiary institutions in Nigeria.

Discussion of findings

Research question one revealed that the extent of academic library restructuring in tertiary institutions in Nigeria to support teaching, learning, and research services is low. The findings indicate that challenges such as inadequate funding, insufficient staffing, and weak management support hinder effective library operations. These limitations affect the provision of adequate infrastructure, current information resources, and efficient service delivery, thereby reducing the capacity of academic libraries to effectively support teaching, learning, and research. The findings underscore the need for stronger institutional commitment and government intervention in the areas of funding, infrastructure development, staffing, and policy support. This finding aligns with the Socio Technical Systems Theory (SST), which posits that organizational effectiveness depends on the integration of technological resources and supportive

organizational structures. The low level of restructuring observed suggests weaknesses in both the technological and organizational dimensions of academic libraries. This finding contrasts with the situation in many developed countries, where academic libraries have undergone significant restructuring through the adoption of AI technologies, digital services, innovative learning spaces, and specialized professional roles to enhance teaching, learning, and research (Li, 2024; Ambrose et al., 2021).

Research question two revealed that academic librarians play significant roles in supporting teaching, learning, and research activities in tertiary institutions in Nigeria. The findings showed that librarians provide information literacy instruction, assist users in accessing and utilizing electronic information resources and databases, support e learning and online teaching activities, guide users on scholarly communication and research publication processes, and provide research support services. These findings demonstrate that academic librarians are actively engaged in instructional, digital, and research support functions that contribute to the achievement of institutional goals. However, the effectiveness of these roles is often constrained by inadequate infrastructure, poor internet connectivity, weak digital platforms, insufficient funding, and gaps in professional competencies. This finding aligns with the social dimension of SST, which emphasizes the importance of human expertise, communication, and professional competence in organizational performance. It also supports previous studies that found that academic librarians contribute significantly to quality education and lifelong learning through effective information services and user support systems (Fingillah & Zuru, 2025; Sawe et al., 2024; Banleman et al., 2024).

Research question three revealed that technological advancement, digital access, automation systems, ICT infrastructure, reliable internet connectivity, continuous professional development, and the increased provision of electronic databases and digital information resources are critical requirements for the effective restructuring of academic libraries and librarians in Nigeria. These requirements are essential for enhancing service delivery and ensuring that academic libraries remain responsive to the evolving needs of teaching, learning, and research. This finding supports the SST, which emphasizes the importance of a balanced interaction between technological systems and human capabilities. The theory posits that the availability of technology alone is insufficient unless it is complemented by adequate organizational support, staff competencies, and continuous capacity building. The finding is consistent with those of Amos and Martins (2025), Sadiku and Kasim (2024), and Ogunbodede and Adebayo (2024), who reported that academic libraries in Nigeria have experienced varying levels of administrative and professional restructuring aimed at enhancing teaching, learning, and research support services.

Research question four revealed that several challenges hinder the effective restructuring of academic libraries in tertiary institutions in Nigeria. The findings identified inadequate funding, poor ICT infrastructure, unreliable power supply, poor internet connectivity, inadequate staffing, limited training opportunities, and resistance to change among library personnel as major constraints. These challenges collectively limit the transformation of academic libraries and reduce their capacity to support teaching, learning, and research effectively. This finding aligns with SST, which argues that organizational performance is weakened when there is poor alignment between social and technical systems. Inadequate resources, weak institutional support, and insufficient digital competencies create imbalances that undermine effective restructuring. The finding is consistent with previous studies that identified funding deficiencies, infrastructural limitations, and inadequate staff development as major barriers to academic library transformation in Nigeria (Bello, 2025; Eze & Chukwuemeka, 2022; Dube, 2021).

Research question five revealed several strategies for enhancing the capacity of academic libraries and librarians in Nigeria. The findings showed that increased funding, stronger collaboration with academic staff, continuous professional training, adoption of emerging digital technologies, regular ICT capacity building programmes, supportive institutional policies, and strategic planning are essential for improving library services. These strategies are critical for strengthening the capacity of academic libraries to support teaching, learning, and research effectively. This finding aligns with SST, which maintains that sustainable organizational improvement requires the integration of technological investment, human capacity development, supportive leadership, adequate funding, and effective policies. Such integration promotes synergy between the social and technical components of academic libraries, leading to improved service delivery and long term organizational effectiveness. The finding also supports previous studies that emphasized funding, collaboration, policy support, and continuous training as critical requirements for effective academic library restructuring (Nwachokor & Chegwe, 2025; Mesagan & Hossana, 2025; Ifijeh & Yusuf, 2020).

Hypothesis one indicates a strong positive relationship between the extent of academic library restructuring and the roles academic librarians play in supporting teaching, learning, and research activities in tertiary institutions in Nigeria. This suggests that improvements in library restructuring are associated with enhanced performance of librarians in delivering academic support services. Hypothesis two shows that the extent of academic library restructuring significantly predicts the roles academic librarians play in supporting teaching, learning, and research activities in tertiary institutions in Nigeria. This implies that restructuring efforts in academic libraries have a meaningful influence on how effectively librarians carry out their responsibilities in supporting teaching, learning, and research activities.

Conclusions

This study examined the restructuring of academic libraries and librarians in tertiary institutions in Nigeria for improved teaching, learning, and research support services. The findings revealed that the extent of academic library restructuring is generally low, despite the significant roles played by academic librarians in supporting teaching, learning, and research activities. Academic librarians actively provide information literacy instruction, research support, access to electronic resources, and scholarly communication services. However, their effectiveness is constrained by inadequate funding, poor ICT infrastructure, unreliable internet connectivity, insufficient staffing, limited professional development opportunities, and weak institutional support. The study further revealed that effective restructuring requires technological, administrative, and professional changes, including continuous technological advancement, improved digital access, functional library automation systems, reliable internet connectivity, adequate ICT infrastructure, and sustained capacity building for librarians. Major challenges identified include inadequate funding, poor infrastructure, inadequate staffing, resistance to change, and limited training opportunities. The study also established a significant positive relationship between academic library restructuring and the roles librarians play in supporting teaching, learning, and research. Furthermore, academic library restructuring was found to be a significant predictor of librarians' effectiveness in carrying out these roles. Therefore, strengthening the restructuring of academic libraries is essential for improving service delivery and enhancing their contribution to teaching, learning, and research in tertiary institutions in Nigeria.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Government and institutional management should increase funding for academic libraries to improve infrastructure, expand access to current information resources, and support effective service delivery.
2. Tertiary institutions should upgrade ICT infrastructure by providing reliable internet connectivity, stable power supply, adequate computers, and fully functional library automation systems to support digital library services.
3. Academic libraries should prioritize continuous professional development through regular training and ICT capacity building programmes to equip librarians with relevant digital, instructional, and research support skills.
4. Library management should strengthen the adoption and effective use of modern technologies such as electronic databases, digital platforms, and emerging tools to enhance teaching, learning, and research support services.
5. Institutional leadership should improve policy support and staffing structures in academic libraries by recruiting qualified personnel, addressing staff shortages, and promoting a supportive environment for innovation and effective library restructuring.

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Rethinking Undergraduate Attention Spans and Pedagogical Approaches in Library and Information Science Education in Nigeria: Digital Distractions and Engagement Strategies

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Abstract

The increasing prevalence of digital technologies in higher education has raised significant concerns about declining undergraduate attention spans, particularly within Library and Information Science (LIS) education. This paper examines the concept of attention span in learning environments, emphasizing its critical role in students' ability to process, retain, and engage with academic content. Evidence suggests that students' attention during lectures is often limited to short intervals, typically declining after 10–15 minutes of passive engagement, a challenge further worsened by cognitive limitations and evolving digital learning behaviours. The study explores the growing influence of digital distractions in higher education, including smartphone use, social media engagement, multitasking, and constant notifications, all of which contribute to fragmented attention and reduced academic performance. The paper further analyzes pedagogical approaches commonly used by LIS educators, highlighting the dominance of traditional lecture-based methods in many Nigerian universities and their limitations in sustaining student attention in digitally mediated classrooms. Also, the study discusses practical engagement strategies for improving attention and learning outcomes, including the adoption of blended pedagogical approaches, implementation of digital detox practices during lectures, use of handwritten assignments, continuous assessment techniques, and effective utilization of both print and electronic library resources. The paper concludes that while digital technologies present challenges to sustained attention, they also offer opportunities for enhancing student engagement when used strategically. It emphasizes the need for LIS educators to rethink instructional practices by integrating interactive, student-centred, and contextually relevant teaching strategies that align with students' cognitive capacities and digital realities. Such approaches are essential for improving attention, fostering deeper learning, and preparing students for effective participation in the contemporary information environment.

Keywords: Attention span, Digital distractions, Higher education in Nigeria, Library and Information Science (LIS) education, Pedagogical approaches.

Introduction

The rapid growth of digital technologies has transformed higher education by changing how students access information, learn, and engage in academic activities. While smartphones, social media, and other digital tools provide unprecedented learning opportunities, they have also contributed to declining attention spans and increased distractions among students, creating what scholars describe as an emerging "attention crisis" in contemporary classrooms (Kaushik et al., 2024; Somani et al., 2025). Attention is fundamental to learning because it influences students' ability to process, understand, and retain information. However, sustained attention is increasingly challenged by digital stimuli that compete with academic tasks for students' cognitive resources (Davidson, 2017; Bradbury, 2016).

The digital era has also reshaped students' expectations of higher education, with contemporary learners preferring interactive, flexible, and technology-supported learning environments over traditional lecture-based approaches (Gütl et al., 2015). At the same time, digital distractions such as social media, online entertainment, notifications, and fragmented reading habits have reduced students' ability to engage deeply with academic content (Ali Rabah, 2024; Khan et al., 2025). The problem is further compounded by digital overload, where excessive exposure to online information results in cognitive fatigue, multitasking, and reduced academic engagement (Tafesse et al., 2024).

The rise of short-form digital content has also encouraged shorter attention cycles and frequent shifts in focus, making it more difficult for students to sustain concentration during lectures, reading, and research activities (Mark, 2023; Opara et al., 2025). These challenges are particularly significant in Library and Information Science (LIS) education, where students are expected to engage critically with information resources and digital systems. In Nigeria, increasing access to digital technologies in higher education has intensified both the opportunities and challenges associated with student attention and engagement. Consequently, there is a need for LIS educators to rethink traditional teaching approaches

and adopt engagement strategies that address digital distractions while promoting meaningful learning experiences in contemporary educational environments.

Literature Review

Concept of Attention Span in Learning Environments

Attention span refers to the length of time an individual can sustain concentration on a task without becoming distracted, and it remains a critical factor in determining how effectively students process, understand, and retain information in learning environments. In higher education, particularly during lectures, attention is central to meaningful engagement because it enables students to focus cognitive resources on instructional content while filtering out competing stimuli (Davidson, 2017). Studies show that when students maintain attention, they demonstrate better comprehension, participation, and retention; however, this sustained focus is difficult to maintain over long periods. Empirical evidence suggests that the average student can maintain focused attention during a lecture for approximately 10–15 minutes before a noticeable decline occurs, especially in passive, lecture-based settings (Bradbury, 2016). After this period, attention tends to fluctuate, and students may gradually disengage unless instructional methods are varied or interactive elements are introduced.

This limitation is rooted in the cognitive capacity of the human brain, which can only process a finite amount of information at a given time. When lectures exceed this cognitive threshold, students experience reduced concentration and diminished learning outcomes. In contemporary classrooms, this challenge is intensified by the digital environment, where students are exposed to constant streams of online content, notifications, and social media interactions that compete for their attention (Somani et al., 2025). As a result, many students engage in multitasking switching between listening to lectures and interacting with digital devices which fragments attention and reduces the depth of cognitive processing (Mark, 2023). Additionally, the overwhelming volume of digital information contributes to cognitive overload, making it more difficult for students to sustain focus on a single academic task for extended periods (Tafesse et al., 2024).

The nature of attention has also evolved significantly from traditional to digital-era learning environments. Traditionally, students were accustomed to prolonged engagement with textbooks, extended lectures, and structured academic tasks that required deep concentration and reflection. In contrast, the digital age has introduced patterns of rapid information consumption, where learners frequently shift attention between multiple sources of content. Digital platforms encourage quick scanning and fragmented reading rather than sustained analytical engagement, thereby influencing how students interact with academic materials (Ali Rabah, 2024). Furthermore, continuous exposure to fast-paced digital media and constant connectivity has shortened attention cycles, encouraging frequent interruptions and reducing the ability to focus deeply on a single task (Opara et al., 2025; Somani et al., 2025).

Despite these challenges, the evolving attention patterns of students also reflect changing expectations of learning environments. Contemporary learners increasingly prefer interactive, technology-supported, and engaging instructional approaches over traditional lecture methods (Gütl et al., 2015). Therefore, the issue is not merely that attention spans are declining, but that they are being reshaped by digital experiences. Understanding this shift is essential for educators, as it highlights the need to design teaching strategies that align with students' cognitive limits and digital realities.

Digital Distractions in Higher Education

Digital distractions refer to the range of technology-related stimuli that divert students' attention away from academic tasks in learning environments. In higher education, the increasing integration of digital devices and online platforms has created a complex learning environment where students must constantly navigate between academic engagement and competing digital activities. While digital technologies provide valuable access to information and learning resources, they also introduce interruptions that can fragment attention and reduce the quality of learning (Somani et al., 2025). The issue of digital distraction is therefore central to understanding declining attention spans and student engagement in contemporary classrooms, including Library and Information Science (LIS) education.

Types of Digital Distractions

One of the most prominent forms of digital distraction in higher education is smartphone and social media usage during lectures. Students frequently use smartphones to access platforms such as messaging applications, social networking sites, and entertainment content while lectures are ongoing. This behaviour often leads to divided attention, where students attempt to follow academic instruction while simultaneously engaging in non-academic digital activities. Research indicates that such divided attention significantly reduces comprehension and retention of lecture materials because cognitive resources are split between multiple tasks (Khan et al., 2025). Furthermore, exposure to fast-paced social media content has been associated with shorter attention cycles, making it difficult for students to sustain focus during extended academic sessions (Opara et al., 2025).

Another major form of digital distraction is multitasking behaviour among students. In digitally connected environments, students often engage in multiple activities at the same time, such as listening to lectures while browsing the internet, responding to messages, or switching between academic and non-academic applications. Although multitasking may appear efficient, cognitive research suggests that it actually reduces the depth of information

processing and increases the likelihood of errors (Mark, 2023). Multitasking leads to fragmented attention, as students continuously shift their focus between tasks rather than maintaining sustained concentration on a single academic activity. Tafesse et al. (2024) further explain that digital overload encourages such behaviours, as students attempt to manage large volumes of information from multiple digital sources simultaneously.

A third critical dimension is the influence of constant notifications and digital platforms on concentration. Notifications from smartphones, emails, and social media platforms act as immediate attention triggers, interrupting students' cognitive focus even during structured learning activities. These interruptions, although often brief, can significantly disrupt the continuity of thought and reduce the efficiency of learning. Studies show that even the anticipation of notifications can negatively affect concentration, as students remain mentally alert to potential digital interruptions (Somani et al., 2025). This constant state of partial attention prevents deep engagement with academic content and contributes to reduced learning outcomes.

Beyond these, other forms of digital distractions include online entertainment and streaming services, gaming, and non-academic internet browsing, all of which compete for students' attention during study time and classroom activities. Additionally, fragmented digital reading habits, characterized by skimming and scanning rather than deep reading, have been identified as a growing concern in digital learning environments (Ali Rabah, 2024). Such habits can limit students' ability to engage critically with academic texts, particularly in disciplines like LIS that require careful analysis and interpretation of information.

Pedagogical Approaches Used by Library and Information Science (LIS) Educators

Pedagogical approaches refer to the methods and strategies educators use to facilitate teaching and learning in academic environments. In Library and Information Science (LIS) education, pedagogical practices are particularly important because the discipline combines theoretical knowledge with practical skills related to information organization, retrieval, and management. Effective pedagogy therefore influences how students engage with information resources, develop critical thinking abilities, and acquire professional competencies required in the information profession. In contemporary higher education, the choice of pedagogical approach also affects students' attention span and engagement, especially in digitally mediated learning environments (Somani et al., 2025).

Types of Pedagogical Approaches in LIS Education

Several pedagogical approaches are commonly used in higher education and LIS programmes. One of the most widely used approaches is the traditional lecture-based approach. This method involves the instructor delivering structured content to students while learners primarily listen, take notes, and occasionally ask questions. The lecture method has long been considered effective for transmitting large amounts of information within a limited time frame. However, research indicates that prolonged lectures may reduce student attention and engagement because they provide limited opportunities for active participation (Bradbury, 2016).

Another important pedagogical approach is the interactive or student-centred approach, which emphasizes active participation in the learning process. This method includes activities such as group discussions, collaborative learning, problem-solving exercises, and classroom debates. Interactive pedagogy encourages students to engage critically with course materials and contributes to deeper understanding of information-related concepts. Studies suggest that students in the digital age prefer participatory learning environments that allow them to interact with instructors, peers, and digital learning tools (Gütl et al., 2015).

A third approach is technology-enhanced or digital pedagogy, which integrates digital tools and online platforms into the teaching and learning process. Examples include the use of learning management systems, multimedia presentations, digital libraries, e-books, and online collaborative platforms. Technology-enhanced learning can make academic content more accessible and interactive, especially in disciplines such as LIS where digital information resources play a central role. However, excessive reliance on digital tools may also expose students to distractions and digital overload, which can negatively influence attention and learning outcomes (Tafesse et al., 2024; Khan et al., 2025).

Another approach is experiential or practical-based learning, where students engage in hands-on activities such as library practicum, information retrieval exercises, database searching, and real-life information management projects. This method helps bridge the gap between theory and practice by enabling students to apply classroom knowledge in realistic professional contexts. Experiential learning is particularly relevant to LIS education because the field requires practical competencies in managing information systems and digital resources.

Practical Engagement Strategies for LIS Education

Sustaining students' attention in contemporary higher education requires deliberate instructional strategies that respond to shortened attention cycles, cognitive limits, and the pervasive influence of digital distractions. Given that students' concentration during lectures typically declines after about 10–15 minutes of passive engagement (Bradbury, 2016), and that constant digital stimulation fragments attention (Somani et al., 2025), educators in Library and Information Science

(LIS) must adopt structured, context-appropriate strategies that actively re-engage learners and promote deeper cognitive involvement.

One effective approach is the adoption of a blended pedagogical model, which combines brief lecture segments with interactive and technology-supported learning activities. Rather than relying solely on prolonged lectures, instructors can divide teaching into short, focused segments interspersed with discussions, problem-solving tasks, or quick practical exercises. This approach aligns with students' evolving expectations for interactive learning environments and helps reset attention periodically, thereby improving engagement and retention (Gütl et al., 2015). When carefully implemented, digital tools within this blended model can support—not hinder—attention by making learning more participatory and relevant.

Closely related is the introduction of structured digital detox practices during lecture periods. This involves setting clear guidelines that limit non-academic use of smartphones and other digital devices during class time. Considering that notifications and multitasking significantly disrupt concentration (Mark, 2023), temporarily minimizing digital interruptions allows students to focus more fully on instructional content. Such practices do not reject technology entirely but encourage mindful and purposeful use, helping students develop better attention management habits within academic settings.

Another practical strategy is the use of handwritten assignments and note-taking activities. Writing by hand has been associated with deeper cognitive processing, as it requires students to actively engage with and summarize information rather than passively transcribe or copy content. In an environment dominated by digital typing and quick information access, handwritten tasks can slow down the learning process in a productive way, encouraging reflection, comprehension, and long-term retention of knowledge. This approach is particularly useful in countering the fragmented reading and learning behaviours associated with digital environments (Ali Rabah, 2024).

Frequent and structured assessment is also essential. Implementing continuous assessment (C.A.) tests tied to specific learning objectives or conducted at intervals during lectures can significantly enhance attention and participation. Short quizzes or reflective tasks at the end of each instructional segment encourage students to remain attentive, as they anticipate active evaluation of their understanding. This strategy not only reinforces learning but also helps lecturers gauge students' comprehension in real time, thereby addressing cognitive overload and disengagement early (Tafesse et al., 2024).

In addition, the use of existing information resources in both print and electronic formats within the library can strengthen student engagement. Encouraging students to consult textbooks, reference materials, databases, and other academic resources both physical and digital promotes active learning beyond passive listening. This practice is particularly relevant in LIS education, where familiarity with diverse information sources is a core professional skill. Engaging with library resources also fosters sustained attention, as students must navigate, evaluate, and synthesize information independently, thereby deepening their cognitive involvement in the learning process (Maity & Mete).

Therefore, enhancing attention in the face of digital distractions requires a balanced and intentional approach that combines pedagogical innovation with practical classroom management strategies. By integrating blended teaching methods, regulating digital device usage, promoting reflective learning through handwriting, implementing continuous assessments, and leveraging library resources, LIS educators can create learning environments that sustain attention, improve engagement, and support meaningful academic outcomes in the digital age.

Conclusion

This paper has examined the growing concern of declining undergraduate attention spans within Library and Information Science (LIS) education, particularly in the context of digitally mediated learning environments. It established that attention span is a fundamental determinant of effective learning, yet is increasingly constrained by cognitive limits and the pervasive influence of digital distractions such as smartphones, social media, multitasking, and constant notifications. These factors contribute to fragmented attention, reduced concentration, and diminished academic engagement among students. The paper further revealed that the continued reliance on traditional lecture-based pedagogical approaches in many Nigerian universities may not adequately address the learning needs and expectations of contemporary students. Given that attention during lectures typically declines after short periods of passive engagement, there is a clear need to rethink instructional strategies to better align with students' cognitive capacities and digital realities. In response, the paper highlighted practical engagement strategies that can enhance attention and learning outcomes in LIS education. These include the adoption of blended and interactive teaching approaches, the introduction of structured digital detox practices during lectures, the use of handwritten assignments to promote deeper cognitive processing, continuous assessment to sustain engagement, and the effective use of both print and electronic library resources to support active learning

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Retooling Academic Libraries and Librarians for Sustainable Academic Development in Nigeria: Emerging Technologies, Competencies and Institutional Challenges

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Abstract

The rapid advancement of digital technologies has transformed the operational landscape of academic libraries and reshaped the professional responsibilities of librarians in higher education institutions. Traditional library services are increasingly inadequate for supporting the evolving demands of teaching, learning, research, and scholarly communication in technology-driven academic environments. This study employed a systematic review approach guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to examine emerging technologies, librarian competencies, and institutional challenges affecting academic libraries in Nigeria. Relevant peer-reviewed literature published between 2010 and 2025 was retrieved from major scholarly databases and analysed using thematic narrative synthesis. The review revealed that technologies such as artificial intelligence, cloud computing, digital repositories, integrated discovery systems, electronic resource management platforms, and big data analytics are significantly transforming academic library services and improving access to scholarly information resources. The findings further indicate that librarians are increasingly required to develop competencies in digital scholarship, instructional technology, research support services, data management, and technology-mediated information delivery. Despite these developments, the review identified persistent barriers to sustainable library transformation, including inadequate funding, infrastructural deficiencies, inconsistent policy implementation, and limited digital competencies among library professionals. The study concluded that sustainable academic development in Nigerian tertiary institutions depends largely on strategic investment in digital infrastructure, continuous professional development, curriculum reform in Library and Information Science education, and stronger institutional support for technological innovation. The paper contributes to existing scholarship by providing a conceptual synthesis linking emerging technologies, librarian competencies, institutional readiness, and sustainable academic library development within the Nigerian context.

Keywords: Academic libraries, digital transformation, emerging technologies, librarians' competencies, sustainable academic development, Nigeria.

Introduction

In an era when knowledge economies drive national progress, the capacity of libraries and librarians at tertiary institutions to adapt to the evolving demands of teaching, learning, research, and development has become a decisive factor in shaping Nigeria's academic and developmental trajectory. The need to build institutional and professional capacity has become increasingly important in academic environments shaped by digital technologies, online information systems, and evolving user expectations. The traditional description of libraries as repositories of printed materials must now evolve; they are expected to function as dynamic knowledge hubs that support teaching, learning, research, and development (Breeding, 2015). The growth of electronic resources, digital content creation, and web-based scholarly communication has fundamentally transformed how information is accessed, processed, and disseminated in higher education institutions. Studies indicated that academic librarians must continuously adapt to emerging technologies to remain relevant (Anderson, 2015). Emerging Technologies such as artificial intelligence (AI), virtual reality (VR), big data analytics, and Internet of Things (IoT), coupled with older technologies like library automation systems, electronic resource management software, instructional design platforms, and integrated search systems, which many libraries and librarians still struggle with, are redefining library services. Consequently, there is an urgent need for structured retooling programmes aimed at equipping libraries and librarians with the competencies and technologies required for contemporary academic service delivery

The process of retooling tertiary institutions' libraries and librarianship entails deliberate interventions to modernise library services and enhance the competencies of library professionals. Re-tooling involves adopting emerging technologies, such as artificial intelligence (AI), virtual reality (VR), big data analytics, and Internet of Things (IoT), and relatively older but still relevant technologies such as library automation systems, electronic resource management platforms, integrated search tools, digital repositories, and instructional design applications (Breeding, 2015). It also encompasses professional development initiatives, including training workshops, seminars, and continuous education programs that equip librarians with the skills necessary to manage digital resources, provide

reference services, support e-learning, and facilitate research activities (Adegbija & Oyediran, 2019; Okoro, 2017). The availability of modern infrastructure, such as high-speed internet, up-to-date computer systems, and electronic library databases, also plays a critical role in this variable (Abubakar, 2021). Collectively, these interventions represent the resources, knowledge, and tools that libraries and librarians need to function effectively in a contemporary academic environment.

The outcomes associated with retooling are specifically the ability of academic libraries and librarians to enhance teaching, learning, research, and development in tertiary institutions. These outcomes include improved access to quality information, efficient library service delivery, increased research productivity, and the promotion of innovation in both academic and professional contexts (Onuoha & Okocha, 2018; Adegbija & Oyediran, 2019). For teaching and learning, re-tooled libraries enable students and lecturers to access electronic course materials, online journals, and interactive learning platforms, fostering a richer and more flexible educational experience (Okoro, 2017). For research and development, librarians equipped with modern skills and technologies can provide more effective literature searches, data management support, and scholarly communication assistance (Breeding, 2015; Abubakar, 2021). Ultimately, these dependent variables reflect the extent to which retooling initiatives can transform libraries from traditional repositories into dynamic knowledge hubs that actively contribute to institutional growth, academic excellence, and national development (Onuoha & Okocha, 2018).

In Nigeria, however, the adoption of these technologies remains uneven due to infrastructural limitations, funding challenges, and skills gaps among library professionals. The Nigerian Library Association (NLA) theme, *"Our Future, Our Hope: The State of Libraries and Librarianship in Nigeria,"* underscores the urgent need to reposition libraries as critical drivers of national development. Within this context, retooling tertiary institution libraries and librarians is imperative for sustaining quality education, enhancing research output, and fostering innovation. This paper, therefore, explores pathways for the adoption of emerging technologies in academic libraries and examines the evolving competencies of librarians, with a focus on strategies that Nigerian tertiary institutions can employ to effectively support teaching, learning, research, and development.

Statement of the Problem

Academic libraries play a crucial role in supporting teaching, learning, research, and innovation. However, in Nigeria, many tertiary institution libraries face significant challenges in adopting and integrating emerging technologies. These challenges include inadequate infrastructure, limited funding, and a lack of professional skills among librarians to effectively leverage digital tools for library services. Consequently, the full potential of technologies such as library automation systems, electronic resource management software, integrated search platforms, and digital content creation tools remains largely untapped. This situation limits access to information, reduces the efficiency and relevance of library services, and hinders academic librarians' ability to support research and innovation effectively. Despite the Nigerian Library Association's emphasis on repositioning libraries as drivers of national development, there is insufficient empirical evidence on strategies for retooling both libraries and library professionals to meet contemporary technological demands. Addressing this problem is critical to ensuring that Nigerian academic libraries remain responsive to evolving educational needs and global standards in scholarly communication.

Objectives of the Study

The objectives of this study were to:

1. Examine emerging technologies shaping academic libraries in Nigeria.
2. Identify new roles and competencies required of librarians in academic libraries in Nigeria.
3. Assess how technological tools enhance teaching, learning, research, and development of academic libraries in Nigeria
4. Highlight challenges facing the retooling of academic libraries in Nigeria.
5. Propose strategies for strengthening libraries and librarians for the sustainable academic development of academic libraries in Nigeria.

Theoretical Framework

This study is anchored on the Diffusion of Innovation Theory (DOI) developed by Rogers (2003) and the Technology Acceptance Model (TAM) proposed by Davis (1989). The Diffusion of Innovation Theory explains how new technologies, ideas, and innovations are adopted within organisations and social systems over time. The theory identifies important factors influencing innovation adoption, including perceived usefulness, compatibility, complexity, organisational readiness, and communication channels. Within the context of academic libraries, the theory provides a useful framework for understanding how emerging technologies such as artificial intelligence, digital repositories, cloud computing, and integrated discovery systems are adopted and utilised in tertiary institutions. The TAM Model complements DOI by explaining librarians' behavioural intentions toward technology usage. TAM posits that perceived usefulness and perceived ease of use significantly influence users' acceptance of technological systems. In academic libraries, librarians' willingness to adopt emerging technologies depends largely on their digital competencies, institutional support, training opportunities, and perceptions regarding the effectiveness of technological tools in

enhancing teaching, learning, and research services. The integration of DOI and TAM provides a robust analytical framework for understanding the relationship between emerging technologies, librarians' competencies, institutional readiness, and sustainable academic development in Nigerian tertiary institutions.

Literature Review

Emerging Technologies and Digital Transformation in Academic Libraries

Many emerging technologies are at the forefront of scholarly debate about their impact across different strata of society. Academic libraries, as centres of innovation, cannot ignore these developments. AI, VR, big data analytics, IoTs, and smart libraries will continue to dominate the discourse as evolving services enhance efficiency, positioning libraries as vital drivers of academic excellence in the digital age.

Diagramatic Representation

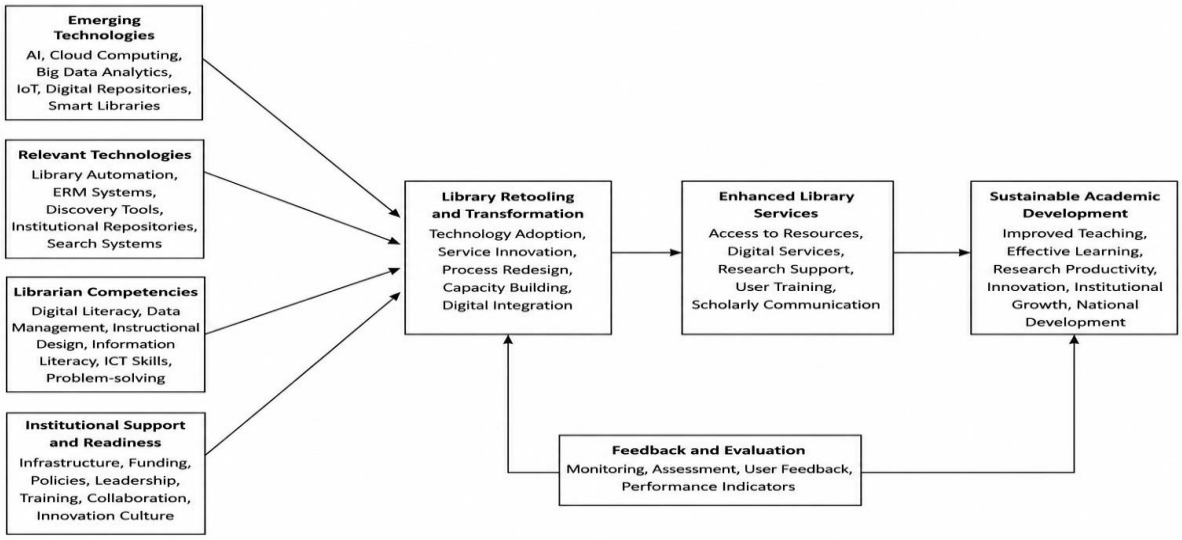


Figure 1: Conceptual Framework for Retooling Academic Libraries and Librarians for Sustainable Academic Development in Nigeria

Emerging technologies are significant drivers of transformation in academic libraries. Technologies such as artificial intelligence (AI), machine learning, cloud computing, radio-frequency identification (RFID), integrated discovery systems, big data analytics, and virtual and augmented reality have reconfigured how libraries acquire, organise, manage, and disseminate information resources within contemporary academic environments (Cox, Pinfield, & Rutter, 2019; Makinde, Olatunji, Igbinlola, & Gyang, 2024; Nwala, Otuza, & Johnson, 2025; Malgwi, Dawha, Inuwa, & Rabasa, 2025). These technologies automate routine processes, enable personalised information retrieval, and facilitate real-time access to distributed digital collections. For instance, AI-driven recommender systems and natural language search engines now enhance user discovery experiences, while cloud platforms allow libraries to scale services, support remote access, and reduce infrastructural costs (Cox et al., 2019; Adeyeye & Oladokun, 2025).

Oladokun and Adeyeye (2025) found that academic libraries employing data management systems, digital repositories, and automated metadata generation tools significantly improved research support and institutional visibility. Similarly, Makinde et al. (2024) reported that integrating information technology and telecommunications infrastructure in university libraries facilitates digital pedagogy, cross-institutional collaboration, and access to open scholarly resources. These findings reinforce the argument that emerging technologies are not merely operational tools but strategic assets that reposition libraries as integral components of the academic knowledge ecosystem.

In developing contexts such as Nigeria, however, technology adoption remains uneven. Emmanuel and Emmanuel (2025) observed that while automation software, electronic resource management systems, and integrated discovery platforms are increasingly deployed in federal university libraries, their utilisation is constrained by infrastructural deficiencies and skills shortages. Agboke and Oladokun (2025) further contend that the transformative potential of AI and related technologies in Nigerian academic libraries is yet to be fully realised due to limited institutional investment and policy direction. Consequently, while global trends highlight the centrality of emerging technologies in academic librarianship, local contexts reveal significant gaps between technological potential and practical implementation.

The reviewed studies consistently demonstrated that emerging technologies have become central to the transformation of academic library operations, particularly in the areas of information access, digital scholarship, and research support. However, the literature also reveals considerable disparities in the extent of technological adoption across institutions. While some universities have integrated artificial intelligence applications, cloud-based services, and advanced discovery systems into library operations, others remain dependent on basic automation tools due to infrastructural and financial limitations (Cox et al., 2019; Emmanuel & Emmanuel, 2025). The studies largely concentrate on operational

efficiency and electronic resource management, with comparatively limited attention given to ethical concerns surrounding AI deployment, algorithmic bias, data governance, and the sustainability of digital transformation initiatives within African academic library environments. The literature, therefore, suggests that technology adoption in Nigerian academic libraries remains uneven and requires stronger institutional frameworks, contextualised implementation strategies, and sustained investment to achieve meaningful transformation.

Evolving Professional Roles and Competencies of Academic Librarians

The increasing integration of emerging technologies into academic library services has expanded the range of competencies expected of librarians in contemporary higher education environments. Recent studies suggest that librarians are increasingly involved in digital resource management, research support services, instructional collaboration, and technology-mediated information services, in addition to their traditional responsibilities related to collection organisation and access provision (Cox et al., 2019; Enakrire, Oladokun, Morodi, & Ajani, 2025). This shift reflects the growing incorporation of libraries into teaching, learning, and research activities, particularly in areas such as scholarly communication, digital pedagogy, and research data support. Some studies conducted within Nigerian tertiary institutions reveal persistent skills gaps that limit librarians' ability to exploit emerging technologies fully. Olayemi, Olayemi, and Michael (2025) reported that while cataloguing librarians demonstrate basic ICT proficiency, advanced competencies such as metadata interoperability, digital repository management, and system customisation remain underdeveloped. Similarly, Abubakar and Yahaya (2024) found that librarians' effectiveness in managing institutional repositories was significantly influenced by their exposure to professional training and continuing education. Their study highlights the need for structured capacity-building programmes to equip librarians with competencies in digital scholarship, open-access publishing, and research data curation. Beyond technical expertise, scholars emphasise the importance of **adaptive, analytical, and collaborative competencies**. Agboke and Oladokun (2025) argue that librarians must cultivate skills in data analytics, user experience design, and technology-mediated instruction to remain relevant in digitally mediated academic environments. Enakrire et al. (2025) further note that emerging environments such as the metaverse and AI-supported information systems require librarians to develop critical digital literacy, ethical reasoning, and continuous learning orientations. Collectively, the literature establishes that retooling librarians is as critical as upgrading infrastructure, since human capacity ultimately determines the success of technological transformation.

These literatures reviewed indicated a broad consensus that the professional identity of librarians is undergoing a significant transformation in response to technological advancements and changing academic expectations. Contemporary librarians are increasingly expected to possess competencies extending beyond traditional cataloguing and reference functions to include digital scholarship support, data curation, instructional technology integration, and research analytics (Enakrire et al., 2025; Olayemi et al., 2025). Nevertheless, contradictions exist regarding the preparedness of librarians to perform these emerging responsibilities effectively. While some studies report increasing ICT proficiency among academic librarians, others reveal persistent deficiencies in advanced digital competencies, particularly in areas such as metadata interoperability, repository management, and AI-supported information services (Abubakar & Yahaya, 2024; Agboke & Oladokun (2025). Most existing studies focus primarily on technical competencies, with less attention devoted to adaptive skills such as critical digital literacy, interdisciplinary collaboration, innovation management, and ethical decision-making in technology-mediated environments. The literature, therefore, suggests that sustainable professional retooling requires a balance between technological expertise, continuous learning, and institutional support systems.

Technological Integration and Academic Support Services in Higher Education

Technological integration in academic libraries has demonstrably enhanced pedagogical delivery, research productivity, and institutional development. Digital platforms, electronic databases, and automated discovery systems facilitate ubiquitous access to scholarly resources, thereby supporting student-centred learning and faculty-led instruction (Makinde et al., 2024; Oladokun & Adeyeye, 2025). Adeyeye and Oladokun (2025) further observed that data mining tools and digital research infrastructures enable researchers to efficiently synthesise large volumes of literature, improve citation management, and increase the global visibility of institutional research outputs.

In Nigeria, empirical evidence suggests that libraries adopting research support technologies contribute significantly to academic productivity. Oladokun and Adeyeye (2025) reported that institutional repositories, digital indexing services, and electronic resource management systems enhanced research dissemination and scholarly communication in universities where they were effectively deployed. However, they also caution that inadequate technical expertise and inconsistent system maintenance often limit the sustainability of such initiatives. These findings are consistent with Abubakar and Yahaya's (2024) assertion that librarians' technological competence is a critical determinant of research support quality. Furthermore, the pedagogical implications of library technologies extend beyond access to resources. Makinde et al. (2024) demonstrated that integrated IT and telecommunication infrastructures facilitate blended learning environments, collaborative knowledge production, and distance education. Through virtual reference services, learning management system integration, and digital content creation, libraries increasingly function as **learning commons** that

mediate academic engagement. Consequently, technological tools not only enhance operational efficiency but also redefine the library's pedagogical and research roles within tertiary education systems.

Across the reviewed literature, there is substantial consensus that technological tools have significantly expanded the capacity of academic libraries to support teaching, learning, research, and institutional development. Digital repositories, electronic databases, virtual reference services, integrated search platforms, and learning management system integrations have improved access to scholarly resources, strengthened research dissemination, and facilitated flexible learning environments (Makinde et al., 2024; Oladokun & Adeyeye, 2025). However, the literature also suggests that the effectiveness of these technologies depends heavily on institutional readiness, technical expertise, and sustained infrastructural support. While some studies emphasise improved research visibility and enhanced academic productivity resulting from digital integration, others caution that inadequate maintenance culture, inconsistent internet connectivity, and insufficient user training continue to undermine long-term effectiveness in many Nigerian institutions (Abubakar & Yahaya, 2024). In addition, limited empirical attention has been given to measuring the direct impact of emerging technologies on learning outcomes, research quality, and innovation capacity within higher education institutions. The literature, therefore, points to the need for more evidence-based assessments of how technological interventions shape academic performance and knowledge production in developing-country contexts.

Institutional and Infrastructural Barriers to Academic Library Retooling in Nigeria

The benefits of emerging technologies to the retooling of Nigerian academic libraries is impeded by persistent structural, financial, and human-capacity constraints. Infrastructure deficits, including unstable electricity supply, inadequate broadband connectivity, and obsolete hardware, remain the most significant barriers to digital transformation (Agboke & Oladokun, 2025). These limitations restrict the deployment of cloud services, AI-driven systems, and advanced discovery platforms, thereby undermining the efficiency and reliability of library services.

Human capital challenges further complicate technological integration. Agboke and Oladokun (2025) found that while librarians recognise the importance of emerging technologies, many lack the specialised training required to implement and manage them effectively. Enakrire et al. (2025) similarly reported that librarians experience technology anxiety and professional uncertainty when confronted with complex digital environments, particularly AI-supported and immersive systems. Such skills gaps often result in underutilization of available technologies and resistance to innovation.

Financial and institutional constraints also play a critical role. Agboke and Oladokun (2025) identified insufficient funding, high costs of software licensing, and limited institutional prioritisation of library technology as major impediments to retooling efforts. In many institutions, library development remains peripheral to strategic planning, leading to fragmented adoption of technologies without long-term sustainability frameworks. Consequently, the challenges confronting Nigerian academic libraries are systemic and require coordinated policy, funding, and capacity-building interventions. The reviewed studies collectively identify infrastructural deficiencies, inadequate funding, limited digital competencies, and institutional resistance to change as the major barriers confronting the retooling of academic libraries in Nigeria (Agboke & Oladokun, 2025; Agboke & Oladokun (2025). Although there is a broad consensus regarding the existence of these constraints, differences emerge concerning their relative impact on technological transformation. Some scholars emphasise financial limitations and poor technological infrastructure as the most critical obstacles, whereas others argue that weak institutional policies, inadequate leadership commitment, and low investment in human capital development constitute deeper systemic challenges (Enakrire et al., 2025). Existing scholarship also tends to focus more heavily on operational challenges while paying less attention to organisational culture, technology anxiety, digital inequality, and policy inconsistencies affecting sustainable innovation in academic libraries. The literature therefore suggests that the challenges associated with library retooling are multidimensional and require coordinated responses involving institutional leadership, government intervention, professional training, and strategic policy reform.

Strategic Approaches for Sustainable Academic Library Development

The literature consistently advocates a multi-dimensional approach to strengthening academic libraries for sustainable development. Central to this is **continuous professional development.** Olayemi et al. (2025) emphasise that structured training in metadata standards, digital resource management, and emerging technologies enhances librarians' operational competence and professional confidence. Similarly, Abubakar and Yahaya (2024) demonstrate that librarians who participate in regular workshops, certifications, and collaborative learning programmes are more effective in managing institutional repositories and digital scholarship initiatives. Equally important is the continual reform of **Library and Information Science (LIS) curricula** to reflect contemporary technological realities. Agboke and Oladokun (2025) argue that integrating courses on data management, AI applications, information systems design, and digital pedagogy into LIS education is essential for preparing future professionals. Enakrire et al. (2025) further recommend embedding ethical technology use, digital rights management, and user-experience research into professional training to address emerging challenges in virtual and AI-driven environments.

At the institutional level, sustainable retooling requires **strategic investment, policy alignment, and cross-sector collaboration**. Agboke and Oladokun (2025) argue that governments and university administrations should prioritise library infrastructure within national digital development agendas. Partnerships with ICT units, research centres, and international organisations can further facilitate resource sharing and innovation. When professional development,

curriculum reform, and institutional commitment converge, academic libraries can be repositioned as transformative agents of teaching, learning, research, and national development.

The literature strongly supports continuous professional development, curriculum reform, strategic investment, and institutional collaboration as essential strategies for strengthening academic libraries and librarians in the digital era (Olayemi et al., 2025; Agboke & Oladokun, 2025). Many studies emphasise that sustainable academic development depends not only on the acquisition of technological infrastructure but also on the ability of librarians to continuously adapt to evolving digital environments. However, the literature reveals limited consensus regarding the most sustainable implementation models for developing-country contexts such as Nigeria. While some scholars advocate technology-driven institutional reforms, others prioritise human capacity development and collaborative partnerships as more realistic pathways for long-term sustainability. Furthermore, relatively few studies have examined the role of national digital policies, inter-university resource-sharing frameworks, competency certification systems, and regional collaboration in strengthening academic libraries across Africa. The literature therefore suggests that sustainable retooling requires an integrated approach that combines infrastructure development, policy support, professional capacity-building, and institutional innovation.

Methodology

This study adopted a systematic review approach to synthesise existing literature on emerging technologies, librarian competencies, and the retooling of academic libraries in Nigeria. The systematic review method was considered appropriate because it enables the identification, evaluation, and synthesis of relevant scholarly evidence relating to digital transformation and sustainable academic library development. The review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework developed by Page et al. (2021), which provides a transparent and replicable process for identifying, screening, and selecting relevant studies. Relevant literature was retrieved from major scholarly databases, including Google Scholar, Scopus, Web of Science, ResearchGate, ScienceDirect, and Library and Information Science Source. Additional materials were obtained from institutional repositories, conference proceedings, and reputable open-access journals in Library and Information Science. The search process focused on studies published between 2010 and 2025 to capture contemporary developments in emerging technologies and digital transformation within academic libraries. The search strategy employed combinations of keywords and Boolean operators such as: “emerging technologies” AND “academic libraries”; “artificial intelligence” AND “librarians”; “digital transformation” AND “university libraries”; “library automation” AND “Nigeria”; “librarian competencies” AND “academic libraries”; and “technology adoption” AND “library services.” These keywords were refined during the search process to improve relevance and coverage. Studies were included in the review if they: (a) focused on academic or tertiary institution libraries; (b) addressed emerging technologies, digital transformation, librarian competencies, or technology-driven library services; (c) were published in peer-reviewed journals, conference proceedings, or credible scholarly outlets; and (d) were written in English language. Studies focusing exclusively on public libraries, school libraries, or unrelated information systems were excluded. Duplicate studies and articles lacking sufficient methodological or conceptual clarity were also excluded from the review. The review process followed the four major PRISMA stages of identification, screening, eligibility assessment, and inclusion. An initial search produced 124 studies across the selected databases. Following duplicate removal and abstract screening, 76 studies were retained for full-text assessment. After applying the inclusion and exclusion criteria, 42 studies were finally selected for qualitative synthesis. Data extracted from the selected studies included authorship, year of publication, study focus, technological themes, librarian competencies, institutional challenges, and strategic recommendations. The extracted data were analysed using thematic narrative synthesis. This approach enabled the identification of recurring themes, areas of convergence, contradictions within the literature, methodological trends, and underexplored issues relating to academic library transformation in Nigeria. To ensure the credibility of the review, studies were further assessed based on relevance, methodological clarity, analytical depth, and contribution to knowledge on digital transformation in academic libraries. Nevertheless, the study is limited by its reliance on published literature and English-language sources, which may have excluded relevant unpublished studies and non-English scholarly contributions.

PRISMA FLOW Diagram

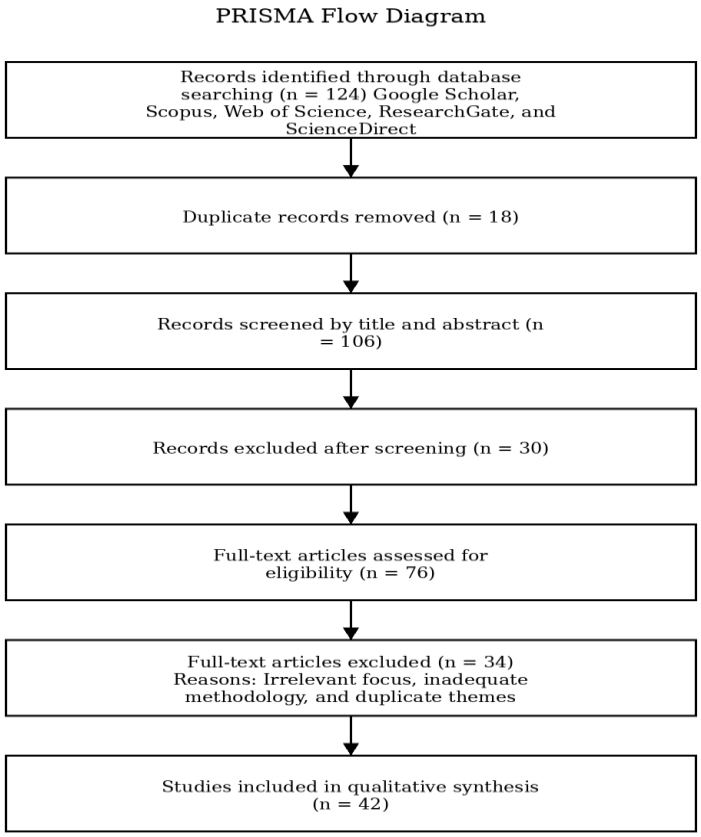


Figure 2: 124 studies were identified through database searching. After duplicate removal and screening, 76 studies were assessed for eligibility, while 42 studies met the inclusion criteria and were included in the final qualitative synthesis

Discussion

The findings of this review demonstrate that emerging technologies have become increasingly central to the transformation of academic library services and operations within higher education institutions. The reviewed literature indicates that technologies such as library automation systems, electronic resource management platforms, integrated discovery tools, institutional repositories, cloud computing, and artificial intelligence applications have significantly reshaped how information resources are acquired, organised, accessed, and disseminated in academic environments (Cox, Pinfield, & Rutter, 2019). This transformation reflects the growing shift from traditional print-based library operations to digitally mediated knowledge ecosystems that support contemporary teaching, learning, research, and scholarly communication. The increasing integration of digital technologies into academic libraries aligns with Rogers' (2003) Diffusion of Innovation Theory, which explains how institutions gradually adopt innovations that are perceived as useful, relevant, and capable of improving organisational performance.

The review further revealed that technological tools significantly improve access to scholarly resources and enhance research support services within tertiary institutions. Electronic databases, integrated search systems, bibliographic management software, and digital repositories enable students, lecturers, and researchers to retrieve and utilise information resources more efficiently. Chickering and Yang (2014) observed that integrated discovery systems improve resource visibility and simplify information retrieval across multiple databases, thereby enhancing user experience and academic productivity. Similarly, Butros and Taylor (2010) noted that bibliographic and citation management applications facilitate research organisation, referencing accuracy, and literature management for researchers and postgraduate students. These developments demonstrate that emerging technologies are no longer supplementary tools within academic libraries but have become essential infrastructures for supporting teaching effectiveness, distance learning, collaborative scholarship, and research dissemination.

The study also revealed that the effectiveness of technological transformation in academic libraries depends largely on librarians' professional competencies and institutional support systems. Findings from the reviewed literature suggest that librarians are increasingly expected to perform functions extending beyond traditional cataloguing and circulation services to include digital scholarship support, instructional technology integration, electronic resource management, and information literacy instruction (Partridge, Lee, & Munro, 2010; Radniecki, 2013). This changing professional landscape reflects the broader evolution of librarianship from custodial information management to technology-mediated knowledge facilitation. Radniecki (2013) specifically argued that librarians working within emerging

technology environments require competencies in digital content management, systems coordination, user support, and technological innovation. In the Nigerian context, however, the review revealed that many librarians still face limitations relating to advanced digital competencies, particularly in areas such as metadata management, institutional repository administration, and emerging AI-driven information systems.

The findings equally suggest that professional retooling is indispensable for sustaining digital transformation within academic libraries. Continuous professional development through workshops, seminars, certification programmes, and specialised training initiatives was consistently identified as essential for strengthening librarians' digital competencies and improving technology utilisation. These findings support Davis' (1989) Technology Acceptance Model, which posits that users are more likely to adopt technological systems when they perceive them as useful and when they possess the competencies required for effective utilisation. In many Nigerian tertiary institutions, inadequate training opportunities and limited exposure to emerging technologies continue to affect librarians' confidence and capacity to manage advanced digital systems effectively. Consequently, technological investment without corresponding human-capacity development may produce limited institutional outcomes.

Another important issue emerging from the review relates to the uneven nature of technology adoption across Nigerian tertiary institutions. While some academic libraries have successfully implemented automation systems, digital repositories, and electronic resource management platforms, others continue to struggle with infrastructural deficiencies, unstable internet connectivity, inadequate electricity supply, and obsolete technological facilities (Breeding 2015). These infrastructural limitations significantly affect the sustainability and effectiveness of digital library initiatives. The findings further revealed that inadequate funding remains one of the most persistent barriers to academic library transformation in Nigeria. Limited financial allocation to libraries restricts the acquisition of technological infrastructure, software licensing, database subscriptions, and staff training opportunities. This finding reinforces the argument that sustainable digital transformation requires not only technological adoption but also long-term institutional commitment and strategic investment.

Beyond infrastructural and financial challenges, the review also identified institutional and organisational factors as major determinants of successful library retooling. In several institutions, weak policy frameworks, inconsistent administrative support, and low institutional prioritisation of libraries continue to undermine technological innovation and service delivery. The literature suggests that libraries are sometimes viewed primarily as auxiliary service units rather than strategic partners in teaching, learning, and research development. Such institutional perceptions may hinder the integration of libraries into broader digital transformation agendas within universities. Sustainable academic library development therefore requires stronger collaboration among library management, university administrations, ICT units, academic departments, and policymakers to ensure coordinated planning, resource allocation, and institutional support for innovation.

The review additionally revealed that emerging technologies introduce complex ethical and governance concerns that academic libraries must increasingly address. Artificial intelligence systems, digital surveillance technologies, and data-driven information services raise important questions relating to data privacy, algorithmic bias, intellectual freedom, and equitable access to information resources. Cox et al. (2019) argued that while AI technologies possess the potential to improve information retrieval and service delivery, they also create ethical concerns regarding transparency, accountability, and user autonomy within digital environments. In developing countries such as Nigeria, unequal access to technological infrastructure may further widen digital inequalities between well-funded institutions and resource-constrained universities. Consequently, discussions surrounding academic library transformation must extend beyond operational efficiency to include ethical governance, digital inclusion, and responsible technology implementation.

The findings of this review further indicate that sustainable retooling requires a multidimensional approach involving curriculum reform, professional capacity-building, infrastructural investment, and institutional policy development. Library and Information Science education programmes must continually evolve to incorporate contemporary areas such as digital librarianship, research data management, instructional technologies, artificial intelligence applications, and information systems design. Equally important is the need for institutional policies that support innovation, technology integration, collaborative partnerships, and continuous professional learning. When these elements are effectively combined, academic libraries can be repositioned as strategic centres for knowledge creation, digital scholarship, research productivity, and national development. The successful retooling of libraries and librarians therefore depends on the extent to which tertiary institutions are willing to integrate technological innovation, human-capacity development, and strategic planning into their broader academic development agendas.

Findings

From the systematic review, the following findings emerged:

1. Emerging technologies such as artificial intelligence, cloud computing, integrated discovery systems, digital repositories, and electronic resource management platforms significantly enhance teaching, learning, research support, and scholarly communication in academic libraries.
2. The professional roles of librarians are expanding beyond traditional cataloguing and reference services to include digital scholarship support, instructional technology integration, research data management, and technology-mediated user education.
3. The adoption of emerging technologies across Nigerian tertiary institution libraries remains uneven due to disparities in funding, infrastructure availability, internet connectivity, and institutional readiness.
4. Major barriers confronting the retooling of academic libraries include inadequate funding, insufficient digital infrastructure, limited technical competencies among librarians, weak policy implementation, and resistance to organisational change.
5. Continuous professional development, curriculum reform in Library and Information Science education, and institutional collaboration were consistently identified as essential strategies for strengthening librarians' competencies and sustaining digital transformation initiatives.

Conclusion

Retooling tertiary institution libraries and librarians is no longer optional in the digital age. Emerging technologies have transformed the academic information landscape, redefining how teaching, learning, and research are conducted. This study contributes to knowledge by providing an integrated conceptual synthesis of how emerging technologies, librarian competencies, institutional readiness, and policy environments collectively shape sustainable academic development within Nigerian tertiary institutions. The study also extends existing scholarship by situating digital transformation within the broader realities of developing-country academic library systems. However, future studies should undertake empirical and comparative investigations on AI integration, digital scholarship practices, and technology adoption across African academic libraries

Recommendations

Based on the findings, this paper recommends that:

1. Tertiary institutions should allocate adequate funding for digital infrastructure, automation systems, and electronic resource management tools in academic libraries.
2. Regular training, workshops, and certification programmes should be provided to librarians on emerging technologies and instructional design to lecturers and librarians of academic libraries.
3. Library schools should update and harmonise their curricula to emphasise digital librarianship, data management and technology integration for future generation librarians and information professionals.
4. University management should develop policies that support innovation, collaboration, and continuous professional development of librarians.
5. Libraries should collaborate with ICT units, academic departments and external organisations to enhance service delivery. Through the following strategies:
    i. Continuous professional development through regular training, workshops, and certification programmes on emerging technologies and digital librarianship.
    ii. Reform of Library and Information Science (LIS) curricula to incorporate artificial intelligence, digital pedagogy, data management, and information systems design.
    iii. Strategic institutional investment and collaborative partnerships involving libraries, ICT units, research centres, and international organisations to strengthen digital infrastructure and sustainable service delivery.

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ROLES OF LIBRARIES AND LIBRARIANS IN INTERNET GOVERNANCE IN NIGERIAN UNIVERSITIES: A CASE STUDY OF AHMADU BELLO UNIVERSITY LIBRARY COMPLEX, KADUNA STATE

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ABSTRACT
This article examined library internet governance in Nigeria, examining the libraries and librarians role of managing digital resources, ensuring equitable access, and balancing technological advancement with socio-cultural contexts. Through a synthesis of existing literature, stakeholder perspectives, and case studies, this study investigates the rationale behind establishing robust internet governance frameworks in Nigerian libraries. The study objectives are to identify the libraries and librarians Awareness of library internet Governance and identify their roles in digital inclusion as library internet governance in Nigeria with Ahmadu Bello University library complex as a case study area. The study adopted a quantitative research methodology with descriptive survey design. The study population comprised 50 librarians in Ahmadu Bello University, Zaria-Kaduna state. The complete enumerative sampling technique was adopted because the entire 50 Librarians were used as a sample size. The instrument of data collection was an online survey questionnaire designed by researcher using Google forms and administered to respondents Via Ahmadu Bello University Library what's-up app group and the Library Internet Governance whatsapp Groups and during the online sessions of library internet governance. The data collected were analyzed using descriptive statistics. The study revealed high awareness of internet governance among librarians in Ahmadu Bello University library complex. The study further, revealed that librarians have a role to play in internet governance discussion with multiple responsibility. The study concluded by recommended that strength capacity building and continuous professional training for libraries and librarians on internet governance by institutions and professional bodies is very important.
Keyword: Library, Librarians, Internet governance, Nigeria

Introduction

The Internet has become an indispensable infrastructure for education, research, communication, and knowledge dissemination in the twenty-first century. Universities across the world increasingly rely on internet-based technologies to support teaching, learning, scholarly communication, collaboration, and access to information resources (Hanke, 2017). In Nigeria, the rapid adoption of Information and Communication Technologies (ICTs), digital learning platforms, electronic databases, institutional repositories, and online research tools has transformed the operations of higher education institutions and their libraries. As universities become more dependent on digital environments, concerns regarding internet access, digital rights, privacy, cybersecurity, information ethics, data governance, and equitable participation in the digital ecosystem have become increasingly important (Han & Guo, 2022:Imam, 2023). These concerns are collectively addressed through the concept of Internet Governance.

Internet governance refers to the development and application of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet (Umar, 2025). It involves multiple stakeholders, including governments, private sector organizations, civil society groups, technical communities, educational institutions, and information professionals. The objective of internet governance is to ensure that the Internet remains accessible, secure, reliable, inclusive, and beneficial to all users. In the university environment, effective internet governance is essential for safeguarding academic freedom, promoting responsible use of digital technologies, protecting user privacy, combating misinformation, and ensuring equitable access to information resources (Dunmade, 2023:Tella, 2025).

Academic libraries occupy a strategic position within the digital information ecosystem of universities. Traditionally regarded as repositories of knowledge and centers for information access, libraries have evolved into dynamic hubs for digital learning, information management, and technology-enabled services (Nworie, 2018). Contemporary academic librarians are no longer limited to the acquisition and organization of information resources; they are increasingly involved in digital literacy instruction, information ethics education, data management, open access advocacy, cybersecurity awareness, and the promotion of responsible online behavior. Studies have highlighted that academic librarians are expected to possess technological expertise and digital competencies that enable them to support users in navigating complex digital environments and emerging technologies (Aiyebelehin, 2021).

In the context of internet governance, libraries and librarians contribute significantly to promoting equitable access to information, bridging the digital divide, fostering digital inclusion, and enhancing information and digital literacy among university communities. Nigerian academic libraries play a vital role in ensuring that students, researchers, and faculty members can effectively access, evaluate, and utilize digital information resources. Through user education

programmes, digital literacy training, and information literacy initiatives, librarians help users develop critical skills necessary for participating responsibly and effectively in the digital world.

Despite the growing relevance of internet governance in higher education, the participation of libraries and librarians in internet governance processes remains underexplored in Nigeria. Existing studies (Uwaifo, 2013: Florence, 2015: Makinde, 2025: Opele, 2025) have largely focused on digital literacy, information literacy, ICT adoption, and the evolving roles of librarians in the digital age, with limited attention given to how librarians contribute to internet governance frameworks and discussions within universities. Consequently, there is a need to examine the specific roles played by libraries and librarians in shaping internet governance practices in Nigerian universities, the challenges they encounter, and the opportunities available for strengthening their participation.

Understanding the roles of libraries and librarians in internet governance is important because academic libraries serve as gateways to information access and digital engagement within universities. Their involvement can contribute to the development of policies and practices that promote digital inclusion, responsible internet use, information security, and equitable access to knowledge. Therefore, this study seeks to investigate the roles of libraries and librarians in internet governance in Ahmadu Bello University Library Complex, Zaria – Kaduna state with a view to highlighting their contributions, identifying existing challenges, and proposing strategies for enhancing their participation in the governance of the digital information environment.

Objective of the Study

1. To understand librarians awareness of library internet governance in Nigeria.
2. To identify Librarians roles in digital inclusion as library internet governance in Nigeria.

Literature Review on Librarians' Awareness of Internet Governance in Nigeria

Internet governance refers to the development and application of shared principles, norms, rules, decision-making procedures, and programs that shape the evolution and use of the Internet (Khan et al., 2025). Therefore, it encompasses issues such as digital rights, cybersecurity, privacy, data protection, internet accessibility, and online information management. For library and librarians, particularly in academic institutions, awareness of internet governance is essential because libraries serve as gateways to information access, digital literacy, and responsible internet use.

However, existing literature specifically examining librarians' awareness of internet governance in Nigeria remains limited. However, related studies on librarians' awareness of digital technologies, ICTs, Web 2.0 tools, artificial intelligence, and emerging digital trends provide useful insights into their preparedness to engage with internet governance issues such as: Research by (Adenike & Raliat, 2023) reported that Nigerian university librarians demonstrated high awareness of Web 2.0 technologies such as social networking platforms, blogs, wikis, and media-sharing tools. The study revealed that while awareness levels were generally high, actual utilization varied due to infrastructural and organizational challenges. This suggests that librarians possess foundational knowledge of internet-based technologies that can facilitate participation in internet governance discussions. Similarly, a study conducted among academic librarians in Akwa Ibom State revealed positive perceptions of Web 2.0 technologies but a relatively low level of adoption. Constraints identified included inadequate training, poor infrastructure, and limited institutional support. These factors may also affect librarians' engagement with internet governance initiatives and policy discussions (Adeyeye, 2024). In another related study by (Ajani et al., 2022) examined librarians' awareness and readiness for the integration of artificial intelligence in Nigerian academic libraries. The findings indicated that librarians were generally aware of global developments in AI applications within libraries, although many institutions were not fully prepared for implementation. The study highlighted awareness as an important prerequisite for adopting emerging digital technologies and participating in digital policy environments. (Khan et al., 2025) investigated librarians' awareness and attitudes toward cloud computing technologies in university libraries in South-South Nigeria. Their findings revealed substantial awareness among librarians and positive attitudes toward technology adoption. Since cloud computing raises issues related to data privacy, security, and digital governance, such awareness contributes indirectly to understanding internet governance concepts. Studies on ICT awareness among librarians further demonstrate the growing digital competence of library professionals in Nigeria. Research on ICT facilities in academic libraries showed that librarians recognize the importance of information and communication technologies for effective service delivery. However, challenges such as inadequate infrastructure, funding constraints, and insufficient training continue to limit full utilization.

Therefore, these reviews on the evolving roles of academic librarians in Nigeria indicate that librarians are increasingly expected to engage with issues beyond traditional information management, including digital literacy, open access, scholarly communication, information ethics, and digital policy. These responsibilities align closely with the objectives of internet governance, highlighting the strategic role librarians can play in promoting a safe, inclusive, and accessible internet ecosystem.

Literature Review on the Roles of Libraries and Librarians in Internet Governance

Internet governance in library and librarians key issues include access to information, digital rights, cybersecurity, data protection, privacy, net neutrality, and online safety. Within this framework, libraries and librarians are increasingly

recognized as critical stakeholders because they mediate access to information and support digital inclusion. The follows are key roles of library and librarians in internet governance in Nigeria:

Libraries and Librarians as Information Access Gateways: Literature consistently identifies libraries as institutions that ensure equitable access to information, which is a foundational principle of internet governance. In the digital age, academic and public libraries function as access points to internet-based resources, bridging the digital divide and promoting inclusive participation in the information society. Studies in Nigeria emphasize that libraries contribute to national development by providing information access and reducing inequalities in ICT usage among citizens (Strover et al., 2020). Similarly, librarians are described as facilitators of knowledge access who help users navigate complex digital environments. Their role in organizing, curating, and guiding users in the use of online information systems positions them as essential actors in ensuring that internet access is meaningful and productive.

Libraries and Digital Rights, Ethics, and Cybersecurity: A significant area of literature links librarianship with digital ethics and cybersecurity awareness. (Dunmade & Tella, 2023) argue that libraries and librarians play a critical role in promoting cyberethical behaviour among students by educating users on responsible internet use, protecting intellectual property, and reducing cyber risks. This aligns directly with internet governance concerns such as online safety, privacy protection, and ethical information use. In addition, librarians are increasingly involved in teaching information literacy and digital citizenship, which include understanding rights and responsibilities in online spaces. These competencies are essential for empowering users to participate safely in digital environments governed by evolving internet policies.

Libraries as Advocates for Open Access and Inclusive Internet Policies: The literature also highlights libraries as advocates for open access, freedom of expression, and equitable information policies. According to the IFLA Internet Governance Guide for Libraries, libraries are key stakeholders in internet governance discussions because they depend on the internet to fulfill their mission of providing access to information and preserving intellectual freedom. In the Nigerian context, librarians have been identified as contributors to national information policy formulation, acting as educators, collaborators, and facilitators of access to knowledge systems. This role extends to influencing policy environments that regulate internet access and information dissemination(Adeyeye, 2024).

Librarians' Role in Bridging the Digital Divide: Another dominant theme in literature is the role of libraries in bridging the digital divide. Nigerian studies show that inadequate ICT infrastructure, low digital literacy, and limited training hinder equitable access to internet resources. Libraries help mitigate these challenges by providing internet-enabled services, training users in ICT skills, and supporting digital literacy initiatives. By enabling access to digital tools and training users in effective internet use, librarians indirectly contribute to internet governance goals such as universal access, inclusivity, and equitable participation in the digital economy(Adeyeye, 2024).

Emerging Roles in Policy and Governance Participation: Recent literature indicates that librarians are no longer passive information providers but active participants in digital policy discussions. Their involvement in institutional governance, information policy development, and digital transformation initiatives positions them as stakeholders in shaping internet governance frameworks, particularly in academic environments.

In this study, library internal governance is very important to libraries and librarians due new digital technologies in the library operation. Therefore, there is a pressing need for librarians and libraries to understand library internet governance as data privacy and protection, digital inclusion, free of information and cybersecurity etc in the library operations. Similarly, libraries are recognized as indispensable partners in fostering inclusive and sustainable development by the International Federation of Library Associations and Institutions (IFLA)(Subramanian, 2014). Their pivotal role lies in ensuring meaningful access to information, which is essential for economic, social, and environmentally sustainable development. Without such access, informed decision-making, innovation, and full participation in science and culture are hindered, impacting individuals, communities, and global society. In line with the United Nations 2030 Agenda, libraries are identified as key partners for achieving policy goals which library internet governance is policy concerning the digital environment of today.

Research Methodology

The study used Quantitative research method was adopted with descriptive survey design. This type of research design was deemed fit in a bid to elicit data from librarians to ascertains the awareness and the roles of libraries and librarians in library internet governance in Nigeria using Ahmadu University library complex as a case study area. The population of the study comprised 50 librarians from Ahmadu Bello University library, Kaduna state - Nigeria. The entire 50 librarians were adopted as the sample size of the study using total enumeration sample technique. The instrument used for gathering data was an online survey questionnaire designed by the researchers using Google forms. The survey was than administered to the respondents online via Ahmadu Bello University Library whats – up group app, the Library internet governance What's -up app group and during the panel discussion of Library Internet Governance online sessions.

Findings and Discussion

Table 1: Respondent Rate

s/no	Libraries of respondent	No of Frequency	Percentage

a.	Academic Librarians	40	80%
b.	Non-academic Librarian	10	20%
	Total	50	100%

The above table 1, clearly show that 40 (80%) of the respondents are academic Librarians in Nigeria while 10 (20%) are non- Libraries librarians that participants in the survey. This implies that majority of the respondents are academic librarians at Ahmadu Bello University library, complex Zaria - Kaduna State.

Table 2: Awareness of Library Internet Governance

s/no	Are you aware of Library Internet Governance	No of Frequency	Percentage
a.	Yes	37	74%
b.	No	13	26%
	Total	50	100%

The above table 2, clearly show that 37 (74%) librarians in Ahmadu Bello University Library are aware of library internet governance. This indicates there are knowledge of library internet governance among librarians in Ahmadu Bello University Zaria. In support of this finding (Adenike & Raliat, 2023) reported that Nigerian university librarians demonstrated high awareness of Web 2.0 technologies such as social networking platforms, blogs, wikis, and media-sharing tools. The study revealed that while awareness levels were generally high, actual utilization varied due to infrastructural and organizational challenges. This suggests that librarians possess foundational knowledge of internet-based technologies that can facilitate participation in internet governance discussions.

Table 3: The librarian's role in internet governance discussions

s/no	Did believe Librarians have a role to play in internet governance discussion?	No of Frequency	Percentage
a.	yes	50	100%
b.	no	0	0
	Total	50	100%

The table 3, revealed that 50 (100%) of respondents believe they have role to play in internet governance discussion table. Similarly, (Khan et al., 2025) mentioned that Librarians has role in discussion of internet governance due the ethical characteristics of librarianship must dependably highlighted standards comprising Intellectual freedom, information entrance, and user privacy. Moral codes from entities such by Means of the International Federation of Library Associations & Institutions (IFLA, 2012) & the American Library Association (ALA, 2017) highlight librarians' responsibility to oppose Censorship and advocate for equivalent access.

Table 4: The library and librarians roles in internet governance in Nigeria

s/no	What are the role of library and librarians in internet governance	No of Frequency	Percentage
a.	Libraries and Librarians as Information Access Gateways	5	10%
b.	Libraries and Digital Rights, Ethics, and Cybersecurity	6	12%
c.	Libraries as Advocates for Open Access and Inclusive Internet Policies	2	4%
d.	Librarians' Role in Bridging the Digital Divide	3	6%
e.	Emerging Roles in Policy and Governance Participation	4	8%
f.	All of the above	30	60%
	total	50	100%

The table 4, shows that 30 (50%) of respondents reviewed that all of the above are the key roles of libraries and librarians in internet governance in Nigeria. However, this implies that libraries and librarians are information access gateways, Libraries as Advocates for Open Access and Inclusive Internet Policies, Emerging Roles in Policy and Governance Participation and Libraries as Advocates for Open Access and Inclusive Internet Policies. However, some studies have reported that libraries enabling access to digital tools and training users in effective internet use, librarians indirectly contribute to internet governance goals such as universal access, inclusivity, and equitable participation in the digital economy(Adeyeye, 2024). In another study by (Dunmade & Tella, 2023) argue that libraries and librarians play a critical

role in promoting cyberethical behaviour among students by educating users on responsible internet use, protecting intellectual property, and reducing cyber risks.

Summary of the Findings

The following are the major findings of the study:

1. High awareness of internet governance among librarians in ABU Zaria

The study found that a significant proportion of librarians in Ahmadu Bello University Library (74%) are aware of library internet governance, indicating a strong level of knowledge and understanding of the concept among respondents. This aligns with previous studies which show that Nigerian librarians generally possess high awareness of internet-based technologies such as Web 2.0 tools, although actual application may be limited due to infrastructural and institutional challenges. This shows that librarians have a foundational digital awareness that can support engagement in internet governance issues.

2. Universal recognition of librarians' roles in internet governance

The findings also revealed that all respondents (100%) acknowledged that librarians have a role to play in internet governance discussions, with many identifying multiple responsibilities such as promoting open access, supporting information equity, ensuring ethical internet use, and participating in policy-related issues. It further implies that libraries contribute to internet governance through information access, digital literacy training, and advocacy for inclusive and ethical internet use.

Conclusion

In conclusion, the study establishes that librarians at Ahmadu Bello university Library complex are aware of internet governance and recognize their essential roles in shaping it, particularly through access provision, advocacy, and user education. However, strengthening their participation in policy and governance frameworks is necessary to fully harness their potential in the evolving digital information environment in this 21st century.

Recommendation

1. Strengthen capacity building and continuous professional training for librarians on internet governance: since librarians already show high awareness of internet governance, university library management and professional bodies should organize regular workshops, seminars, and ICT-driven training programmes focused specifically on internet governance issues such as digital rights, cybersecurity, data privacy, and policy engagement. This will help transform existing awareness into practical competence and active participation in internet governance processes.

2. Enhance institutional involvement of librarians in internet governance and policy development: Given that librarians universally recognize their role in internet governance, university authorities and relevant stakeholders should formally involve librarians in institutional ICT committees, digital policy formulation, and national internet governance forums. This will ensure that libraries contribute meaningfully to decisions on access, open knowledge, and ethical internet use while strengthening their advocacy role in promoting inclusive and equitable information access.

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STAFF QUALITY AND JOB PERFORMANCE AMONG PERSONNEL IN SELECTED UNIVERSITY LIBRARIES IN OSUN STATE, NIGERIA

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Abstract

University libraries are established to provide information services to students, lecturers, and other members of the university community. However, the effectiveness of these libraries largely depends on the performance of library personnel. Studies have shown that job performance in University libraries is relatively low, which may be influenced by factor such as staff quality. This study, therefore, investigated staff quality and job performance of library personnel in selected university libraries in Osun State, Nigeria. Descriptive survey design of the correlational type was adopted. The population comprised 113 personnel from five University libraries in Osun State. A total enumeration sampling technique was used, and a validated questionnaire served as the data collection instrument. Data were analysed using descriptive statistics (mean and standard deviation), Pearson Product Moment Correlation (PPMC), and regression analysis. Job performance ($\bar{x}$ = 3.29), staff quality ($\bar{x}$ = 3.29) of personnel were high above the threshold. Significant relationships were found between staff quality and job performance ($r = 0.78$ $p < 0.05$) Regression analysis further showed that staff quality influenced job performance with an F-value of 204.605 ($p < 0.05$), indicating a strong predictive capacity of the independent variables on the dependent variable. The R value (0.905) indicates a very strong positive relationship between the predictors (staff quality) and the outcome variable (job performance). The R Square value of 0.819 suggests that 81.9% of the variance in job performance can be explained by the combined influence of staff quality. The Adjusted R Square value of 0.815 confirms the model's robustness by adjusting for the number of predictors while other factor not in this study account for other factor that could influence the job performance of library personnel in Osun State. Staff quality is significant predictor of job performance of library personnel in Osun State. It is recommends that university libraries should prioritize continuous professional development through conference, workshops, seminars, and certifications. It Is also recommends promoting collaborative practices and team work among personnel. enhance performance and service delivery within university libraries.

Keywords: Job performance, personnel, Staff quality, university libraries.

Introduction

A university library is a collection of resources, including books, journals, newspapers, magazines, databases and multimedia materials that serve the research, learning and teaching needs of students, faculty and staff at a university Edu Tinker, (2023). University libraries are constituted in the literature by a range of overlapping and shifting conceptual models that are deployed to capture, express and legitimise their repurposing, progressive status and function within the university campus. Over the last two decade university libraries have been increasingly characterised as highly responsive and receptive to the fast-moving currents of technological innovation, emergent teaching and discusses the evolutionary trajectory of the university library set within an historical context, exploring the discursive influences that have both stimulated and propagated what might be described as progressive transformation Partrick O. Donnel & Lorraine Anderson (2022). University library performs different functions in different universities. These functions

include: collection development, organisation of knowledge for easy storage and retrieval, preservation and conservation of knowledge and dissemination of knowledge to foster academic and research activities. They also provide other services such as lending of resource materials, provision of seat and study facilities, user education, reference services, current awareness services, selective dissemination of information, document delivery, and referral services, amongst others.

The activities in the university library are carried out by library personnel who are expected to perform on their job. Library personnel in universities are librarians who hold bachelor postgraduate diploma master and doctorate in library and information science and other related field. They may also hold bachelor degrees of any other discipline, but for librarians to be registered and practice in Nigeria, the Librarian's Registration Council of Nigeria (LRCN) requires that they possess bachelor degree in library science. Librarians in every university library hold leadership position. They are heads of university libraries, called university librarians. University librarians are among the principal officers and management staff in university libraries. Furthermore, librarians also head various units under them. Para-professionals and library assistants are subordinates to librarians (Eyo, 2021).

These professionals are responsible for managing library systems, curating collections, implementing policies, and ensuring the effective organisation and dissemination of information. They may also focus on conducting research, teaching information literacy, and overseeing staff and services. Their expertise enables them to make decisions regarding the acquisition of resources, the management of budgets, and the application of technology in libraries. An example of a library professional's work is the role of a librarian who is responsible for cataloguing materials, developing user services, and conducting outreach to enhance the library's impact within a community or institution Rubin, (2021)

Para-professionals are those library personnel who possess qualifications higher than senior secondary school certificate. They possess certificate, National Diploma and Higher Diploma in Library Science from accredited universities or polytechnics. On the other hand, library assistants are those library personnel who possess only Senior Secondary School Certificate or General Certificate in Education (GCE) ordinary level. Library assistant forms the majority of the workforce of the university library. The library personnel Librarians, Para-professional and Library Assistants and library porter, all have their different job descriptions tailored towards the satisfaction of the library users. Also, para-professionals (also known as library technicians or assistants) typically support library operations and assist professionals in performing their duties, though they do not require a graduate-level degree. Lekwa (2021) explained that para-professionals may possess specialised certifications or associate degrees in library science, which equip them with the skills necessary to assist in routine tasks such as shelving books, cataloguing materials, assisting library users, and maintaining databases. For instance, library personnel might be job with managing the circulation of books or helping patrons with basic queries, thus enabling library professionals to focus on more complex tasks.

Job performance is defined as the record of an individual’s achievements at work; it is also defined as both behaviour and outcomes of personnel. This is due to the fact that performance’s actions are what transforms performance from abstraction to results. It indicates that when managing team or individual performance, both inputs (behaviour) and outputs (result) must be examined Reddy (2021) Job performance, which is a popular concept in managerial psychology, has thus become an important index in predicting probable success or otherwise of any organisation, which also include University libraries. Job performance refers to the ability of personnel to effectively carry out the duties and responsibilities of the librarian role. This can include jobs such as organising and maintaining library collections, assisting patrons with finding and using resources, providing reference and research assistance, and collaborating with other staff members to provide programmes and services to the community. Job performance refers to the level of success employee have in completing the tasks and responsibilities associated with their job. It can be evaluated by a supervisor or manager through various methods such as goal attainment, employee evaluations, and feedback from colleagues and users Adenekan (2024).

Staff quality refers to the skills, knowledge, and qualifications of library staff members. High-quality staff members can help to improve the overall quality of services provided by the library, as well as increase efficiency and productivity. Job training is a factor that can influence personnel’s productivity and efficiency; it can also lead to library personnel commitment. Library personnel can collect feedback from users through surveys to assess their level of satisfaction with library services and facilities Eyo (2021). However, documented evidence on staff quality and job performance of personnel is high and this indicates a need for this study. Hence, the study required identifying the work experience of staff quality and users satisfaction towards job performance of personnel in selected university libraries in Osun-State, Nigeria.

Objective of study

The main objective of the study is to investigate staff quality and job performance of personnel in selected university libraries in Osun-State, Nigeria. The specific objectives are to:

1. ascertain level of job performance of personnel in selected university libraries in Osun- State, Nigeria; and

2. examine the level of staff quality of personnel in selected university libraries in Osun State, Nigeria;

Literature Review

Staff quality refers to the knowledge, skills, competencies, experience, integrity, and professional attributes employees possess, which enable them to perform organizational tasks effectively. Job performance, on the other hand, reflects the extent to which employees achieve organizational goals through efficiency, productivity, and quality service delivery. Recent empirical studies have consistently established a positive relationship between staff quality and job performance.

Okunlola (2023) investigated the influence of training, remuneration, and teamwork on employee job performance among workers of the National Examinations Council (NECO) in Nigeria. Using a descriptive survey design, the study found that employee training significantly enhanced job performance, indicating that organizations with highly skilled and well-developed staff achieve better performance outcomes. The study concluded that investment in staff development is essential for improving employee effectiveness and productivity. Similarly, Ajibola et al. (2023) examined the relationship between human capital development and employee performance in the Osun State Ministry of Human Resources and Capacity Building. The study revealed that training, education, and employee development positively influenced employee performance. Employees who possessed higher levels of knowledge and professional competence demonstrated greater efficiency and effectiveness in carrying out their responsibilities.

In another Nigerian study, Olanipekun et al. (2024) explored the effect of staffing on employee performance in tertiary institutions. Using a cross-sectional survey of academic and non-academic staff, the researchers found that quality recruitment and selection practices significantly improved employee performance. The study emphasized that attracting and retaining competent personnel enhances organizational competitiveness and productivity. Ede (2024) examined the effect of human capital planning on employee performance among small and medium enterprises in Nigeria. The findings indicated that organizations that strategically develop and utilize high-quality personnel experience improved employee productivity and service delivery. The study recommended continuous investment in workforce quality through planning, training, and career development.

Beyond Nigeria, Serenko, Abubakar et al. (2024) analyzed the drivers of organizational performance from a human capital perspective using data from employees in North American credit unions. Their findings showed that training opportunities, constructive feedback, and employee development significantly improved job satisfaction and reduced turnover intentions, leading to enhanced organizational performance. The study reinforced the view that high-quality staff constitute a critical source of competitive advantage. Furthermore, Leontes & Hoole (2024) investigated the impact of human capital management practices on employee performance in the South African hospitality sector. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), the study found that effective human capital practices improved employee engagement, which subsequently enhanced performance. The researchers concluded that organizations should prioritize staff quality through continuous development and supportive management practices. Additionally, Konadu et al. (2024) examined the role of employee integrity in shaping work performance in the public sector. The study established that integrity, a critical dimension of staff quality, significantly contributes to higher levels of employee effectiveness and organizational performance. Employees exhibiting ethical behavior and accountability were found to perform better and contribute more positively to organizational objectives.

Methodology

The study adopted a survey research method which involves questionnaire and sampling in order to reach out to a sizeable number of personnel in selected universities libraries. This design is suitable for this study because descriptive survey research is fact-finding in nature. The target population for this study comprised the personnel in selected universities libraries in Osun-State, Nigeria. However, the five universities personnel in Osun-State, Nigeria were selected (one federal, one state and three private universities) were finally used for the study.

The total population of personnel in selected universities was 113 as presented in Table 1. We choose these university libraries because they are existing over 5 years before the study and they have larger library personnel that can be study.

The study adopted total enumeration method used in selecting the respondents for this study. A total of 113 copies of the questionnaire were personally administered to the personnel in the five selected university libraries. Therefore, the sample size was the total population of the personnel of the selected universities, 113 respondents, which were taken as the sample for the study through a purposive sampling technique.

Table 1 presented figures on population, number of questionnaires distributed and number returned used.

Table 1 Return Rate of the Questionnaire Administered

S/N	Name of University	Population	Proportional Sample	Number Retuned	Number Used
1	Adeleke University	15	15	15	15
2	Fountain University	8	8	7	7
3	Obafemi Awolowo University	58	55	51	51

4	Osun State University	19	18	17	17
5	Redeemer`s University	13	13	13	13
	Total	**113**	**109**	**103**	**103**

One hundred and nine copies of the questionnaire were distributed to the personnel in selected universities libraries in Osun-State, Nigeria. One hundred and three copies were returned while ten copies of this questionnaire were completed and found unusable.

Objective 1: To ascertain the level of job performance of library personnel in selected university libraries in Osun-State, Nigeria. In response to objective 1, a range of responses was elicited which was presented in Table 2.

S/N	**Statement**	**SA**	**A**	**D**	**SD**	**Mean**	**SD**
	Productivity						
1.	I effectively manage my time to complete jobs efficiently	72 (69.9%)	25 (24.3%)	3 (2.9%)	3 (2.9%)	3.61	.69
2	I prioritise my responsibilities to maximise productivity	45(43.75)	51(49.5%)	3(2.9%)	4(3.9%)	3.33	.72
3	I use tools and technology to enhance my work effectively	65 (63.1%)	31 (30.1%)	6 (5.8%)	1 (1%)	3.55	.65
4	I believe my contributions positively impact the library's overall productivity	52(50.6%)	41(39.8%)	4(3.9%)	6(5.8%)	3.34	.81
5	I collaborate with colleagues to improve workflow and productivity	60 (58.3%)	37 (35.9%)	4 (3.9%)	2 (1.8%)	3.50	.70
	Weighted mean					**3.46**	
	Competence						
1	I am knowledgeable about the best practices in my area of work within the library	49 (47.6%)	46 (44.7%)	7 (6.8%)	1 (1%)	3.50	.66
2	I can effectively troubleshoot common issues that arise in my role	53 (51.5%)	41 (39.8%)	7 (6.8%)	2 (1.9%)	3.40	.71
3	I understand and can apply library policies and procedures accurately	53 (51.5%)	45 (43.7%)	5 (4.9%)	-	3.53	.59
4	I am able to stay up-to-date with new developments and technologies relevant to my role	43 (41.7%)	50 (48.5%)	6 (5.8%)	4 (3.9%)	3.28	.75
5	I can communicate clearly and effectively with patrons and colleagues	57 (55.3%)	43 (41.7%)	1 (1%)	2 (1.9%)	3.50	.62
	Weighted mean					**3.44**	
	Resourcefulness						
1	I can quickly locate information using various library resources	61 (61%)	32 (32%)	3 (3%)	4 (4%)	3.50	.75
2	I effectively use technology to enhance library services	47 (45.6%)	46 (44.7%)	6 (5.8%)	4 (3.9%)	3.32	.76
3	I am able to solve problems independently when they arise	56 (54.4%)	38 (36.9%)	7 (6.8%)	2 (1.9%)	3.43	.71
4	I actively seek out new resources and tools to improve my work	53 (51.5%)	37 (35.9%)	9 (8.7%)	4 (3.9%)	3.34	.80
5	I can adapt to changes in library policies and technologies easily	58 (56.3%)	36 (35%)	5 (4.9%)	4 (3.9%)	3.43	.76
	Weighted mean					**3.40**	
	Users satisfaction						
1	Patrons are satisfied with the assistance I provide	47 (45.6%)	43 (41.7%)	7 (6.8%)	6 (5.8%)	3.27	.83
2	I address patron inquiries promptly and effectively	58 (56.3%)	37 (35.9%)	5 (4.9%)	3 (2.9%)	3.45	.73

3	Patrons feel comfortable approaching me with their questions	58 (54.4%)	40 (38.8%)	4 (3.9%)	3 (2.9%)	3.44	.71
4	I create a welcoming atmosphere for patrons	57 (55.3%)	37 (35.9%)	6 (5.8%)	3 (2.9%)	3.43	.73
5	I regularly seek feedback from patrons to improve services	59 (57.3%)	36 (35%)	2 (1.9%)	6 (5.8%)	3.43	.80
	Weighted mean					**3.40**	
	Overall mean					**3.43**	

Note: SA + A = Agree while D + SD = Disagree

Table 2 presents the level of job performance of personnel in selected university libraries in Osun-State, Nigeria based on four key constructs: Productivity, competence, resourcefulness, and user satisfaction. Each construct was assessed through five items using a four-point Likert scale: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The weighted mean score for productivity is 3.46, indicating a high level of perceived productivity among library personnel. The highest-rated statement under this construct is, I effectively manage my time to complete jobs efficiently (Mean = 3.61), while the lowest is, I prioritise my responsibilities to maximise productivity" (Mean = 3.33). This suggests that although staffers are generally productive, time management is slightly better executed than prioritization strategies.

Under the competence dimension, the weighted mean is 3.44, also indicating a high level of perceived competence. Personnel particularly agreed with statements such as, I understand and can apply library policies and procedures accurately (Mean = 3.53) and I can communicate clearly and effectively with patrons and colleagues (Mean = 3.50), reflecting a strong grasp of core operational skills and communication abilities.

The resourcefulness construct yielded a weighted mean of 3.40, which still falls within the high performance category. Staff were most confident in their ability to quickly locate information using various library resources (Mean = 3.50), while the lowest-rated statement was, I effectively use technology to enhance library services (Mean = 3.32). This suggests that while staff is resourceful; there is room to improve the effective use of technology in service delivery. The user satisfaction dimension also has a weighted mean of 3.40, indicating that library personnel generally meet user expectations. Highest scores were seen in statements like, I address patron inquiries promptly and effectively (Mean = 3.45), suggesting a positive user experience. However, Patrons are satisfied with the assistance I provide, had a relatively lower mean of 3.27, suggesting that while users are generally satisfied, more could be done to enhance service delivery and engagement.

The overall mean score of 3.43 implies a high level of job performance among library personnel in selected university libraries in Osun-State. Based on the Likert scale used, where the maximum possible mean score is 4.0, this suggests that respondents exhibit strong levels of productivity, competence, resourcefulness, and user engagement. To determine the level of job performance, a similar method to the one used in the cyber ethics example can be applied:
Objective 2: To examine the level of staff quality of personnel in selected university libraries in Osun-State, Nigeria. In response to objective 2, a range of responses was sought to examine the level of personnel in selected universities. The itemised level were gotten from previous studies and deliberately grouped by the researchers for organisation. This was presented in Table 3 in which SA, A, D, SD imply Strongly Agreed, Agreed, Disagreed Strongly Disagreed respectively.

S/N	Statement	SA	A	D	SD	Mean	SD
	Work experience						
1.	I feel that my skills are effectively utilised in my role	67 (65%)	30 (29.1%)	6 (5.8%)	-	3.59	.60
2	The library provides sufficient resources to perform my job effectively	37 (35.9%)	55 (53.4%)	9 (8.7%)	2 (1.9%)	3.23	.69
3	I receive adequate training to perform my job responsibilities	46 (44.7%)	45 (43.7%)	8 (7.8%)	4 (3.9%)	3.29	.78
4	I have necessary resources to perform my job effectively	38 (36%)	53 (51.5%)	8 (7.8%)	4 (3.9%)	3.21	.75
5	My work is recognized and appreciated by my supervisors	41 (39.8%)	50 (48.5%)	10 (9.7%)	2 (1.9%)	3.26	.71
	Weighted mean					**3.32**	
	Work quality						

1	The quality of services I provide meets the expectations of library users	49 (47.6%)	41 (39.8%)	10 (9.7%)	3 (2.9%)	3.32	.80
2	I consistently deliver accurate information to library patrons	39(38.2%)	51(50%)	8(7.8%)	4(3.9%)	3.21	.76
3	I regularly review and improve my work practices to enhance services quality	44 (42.7%)	52 (50.5%)	5 (4.9%)	2 (1.9%)	3.33	.67
4	The library's resources are well-organised and easy for users to access	52 (50.5%)	40 (38.8%)	9 (8.7%)	2 (1.9%)	3.37	.73
5	I maintain high standards of professionalism in my work	48 (46.6%)	50 (48.5%)	3 (2.9%)	2 (1.9%)	3.39	.65
	Weighted mean					**3.32**	
	Training						
1	The training I received adequately prepared me for my job responsibilities	53 (51.5%)	38 (36.9%)	9 (8.7%)	3 (2.9%)	3.36	.77
2	I have access to ongoing training opportunities relevant to my role	46 (44.7%)	42 (40.8%)	12 (11.7%)	3 (2.9%)	3.27	.78
3	The training programs provided are up-to-date with current library programme	42 (40.8%)	50 (51.5%)	8 (7.8%)	3 (2.9%)	3.27	.73
4	I feel confident applying the skills learned in training to my daily work	37 (35.9%)	53 (51.5%)	10 (9.7%)	3 (2.9%)	3.20	.73
5	The library encourages participation in external training and workshops	36 (35%)	51 (49.5%)	12 (11.7%)	4 (3.9%)	3.15	.78
	Weighted mean					**3.25**	
	Team collaboration						
1	Team members effectively communicate with each other	42 (40.8%)	51 (49.5%)	4 (3.9%)	6 (5.8%)	3.25	.79
2	I feel comfortable sharing my ideas and suggestion with my team	37 (35.9%)	55 (53.4%)	9 (8.7%)	2 (1.9%)	3.23	.69
3	We collaborate well on projects and tasks within the library	49 (47.6%)	41 (39.8%)	9 (8.7%)	4 (3.9%)	3.31	.79
4	The team supports each other in achieving our objectives	40 (38.8%)	49 (47.6%)	11 (10.7%)	3 (2.9%)	3.22	.75
5	Team collaboration enhances the overall effectiveness of our library services	43 (41.7%)	48 (46.6%)	8 (7.8%)	4 (3.9%)	3.26	.77
	Weighted mean					**3.25**	
	Overall mean					**3.29**	

Note: SA + A = Agree while D + SD = Disagree

Table 3 presents the level of staff quality of personnel in selected university libraries in Osun-State, Nigeria based on four key constructs: Work experience, work quality, training, and team collaboration. Each construct was assessed using five items rated on a four-point Likert scale: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The weighted mean score for the Work Experience construct is 3.32, indicating that library personnel generally perceive their skills as being well-utilized and that they have adequate support to perform their roles. The highest-rated statement under this construct is "I feel that my skills are effectively utilised in my role" (Mean = 3.59), suggesting that staff feel confident in the relevance of their abilities. The lowest-rated item is "I have necessary resources to perform my job effectively" (Mean = 3.21), implying that while staff are capable, access to resources could still be improved.

For the Work Quality dimension, the weighted mean is also 3.32, reflecting a high level of service quality and professionalism. Respondents rated, I maintain high standards of professionalism in my work (Mean = 3.39) and the library's resources are well-organised and easy for users to access (Mean = 3.37) most highly. These responses suggest that staff not only value professionalism but also prioritize service accessibility. However, I consistently deliver accurate

information to library patrons scored slightly lower (Mean = 3.21), indicating room for enhancement in information accuracy and delivery.

The training construct had a slightly lower weighted mean of 3.25, but it still reflects a generally positive perception of training quality and relevance. The highest-rated item is "The training I received adequately prepared me for my job responsibilities (Mean = 3.36), showing that initial training is effective. On the other hand, the statement the library encourages participation in external training and workshops received the lowest rating (Mean = 3.15), highlighting a potential gap in ongoing professional development support. The weighted mean for Team Collaboration is 3.25, indicating that staff perceive team dynamics positively but with potential for further improvement. Respondents rated we collaborate well on projects and tasks within the library" (Mean = 3.31) and team collaboration enhances the overall effectiveness of our library services" (Mean = 3.26) as the highest indicators of effective teamwork. However, I feel comfortable sharing my ideas and suggestions with my team, had a slightly lower score (Mean = 3.23), suggesting a need to strengthen open communication and idea sharing within teams. The overall mean score of 3.29 indicates a high level of staff quality among library personnel in selected university libraries in Osun-State. This reflects a generally strong foundation in work experience, service quality, training adequacy, and collaborative work culture.

Discussion of the Findings

This study primarily examined staff quality and job performance of personnel in selected university in Osun State, Nigeria. Specifically, the findings of the study showed that majority of the respondents hold positive staff quality. Findings reveal a high level of job performance among library personnel in selected university libraries in Osun-State, Nigeria, as reflected across four key constructs indicate a generally positive perception of job performance among the respondents. This suggests that library personnel are actively engaged in their roles and demonstrate effectiveness in delivering library services. Productivity emerged as the highest-rated construct, with library staff showing strong agreement on their ability to manage time efficiently and complete tasks effectively. However, the slightly lower score for the item on prioritizing responsibilities points to an area where staff may benefit from further training or support in task management and strategic planning.

In terms of competence, the personnel demonstrated a strong understanding of library operations and policies, with high agreement on statements related to applying policies and communicating effectively with patrons and colleagues. These results align with the findings of Nwokike & Unegbu (2019), who noted that knowledge of job specific tasks and communication are vital indicators of job performance among librarians. The dimension of resourcefulness also recorded a high mean, with staff indicating confidence in their ability to locate information and navigate various library resources. However, a relatively lower mean score was observed for the use of technology to enhance services. This suggests that while library staffs are resourceful, there is a need for capacity building in the area of digital tools and emerging technologies to further enhance service delivery and efficiency.

User satisfaction, though also within the high range, recorded the lowest average among the four constructs. This finding echoes earlier research suggesting that even when service providers perform effectively, user experience may not always reflect the same level of satisfaction (Adeniran, 2011). There is a high-performance range of librarians. This suggests that library personnel in Osun State are generally productive, competent, resourceful, and responsive to users' needs. This supports findings from prior studies such as Oyewusi & Oyeboade (2009), which emphasised the positive performance and role of library staff in academic environments and contradicts claims from less favourable assessments where library personnel were perceived as underperforming due to poor infrastructure or lack of motivation.

Interestingly, the result of present study is revealing a generally high level of staff quality among personnel in selected university libraries in Osun-State, Nigeria. This was measured across four core constructs work experience, work quality, training, and team collaboration. The analysis shows a strong perception among library staff of their competencies, professionalism, and collaborative engagement, all of which contribute to effective service delivery in the academic library setting. Specifically, both Work Experience and Work Quality recorded the highest weighted mean scores. Within the Work Experience construct, respondents strongly affirmed that their skills are effectively utilised and suggesting that staff feel competent and appropriately placed in their roles. However, access to necessary resources was rated lower although personnel are skilled, infrastructural or material constraints may sometimes hinder optimal performance. In terms of Work Quality, staff indicated high standards of professionalism and praised the organization and accessibility of library resources, which together reflect a commitment to service excellence. A relatively lower mean score for accurate information delivery suggests there is room to improve information handling practices, which are crucial for user satisfaction.

The Training dimension had a slightly lower mean score, still indicating a positive perception. While staff felt their initial training prepared them well for their responsibilities, the lower score for encouragement to participate in external workshops and training points to a gap in ongoing professional development opportunities. This could potentially affect long-term skill growth and adaptability among staff. Similarly, Team Collaboration also had a weighted mean, indicating good but improvable team dynamics. While staff agreed they collaborate well on tasks and that teamwork enhances library effectiveness, the slightly lower comfort level in sharing ideas suggests that open communication and inclusiveness in decision-making could be strengthened to further boost team cohesion.

The high level of staff quality reflects an encouraging staff quality profile, marked by solid professional competence, a culture of service, and collaborative spirit. These findings align with existing literature suggesting that staff effectiveness in university libraries significantly enhances service delivery and user satisfaction e.g., Olajide & Adetoro, (2019). However, the observed gaps in continuous training and internal communication mirror challenges highlighted in previous studies e.g., Nwalo, (2017), which emphasize the need for ongoing investment in staff development and organisational culture. The study concludes that the level of staff quality in university libraries across Osun-State is high, with opportunities for further strengthening in resource provision, continuous training, and collaborative openness.

Conclusion

The study highlighted the intricate relationship between staff quality and job performance of personnel in selected university libraries in Osun-State, Nigeria. The study revealed that high levels of staff quality significantly contribute to improved job performance. Specifically, personnel who demonstrate effective time management, proficiency with tools and technology, and collaborative work ethics tend to achieve higher productivity and user satisfaction. The results Similarly, the positive impact of staff quality, including effective training, access to resources, and skill utilisation, underscores the importance of continuous professional development and resource provision in enhancing job performance. However, areas of disagreement, such as resource adequacy and variability in team collaboration and user satisfaction, point to specific gaps that require targeted intervention. Addressing these disparities by improving infrastructure, fostering teamwork, and implementing mechanisms for user feedback can further enhance overall performance and satisfaction.

In conclusion, the study emphasises the importance of fostering an enabling environment where staff quality is prioritised through effective training, resource allocation, and collaborative practices. Such initiative is not only vital for achieving organisational goals but also for ensuring that library personnel are equipped to meet the evolving demands of academic institutions. By addressing the identified gaps and leveraging the strengths of the workforce, university libraries can continue to serve as pivotal hubs for knowledge dissemination and academic excellence.

5.4 Recommendations

Basedon the findings of the study, the following recommendations are proposed:

1. Universities should invest in continuous professional development programs to enhance the skills, knowledge, and technical competencies of library personnel. Workshops, seminars, and certifications should be regularly organized to keep staff updated with industry best practices.Library management should promote teamwork by encouraging collaborative projects and cross-departmental initiatives to improve information sharing and joint problem-solving.

2. Equip library personnel with modern tools and resources, such as digital catalogs and automated systems, to improve efficiency and user satisfaction.

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STATE OF SCHOOL LIBRARIES AND THE ROLE OF LIBRARY AND INFORMATION PROFESSIONALS

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Abstract

The school library plays a foundational role in the preparation of library and information professionals, serving as both a training ground and a practical laboratory for developing core competencies. This study examines the current state of school libraries and their effectiveness in equipping future professionals with the knowledge, skills, and ethical orientation required in contemporary information environments. Drawing on existing literature, policy frameworks, and institutional practices, the paper evaluates key indicators such as infrastructure adequacy, collection development, integration of information and communication technologies (ICT), staffing qualifications, and collaboration with academic departments of library and information science. Findings indicate that while school libraries remain central to experiential learning and professional socialization, many face persistent challenges, including inadequate funding, outdated resources, insufficient technological infrastructure, and limited professional development opportunities. These constraints hinder the capacity of school libraries to fully support practical training in areas such as information literacy instruction, digital resource management, user services, and emerging technologies. The paper concluded that revitalizing school libraries through strategic investment, policy enforcement, curriculum alignment, and strengthened partnerships between educational institutions and professional bodies is critical for producing competent, adaptable, and innovation-driven library and information professionals. The study recommended that Schools should employ professionally trained librarians rather than assigning library duties to unqualified staff, schools should employ professionally trained librarians rather than assigning library duties to unqualified staff.

Keywords: Library, Schools Library, Preparation of Library and Information Professionals

Introduction

School libraries are fundamental components of educational systems, serving as centers for learning, literacy development, and access to information. In many countries, they play a crucial role in supporting students' academic achievement and fostering a culture of reading and inquiry Esan (2022). Beyond their immediate impact on learners, school libraries also serve as important training grounds for future library and information professionals. However, the effectiveness of these libraries in fulfilling this dual role varies widely due to differences in infrastructure, staffing, resources, and recognition within educational policies.

According to Diso and Njoku (2023) library and information professionals are expected to possess a broad set of competencies including information organization, digital literacy, user education, collection development, and management skills. Traditionally, preparation for these roles includes both theoretical coursework and practical experiences. School libraries, when adequately equipped and professionally managed, offer real-world environments in which trainees can observe and practice essential skills, such as cataloguing, reader advisory, information retrieval, and community engagement. These experiential learning opportunities can strengthen the quality of professional preparation by bridging theory and practice.

Despite this potential, research indicates that the state of school libraries in many regions is challenged by under-funding, inadequate resources, lack of qualified staff, and low priority within school systems. In some cases, school libraries are poorly stocked, lack up-to-date information resources, or function without trained librarians' altogether. This situation not only limits students' access to quality information, but also reduces the opportunities for library and information science (LIS) students to engage meaningfully with real professional settings. As a result, aspiring professionals may graduate with limited practical experience, affecting their readiness to enter the workforce and contribute effectively to information services in schools and other sectors.

Statement of the problem

School libraries are expected to function as vital centers for learning, information access, and literacy development within the educational system. They also serve as practical training environments for students studying Library and Information Science (LIS), where theoretical knowledge is expected to be reinforced through hands-on experience. However, evidence suggests that many school libraries are not functioning at optimal standards due to inadequate funding, insufficient infrastructure, outdated collections, limited technological resources, and the absence of qualified professional librarians.

The poor state of many school libraries raises serious concerns about their ability to effectively contribute to the preparation of competent library and information professionals. Practical training is a critical component of LIS education, as it equips students with essential skills in cataloguing, classification, information retrieval, collection development, digital resource management, and user services. When school libraries lack proper organization, modern information resources, and professional supervision, students may not acquire the necessary practical exposure required for professional competence. Therefore, the problem this study seeks to address is the extent to which the existing state of school libraries supports or hinders the effective preparation of library and information professionals. It is based on this backdrop that the study seeks examine state of school library in preparation of library and information professionals.

Aim and Objectives of the Study

This study aims to examine the state of school library in preparation of library and information professionals. Specifically, the study seeks to:

- assess the current condition of school libraries in terms of infrastructure, facilities, and learning environment in preparation of library and information professionals
- examine the availability and adequacy of information resources in school libraries in preparation of library and information professionals.
- determine the level of technological integration in school libraries in preparation of library and information professionals.

Conceptual Clarification

School Libraries

A school library is an information center established within a primary or secondary school to support teaching, learning, and research activities. It provides access to a variety of information resources in print and non-print formats, including textbooks, reference materials, storybooks, journals, digital resources, and multimedia materials.

School libraries play a crucial role in promoting information literacy and academic development. They serve as access points for a variety of resources, both print and digital, and act as instructional partners that support curriculum delivery, reading engagement, and research competence. According to the International Federation of Library Associations and Institutions (IFLA, 2015), the primary function of a school library is to provide information and ideas fundamental to students' successful participation in an information-rich society.

In practice, effective school libraries collaborate with teachers, facilitate reading and digital literacy, offer safe learning environments, and support diverse learning needs (Bamigbola
& Onifade, 2024).

Aliyu (2018) states that school library is a place where relevant learning, teaching, viewing, reference books and new books are housed. In each school, reasonable and suitable reading materials are organized by a trained staff. These materials are meant for teachers and pupils at relevant level to enrich the subject taught and the teaching methods. Supporting this, Fayose (2023) Observes, that today, school libraries are referred to as instructional resource centre, media resource centre, information resource centre, learning resources centre. Adebamowo (2019) states that “school libraries have moved far beyond room with books to become an active, technology-rich learning environment with an array of information resources”.

School libraries are seen as part of the school where information resources are gathered for the benefit of teachers and students. Eze and Ugwu (2021) refer to school library as a place where books and other collections are processed, catalogued and arranged for the use of teachers and students. School library is a place where teachers and students interact with the right stock in quality, quantity and relevance, professionally organized. Gojeh (2024) opines that school libraries are equipped with professional staff to provide access to resources. A functional school library is an ideal library that provides services that attract students and teachers, their primary role is to acquire, process, organize, preserve, and disseminate information to users. Byass (2017) views that school libraries are part of the school curriculum and laboratories where many experiments are conducted. This enables learners to master content and extend their investigation into their own learning. Kolade (2019) states that “the school library is the heart of the school with a wide variety of educational media”. In this context, school libraries are regarded as the nerve-centre for information resources that serve students and teachers, indeed they remain focal to the development of individual student in his information literacy skills. They are educational agent that provide access to information resources for all students and teachers. Petters and Ottong (2019) assert that school libraries are depositories of print and non-print materials and source for qualitative education

According to the International Federation of Library Associations and Institutions (IFLA), a school library is essential for developing information literacy, lifelong learning skills, and independent inquiry among students. Similarly, the American Association of School Librarians (AASL) emphasizes that school libraries empower learners to think critically, create knowledge, and share information ethically.

School libraries typically perform the following functions:

- Supporting the school curriculum
- Promoting reading culture and literacy
- Providing access to information resources
- Teaching information literacy skills
- Supporting research and project work
- Serving as a learning hub within the school

School libraries are not only centers for student learning but also practical environments where Library and Information Science (LIS) students can gain professional experience.

State of School Libraries

Yusuf (2023) opined that the state of school libraries refers to the overall condition, quality, functionality, and level of development of school libraries. It encompasses physical infrastructure, adequacy and relevance of collections, availability of technological facilities, funding levels, staffing, management practices, and policy support. A well-developed school library typically has sufficient space, current and diverse resources, functional ICT facilities, internet connectivity, automation systems, and qualified professional staff. However, in many contexts, school libraries face serious challenges such as inadequate funding, outdated materials, lack of technological integration, and absence of trained librarians Ajegbomogun, and Salaam (2021). These deficiencies affect not only student learning outcomes but also the quality of professional exposure available to LIS students undergoing training. When the state of school libraries is poor, opportunities for meaningful practical engagement are significantly limited.

The "state" of school libraries refers to their overall condition, quality, and level of development. This includes:

- Physical infrastructure (space, seating, lighting, ventilation)
- Availability and relevance of collections
- Technological facilities (computers, internet access, automation systems)
- Funding and administrative support
- Staffing (presence of qualified librarians)
- Organization and management practices

The condition of school libraries varies significantly across regions. In many developing countries, school libraries face challenges such as:

- Inadequate funding
- Outdated or insufficient collections
- Lack of automation
- Absence of professional librarians
- Poor maintenance of facilities

When the state of school libraries is weak, their ability to function effectively as training grounds for future professionals becomes limited. Conversely, well-equipped and properly managed school libraries provide rich opportunities for experiential learning.

Library and Information Professionals

Marchionini (2022) stressed that library and information professionals are individuals formally trained in LIS programmes to organize, manage, preserve, and disseminate information resources in various information environments. They are expected to possess competencies in cataloguing and classification, collection development, reference and information services, digital resource management, information literacy instruction, and library administration. The Chartered Institute of Library and Information Professionals highlights that modern professionals must be adaptable, technologically competent, and responsive to evolving information needs. In school settings, these professionals play a critical role in supporting curriculum delivery, promoting reading culture, and guiding students in effective and ethical information use. Their preparation therefore, requires a balance between theoretical knowledge and practical skills
Library and Information Professionals are individuals trained in Library and Information Science (LIS) to manage, organize, preserve, and disseminate information resources. They work in various settings, including school libraries, academic libraries, public libraries, special libraries, archives, and information centers.

Professional competencies generally include:

7. Cataloguing and classification

8. Collection development
9. Information retrieval
10. Digital literacy and ICT skills
11. User education and reference services
12. Library management and administration
13. Ethical information practices

The Chartered Institute of Library and Information Professionals (CILIP) highlights that modern library professionals must adapt to digital transformation, information overload, and evolving user needs.

Library professionals are responsible for supporting curriculum delivery, promoting literacy, and guiding students in responsible information use. Therefore, their training must combine both theoretical knowledge and practical experience.

Preparation of Library and Information Professionals

Lynch (2018) asserted that preparation refers to the structured process through which LIS students acquire the knowledge, practical skills, ethical standards, and professional attitudes required for effective practice. This preparation typically involves classroom instruction, supervised internships, fieldwork, workshops, and research projects. Practical training is particularly important because it bridges the gap between theory and real-world application. School libraries often serve as sites for teaching practice and industrial attachment, where students can apply cataloguing rules, manage collections, interact with users, implement information literacy programmes, and utilize library technologies. However, if these libraries lack adequate facilities or professional supervision, students may graduate without sufficient hands-on competence.

Preparation refers to the process of equipping LIS students with the knowledge, skills, attitudes, and competencies required for professional practice. This preparation typically occurs through:

- Classroom instruction
- Practical training and internships
- Fieldwork placements
- Workshops and seminars
- Research and project work

Practical exposure is a critical component of professional preparation. It allows students to apply theoretical concepts in real-life environments. School libraries serve as important sites for such practical experiences, especially for students specializing in school librarianship.

Effective preparation requires:

- Exposure to functional library systems
- Use of automated cataloguing tools
- Interaction with real users (students and teachers)
- Experience in collection development
- Participation in information literacy instruction

If school libraries lack adequate resources or professional management, LIS students may not gain meaningful practical experience. This gap may result in graduates who are theoretically sound but practically underprepared.

Roles of Library and Information Professionals in State School Libraries

School libraries are essential components of the educational system. They serve as centers for learning, research, information access, and intellectual development. In state schools, where resources may sometimes be limited, library and information professionals play a critical role in ensuring that students and teachers have access to quality information resources and services. These professionals are trained individuals who organize, manage, preserve, and disseminate information to support teaching, learning, and research activities.

The role of library and information professionals in state school libraries extends beyond the traditional responsibility of managing books. They act as educators, information managers, technology facilitators, literacy promoters, and advocates for lifelong learning. Their contributions significantly influence students' academic achievement and personal development.

Collection Development and Management

One of the primary responsibilities of library professionals is developing and managing the library's collection. They:

- Select relevant books, journals, magazines, newspapers, and digital resources.
- Ensure that materials align with the school curriculum.
- Remove outdated and damaged materials.
- Maintain a balanced collection that meets the diverse needs of students and teachers.
- Acquire resources that support both academic and recreational reading.

Effective collection development ensures that students have access to current and reliable information.

Organization of Information Resources
Library professionals organize information resources to make them easily accessible. They:
- Classify materials using standard classification systems.
- Catalogue books and other resources.
- Create indexes and bibliographies.
- Arrange materials systematically on shelves.

Proper organization saves users' time and enables efficient retrieval of information.
Promotion of Reading Culture
A major role of school librarians is encouraging reading habits among students. They:
- Organize reading clubs and literary activities.
- Conduct book talks and book reviews.
- Celebrate reading campaigns and literacy events.
- Recommend books according to students' interests and reading levels.

Promoting a reading culture helps improve language skills, academic performance, and critical thinking abilities.
Information Literacy Instruction
In the information age, students need skills to locate, evaluate, and use information effectively. Library professionals:
- Teach students how to search for information.
- Guide them in evaluating the credibility of information sources.
- Train students on proper citation and referencing.
- Educate students about ethical use of information.

Information literacy skills enable learners to become independent and responsible information users.
Support for Teaching and Learning
Library professionals collaborate with teachers to enhance classroom instruction. They:
- Provide supplementary learning materials.
- Assist teachers in curriculum planning.
- Develop instructional resources.
- Support project-based learning activities.
- Help students conduct research assignments.

This collaboration improves the quality of education and learning outcomes.
Integration of Information and Communication Technology (ICT)
Modern school libraries increasingly rely on technology. Library professionals:
- Manage electronic databases and digital libraries.
- Assist students in using computers and internet resources.
- Introduce online learning tools.
- Facilitate access to educational websites and e-books.
- Support digital literacy programs.

By integrating ICT, they prepare students for participation in the digital world.
Reference and Information Services
Library professionals provide guidance and assistance to library users. They:
- Answer users' information queries.
- Help students locate relevant resources.
- Provide research assistance.
- Recommend appropriate information sources.

These services ensure that users obtain accurate and timely information.
User Education and Library Orientation
Many students may not know how to use library resources effectively. Library professionals therefore:
- Conduct orientation programs for new students.
- Explain library rules and regulations.
- Teach users how to locate and borrow materials.
- Demonstrate the use of electronic resources.

User education increases library utilization and promotes independent learning.
Preservation and Conservation of Resources
School library resources require proper maintenance. Library professionals:
- Repair damaged books.
- Protect resources from environmental damage.
- Implement preservation policies.
- Ensure proper storage of materials.

Preservation activities help extend the lifespan of library collections.
Creating a Conducive Learning Environment
Library professionals maintain an atmosphere that supports learning by:

- Ensuring cleanliness and orderliness.
- Providing comfortable reading spaces.
- Maintaining discipline within the library.
- Creating welcoming and inclusive environments.

A conducive environment encourages students to study and conduct research.

Promotion of Lifelong Learning

Libraries are centers for continuous education. Library professionals:

- Encourage self-directed learning.
- Expose students to diverse sources of knowledge.
- Foster curiosity and intellectual growth.
- Support learning beyond the classroom.

These efforts help students develop lifelong learning habits.

Supporting Inclusive Education

Library professionals ensure that library services are accessible to all learners, including students with special needs. They:

- Provide accessible information resources.
- Offer specialized services where necessary.
- Promote equal access to information.
- Support diverse learning styles.

Inclusive library services contribute to educational equity.

Record Keeping and Administrative Functions

Library professionals perform administrative duties such as:

37. Maintaining circulation records.
38. Preparing library reports.
39. Managing budgets and expenditures.
40. Conducting inventory of library materials.
41. Developing library policies and procedures.

These functions ensure effective library management and accountability.

Advocacy and Resource Mobilization

Library professionals advocate for the development of school libraries by:

- Seeking funding from government and stakeholders.
- Promoting the importance of library services.
- Establishing partnerships with educational organizations.
- Encouraging community support for libraries.

Advocacy helps improve library facilities and services.

Encouraging Research and Innovation

Library professionals support students' research activities by:

- Providing access to research materials.
- Guiding students in information searching.
- Supporting inquiry-based learning.
- Encouraging critical and creative thinking.

This role helps develop future researchers and innovators.

Challenges Faced by Library and Information Professionals in State School Libraries

Despite their importance, library professionals often face several challenges, including:

- Inadequate funding.
- Insufficient library resources.
- Lack of modern ICT facilities.
- Shortage of qualified personnel.
- Poor infrastructure.
- Limited professional development opportunities.
- Low recognition of the library's role in education.

Addressing these challenges is necessary for effective library service delivery.

The current condition of school libraries in terms of infrastructure, facilities, and learning environment in preparation of library and information professionals

Akwanga (2017) opined that the current condition of school libraries in terms of infrastructure, facilities, and learning environment plays a crucial role in the preparation of library and information professionals. School libraries are expected to function not only as resource centers that support teaching and learning but also as practical training grounds for students of Library and Information Science (LIS). However, the effectiveness of school libraries in fulfilling this dual responsibility largely depends on the adequacy and quality of their physical structures, available facilities, and overall learning atmosphere.

In terms of infrastructure, many school libraries face significant challenges. Ideally, a school library should be housed in a purpose-built structure that provides adequate space for reading areas, book stacks, reference sections, staff offices, and digital resource centers. The building should have proper lighting, ventilation, comfortable seating arrangements, and accessibility features. However, in many schools, especially in developing regions, libraries are often located in small, repurposed classrooms with limited seating capacity and poor environmental conditions. Overcrowding, insufficient shelving, and lack of maintenance are common problems. Such infrastructural limitations not only restrict students' access to resources but also limit the practical exposure of LIS students who require organized and well-structured library settings to practice classification, shelving, and space management techniques (Varshney, 2017).

Facilities within school libraries are another important determinant of their current condition. A functional school library should be equipped with up-to-date print materials, reference collections, periodicals, and digital resources. In addition, modern libraries are expected to have computers, internet connectivity, printers, scanners, and library management software to support automation and digital information services (Varshney, 2017). However, the reality in many school libraries is characterized by outdated textbooks, insufficient copies of essential materials, and limited or nonexistent digital infrastructure. The absence of automation systems prevents LIS trainees from gaining hands-on experience with cataloguing software, online public access catalogues (OPAC), and electronic database management. Without exposure to these facilities, the preparation of future library professionals becomes largely theoretical and disconnected from contemporary professional standards.

The learning environment of a school library also significantly affects professional preparation. A conducive learning environment promotes independent study, collaboration, research, and information literacy development. It should be quiet, organized, and user-friendly, with clear signage, accessible catalogues, and supportive staff. According to the International Federation of Library Associations and Institutions, a well-managed school library fosters critical thinking, creativity, and lifelong learning. Similarly, the American Association of School Librarians emphasizes that the school library should serve as a dynamic learning hub within the school community. Unfortunately, in many cases, school libraries lack professional librarians and are managed by untrained personnel, which affects service delivery and reduces mentorship opportunities and supervised practical training for LIS students.

For library and information professionals in training, practical exposure to a well-functioning library environment is essential. Infrastructure allows them to understand space planning and collection arrangement; facilities enable them to practice technical processes such as cataloguing, classification, and digital resource management; and a supportive learning environment provides opportunities for user interaction, reference services, and information literacy instruction. When these elements are weak or absent, LIS students may complete their programmes without acquiring sufficient real-world competencies.

Availability and adequacy of information resources in school libraries in preparation of library and information professionals.

According to Benson et al. (2017) the availability and adequacy of information resources in school libraries are central to their effectiveness both as learning support centers and as training environments for future library and information professionals. Information resources refer to the wide range of materials that provide knowledge and support teaching, learning, and research. These include print resources such as textbooks, reference books, dictionaries, encyclopedias, atlases, newspapers, magazines, and fiction materials, as well as non-print and digital resources like e-books, online databases, audiovisual materials, multimedia content, and internet-based information services. The quality, relevance, currency, and diversity of these resources determine the strength of a school library and its capacity to contribute meaningfully to professional preparation.

In many well-developed school systems, libraries are equipped with diverse and up-to-date collections that reflect the school curriculum and the reading interests of students. The International Federation of Library Associations and Institutions emphasizes that school library collections should be balanced, inclusive, and aligned with educational goals. Adequate resources allow students to develop reading culture, critical thinking skills, and information literacy competencies. At the same time, they create an enabling environment where Library and Information Science (LIS) students can practice collection development, cataloguing, classification, indexing, and reader advisory services using relevant and current materials (Chimah & Nwokocha, 2022). However, in many contexts, particularly in developing regions, the availability and adequacy of information resources in school libraries remain a major challenge. Many school libraries operate with outdated textbooks, limited reference materials, and insufficient copies of core academic resources. In some cases, collections are poorly organized or not aligned with the current curriculum. The absence of electronic databases, limited internet connectivity, and lack of digital resources further weaken the library's capacity to meet modern information needs. These limitations reduce opportunities for LIS trainees to gain hands-on experience in managing contemporary information systems and digital collections.

Dike (2024) opined that adequacy of information resources goes beyond quantity; it also involves relevance, currency, diversity, and accessibility. A library may possess a large number of books, but if the materials are obsolete or unrelated to the curriculum, they cannot effectively support learning or professional training. For LIS students, exposure to current and well-organized collections is essential for understanding modern cataloguing standards, subject analysis, metadata creation, and digital resource management. Without adequate resources, practical exercises in classification systems, such as Dewey decimal classification, become limited and unrealistic. Furthermore, the integration of digital resources

is increasingly important in the preparation of library and information professionals. Modern librarians are expected to manage electronic information systems, institutional repositories, online catalogues, and digital literacy programmes. The Chartered Institute of Library and Information Professionals highlights the need for information professionals to be technologically competent and adaptable to digital transformation. If school libraries lack access to computers, internet facilities, and electronic databases, LIS students may graduate without essential digital skills required in contemporary information environments.

Another important aspect is the role of adequate resources in supporting information literacy instruction. School libraries with sufficient materials enable trainees to conduct user education programmes, guide students in research activities, and teach effective information retrieval skills. Where resources are scarce, opportunities for such professional practice are limited. As a result, the gap between theoretical knowledge acquired in LIS classrooms and practical experience in real library settings widens.

The level of technological integration in school libraries in preparation of library and information professionals.

Ternenge and Agipu (2019) asserted that the level of technological integration in school libraries is a critical factor in determining their effectiveness in the preparation of library and information professionals. In the contemporary information society, libraries are no longer limited to print collections and manual processes; they have evolved into hybrid or fully digital information centers that rely heavily on information and communication technologies (ICT). Technological integration in school libraries refers to the extent to which digital tools, automated systems, internet connectivity, and electronic resources are incorporated into library operations and services. This integration significantly influences the quality of practical training available to students of Library and Information Science (LIS).

Modern school libraries are expected to utilize technology in various aspects of their operations, including cataloguing, circulation, information retrieval, user education, and digital resource management. Automation systems such as integrated library management software enable librarians to organize collections efficiently, generate reports, and provide Online Public Access Catalogues (OPAC) for users. Access to computers, internet services, scanners, printers, and multimedia equipment enhances the delivery of library services and supports research and learning activities. According to the International Federation of Library Associations and Institutions, effective school libraries should integrate digital technologies to promote information literacy and prepare learners for participation in a knowledge-driven society. When such technologies are available and functional, they create opportunities for LIS students to gain hands-on experience in automated cataloguing, database searching, metadata creation, and digital archiving (Todd, 2022).

The level of technological integration in many school libraries remains low, particularly in developing regions. Challenges such as inadequate funding, poor internet connectivity, lack of ICT infrastructure, and insufficient technical expertise limit the adoption of modern technologies. In some schools, library operations are still performed manually, with card catalogues replacing digital systems and limited access to electronic resources. This situation restricts LIS trainees from acquiring essential digital competencies required in contemporary professional practice. Without exposure to automated systems, electronic databases, and digital information services, graduates may find it difficult to adapt to technologically advanced library environments.

Mills et al (2017) stressed that technological integration also plays a vital role in enhancing information literacy instruction. School libraries equipped with internet-enabled computers and access to online databases allow trainees to guide students in effective search strategies, evaluation of online sources, and ethical use of information. The American Association of School Librarians emphasizes that school librarians must be leaders in teaching digital citizenship and information literacy skills. For LIS students, participating in such instructional activities strengthens their confidence and competence in delivering user education programmes. In contrast, where technology is absent or underutilized, opportunities for practicing digital instruction are limited. Modern library and information professionals are expected to be adaptable and technologically proficient. The Chartered Institute of Library and Information Professionals highlights digital skills and technological innovation as essential competencies for today's information workforce. Therefore, the preparation of LIS students must include practical exposure to emerging technologies such as library automation software, electronic cataloguing standards, digital repositories, and online collaboration tools. School libraries that embrace technological integration provide a realistic environment for students to develop these competencies, while those that lag behind hinder professional growth. Technological integration enhances collaboration and networking opportunities. School libraries connected to wider information networks can participate in resource sharing, inter-library cooperation, and online professional communities. LIS trainees exposed to such environments gain insight into modern trends such as digital preservation, open access resources, and cloud-based library services. These experiences are invaluable in preparing them for dynamic professional roles.

Way Forward

The way forward in improving the state of school libraries for the effective preparation of library and information professionals lies in deliberate policy implementation, sustained funding, and technological advancement. School libraries must be repositioned as dynamic learning resource centers equipped with modern information and communication technologies, current print and digital collections, and professionally trained librarians who can mentor future practitioners. In countries such as Nigeria, stronger government commitment, monitoring mechanisms, and

enforcement of national library standards are essential to ensure quality and uniform development. Collaboration between Library and Information Science (LIS) departments and school libraries should also be strengthened through structured internships and practical training programs that bridge the gap between theory and practice. Additionally, continuous professional development, public private partnerships, and ongoing research should be encouraged to promote innovation and sustainability. Through coordinated efforts among stakeholders, school libraries can be transformed into effective training grounds that produce competent, adaptable, and forward-looking library and information professionals capable of meeting the demands of the evolving information society.

Conclusion

The state of the school library plays a foundational role in the preparation of competent library and information professionals. A well-equipped, properly funded, and professionally managed school library serves as the first training ground where theoretical knowledge is translated into practical experience. It exposes future professionals to core library operations such as cataloguing, classification, information organization, user services, digital resource management, and information literacy instruction. For library and information professionals to be effectively prepared, school libraries must evolve beyond traditional book repositories into dynamic learning resource centers that integrate digital technologies, research support services, and information literacy programs. Strengthening partnerships between library schools and primary/secondary institutions, investing in ICT infrastructure, and ensuring the employment of qualified librarians are critical steps toward improving training quality. These deficiencies weaken the practical training environment and hinder the development of essential professional competencies required in modern information environments.

In conclusion, the effectiveness of library and information professionals is closely tied to the condition of the school libraries that shape their early training experiences. Sustainable investment, policy support, and curriculum alignment are necessary to transform school libraries into vibrant hubs that nurture skilled, innovative, and adaptable information professionals capable of meeting contemporary information needs.

Recommendations

1. Governments and educational authorities should allocate adequate funding specifically for the development of school libraries.
2. Schools should employ professionally trained librarians rather than assigning library duties to unqualified staff.
3. School libraries should be equipped with computers, reliable internet access, library management software, and access to electronic databases.
4. Library and Information Science (LIS) departments should establish partnerships with primary and secondary school libraries to provide structured internship and practicum opportunities.

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STRATEGIC RETOOLING IN ACADEMIC LIBRARIES AND ITS PERCEIVED IMPACT ON SERVICE EFFICACY: STUDY OF PUBLIC UNIVERSITY LIBRARIES IN AKWA IBOM STATE

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ABSTRACT

This study investigated strategic retooling initiatives and its perceived impact on service efficacy in public university libraries in Akwa Ibom State, Nigeria. Specifically, the study examined the predominant forms of strategic retooling initiatives undertaken by public university libraries, users' perception of strategic retooling initiatives on service efficacy, and the impact of strategic retooling initiatives on service efficacy in public university libraries in Akwa Ibom State. A quantitative research method and descriptive survey design were adopted for the study. The population comprised 13,483 registered library users from the University of Uyo and Akwa Ibom State University libraries. A sample size of 388 respondents was selected using the Taro Yamane formula. Data was collected using a researcher-developed instrument titled Strategic Retooling and Perceived Service Efficacy Questionnaire (SRPSEQ). Mean and standard deviation were used to answer Research Questions One and Two, while simple linear regression analysis was used to answer Research Question Three and test the hypothesis at the 0.05 level of significance. The findings revealed that the predominant strategic retooling initiatives undertaken by public university libraries include library automation, digital library development, subscription to electronic databases, staff training and development, information literacy programmes, and improvements in ICT infrastructure. The study further revealed that strategic retooling initiatives positively influenced service efficacy through improved access to information resources, enhanced service delivery, operational efficiency, and increased user satisfaction. The result also showed a significant relationship between strategic retooling initiatives and service efficacy in public university libraries in Akwa Ibom State. The study concluded that strategic retooling initiatives are critical to the modernization and effectiveness of university library services. It was therefore recommended that adequate funding should be provided for technological infrastructure, continuous staff development programmes should be strengthened, and university libraries should expand digital and user-centred services to improve service efficacy.

Keywords: Strategic Retooling Initiative, Library User Perception, Impact of Strategic Retooling, Perceived Service Efficacy

INTRODUCTION

University libraries occupy a central position in higher education institutions because they provide the information resources and services required to support teaching, learning, research, and community engagement. As knowledge centres of universities, they acquire, organize, preserve, and disseminate information resources in both print and electronic formats to meet the academic and research needs of students, lecturers, and researchers. The effectiveness of university libraries is therefore closely associated with the quality of academic programmes, research productivity, and overall institutional performance. According to Okhovati et al. (2026), university libraries contribute significantly to academic excellence by providing access to relevant information resources and research support services. Similarly, Koloniari et al. (2018) and Ugwu and Ekere (2018) described university libraries as the intellectual heart of universities because they provide the knowledge infrastructure required for teaching, learning, innovation, and research. However, the rapid advancement of information and communication technologies (ICTs), changing user expectations, and the increasing demand for digital information services have transformed the operating environment of university libraries. Consequently, libraries are increasingly compelled to adopt innovative strategies that enable them to remain relevant, responsive, and effective in the delivery of information services.

One of the major approaches adopted by university libraries to address these challenges is strategic retooling. Strategic retooling refers to the deliberate efforts undertaken by libraries to upgrade their technologies, infrastructure, staff competencies, resources, and service delivery systems in response to changes within the information environment. It encompasses a variety of initiatives aimed at improving operational efficiency, enhancing access to information resources, and strengthening the capacity of libraries to meet the evolving needs of users. According to Odularu (2025), libraries must continuously upgrade their technological capabilities and staff competencies in order to remain effective in a rapidly changing information environment. Similarly, Oyedokun (2025) noted that strategic retooling enables libraries to respond proactively to emerging information needs while improving service quality and operational effectiveness. Such initiatives may include library automation, digitization of collections, development of institutional repositories, subscriptions to electronic databases, improvement of ICT infrastructure, and continuous staff training and professional development. Moonasar (2024) observed that continuous retooling is essential for academic libraries because it enhances their ability to adapt to technological changes and meet contemporary information demands.

A major focus of strategic retooling in university libraries is the adoption of initiatives that modernize library operations and improve service delivery. According to Okonoko et al. (2022), university libraries increasingly implement strategic retooling initiatives such as automation of library operations, provision of electronic information resources, establishment of institutional repositories, development of digital libraries, and staff capacity-building programmes. Similarly, Bello and Adepegba (2023) reported that improvements in ICT infrastructure, internet connectivity, and digital information systems have become critical strategies for enhancing library effectiveness and resource accessibility. Identifying the predominant strategic retooling initiatives adopted by university libraries is important because it provides insight into the specific modernization strategies being implemented to improve library performance. Tsenga (2023) argued that understanding the dominant forms of strategic retooling helps stakeholders evaluate the direction of library transformation efforts, identify best practices, and formulate evidence-based policies for improving service delivery. Therefore, investigating the predominant strategic retooling initiatives adopted by university libraries is essential for understanding how libraries are responding to technological developments and changing user expectations.

Beyond identifying the initiatives adopted, it is equally important to examine the perceptions of library users regarding strategic retooling initiatives. Library users constitute the primary beneficiaries of library services, and their perceptions provide a valuable basis for evaluating the effectiveness of modernization efforts. Users often assess retooling initiatives based on their experiences with access to electronic resources, availability of digital services, speed of information retrieval, quality of research support services, and overall satisfaction with library operations. According to Adeyemi et al. (2025), user perceptions serve as important indicators of the success of library innovations because they reflect the extent to which services meet the expectations and information needs of users. Positive perceptions may indicate that strategic retooling initiatives are enhancing service delivery, while negative perceptions may reveal implementation challenges or service gaps. Understanding users' perceptions is therefore necessary because it enables library administrators to evaluate the effectiveness of modernization efforts and identify areas requiring improvement. Furthermore, user feedback provides empirical evidence regarding the extent to which strategic retooling initiatives contribute to improved library experiences and user satisfaction.

Aside the perceptions of library users is the impact of strategic retooling initiatives on service efficacy. Service efficacy refers to the extent to which library services effectively satisfy users' information needs and support academic activities such as teaching, learning, and research. It encompasses dimensions such as accessibility, reliability, responsiveness, service quality, and user satisfaction. According to Ajith et al. (2025), service efficacy reflects the ability of library services to provide timely, relevant, and accessible information that supports academic productivity. Similarly, Kautonen and Nieminen (2018) noted that service efficacy can be assessed through indicators such as service quality, user satisfaction, responsiveness, and value delivery. Strategic retooling initiatives are expected to improve service efficacy by enhancing access to information resources, reducing service delays, strengthening staff competence, and improving the overall quality of library services. For example, automation systems can improve the efficiency of circulation, cataloguing, and information retrieval processes, while electronic databases and digital repositories expand access to scholarly resources beyond the physical boundaries of the library. According to Ikwuanusi et al. (2024), automated library systems enhance operational efficiency and accuracy in service delivery. Likewise, Verma and Dwivedi (2023) observed that digital repositories and electronic databases significantly improve access to scholarly information and research productivity. Furthermore, Okwu and Oladokun (2024) emphasized that staff training programmes improve librarians' digital competencies and their ability to provide effective user support in technology-driven environments.

The relationship between strategic retooling initiatives and service efficacy has become increasingly important because university libraries continue to invest substantial resources in modernization programmes with the expectation of improving service performance. Evaluating the impact of strategic retooling initiatives on service efficacy therefore provides evidence regarding whether such investments are translating into measurable improvements in service quality, information accessibility, and user satisfaction. It also enables library managers and university administrators to make informed decisions regarding resource allocation, policy formulation, and future retooling interventions.

Despite the growing emphasis on strategic retooling, many public university libraries in Nigeria continue to face challenges such as inadequate funding, poor technological infrastructure, unstable internet connectivity, and insufficient opportunities for staff development. These challenges may limit the successful implementation of retooling initiatives and reduce their effectiveness in improving service delivery. Consequently, there is a need to investigate the predominant strategic retooling initiatives adopted by university libraries, examine library users' perceptions of these initiatives, and assess their impact on service efficacy. Such an investigation will provide empirical evidence on the effectiveness of modernization efforts and contribute to the development of strategies for enhancing library service delivery and improving the overall performance of university libraries.

Statement of the Problem

University libraries play a crucial role in supporting teaching, learning, and research activities in higher education institutions by providing access to relevant information resources and services. In recent years, the rapid advancement of information and communication technologies (ICTs), the growth of digital information resources, and the changing information needs of users have significantly transformed the nature of library services. As a result, university libraries are expected to continuously update their operations, services, and professional competencies to remain relevant and effective in supporting academic activities. One of the approaches adopted by libraries to achieve this is strategic retooling which involves the upgrading of staff skills, modernization of technological infrastructure, and the adoption of innovative service delivery models.

Despite the increasing recognition of the importance of strategic retooling in enhancing library services, many public university libraries in Nigeria still struggle with issues such as inadequate technological infrastructure, insufficient professional development opportunities for library staff, and limited adoption of innovative service delivery strategies. These challenges may affect the efficiency of library services and limit the ability of libraries to effectively meet the information needs of students, researchers, and academic staff. Scholars have noted that the effectiveness of academic libraries depends largely on their ability to adapt to technological changes and improve service delivery through continuous staff development and innovation.

Furthermore, while several university libraries have attempted to implement different forms of strategic retooling initiatives such as library automation, digital resource provision, and staff capacity building, there is limited empirical evidence on the extent to which these initiatives influence the efficacy of library services. In addition, the perception of library users regarding the impact of these retooling initiatives on service delivery has not been sufficiently explored, particularly in the context of public university libraries in Akwa Ibom State, Nigeria. Understanding users' perceptions is important because the ultimate measure of effective library service lies in the level of satisfaction and usefulness experienced by the users of the library.

Therefore, the problem of this study lies in the limited understanding of how strategic retooling initiatives influence service efficacy in public university libraries and how these initiatives are perceived by library users. Without such knowledge, it may be difficult for library administrators and university management to design effective strategies that will improve library services and meet the evolving information needs of users. This study therefore seeks to investigate strategic retooling and its perceived impact on service efficacy in public university libraries in Akwa Ibom State, Nigeria

Research Objectives

The main objective of this study was to examine strategic retooling and its perceived impact on service efficacy in public university libraries in Akwa Ibom State, Nigeria. The specific objectives were to:

i. Identify the predominant forms of strategic retooling initiatives undertaken by public university libraries in Akwa Ibom State.
ii. Determine the perceptions of library users regarding strategic retooling initiatives in public university libraries in Akwa Ibom State.
iii. Examine the impact of strategic retooling initiatives on service efficacy in public university libraries in Akwa Ibom State.

Research Questions

The study was guided by the following research questions:

i. What are the predominant forms of strategic retooling initiatives undertaken by public university libraries in Akwa Ibom State?
ii. What is the perceptions of library users regarding strategic retooling initiatives in public university libraries in Akwa Ibom State?
iii. What is the impact of strategic retooling initiatives on service efficacy in public university libraries in Akwa Ibom State?

Research Hypotheses

The study was guided by the following hypothesis:

i. There is no significant impact of strategic retooling initiatives on service efficacy in public university libraries in Akwa Ibom State

REVIEW OF RELATED LITERATURE

Strategic Retooling and Service Efficacy in University Libraries

Strategic retooling has become an indispensable strategy for university libraries seeking to remain relevant in an increasingly digital and knowledge-driven environment. According to Moonasar and Ngoepe (2023), the rapid transformation of information technologies and user expectations has compelled academic libraries to continuously redesign their services and operational systems. In the same vein, Oyedokun (2025) describes strategic retooling as the deliberate alignment of library services, staff competencies, and technological infrastructure with institutional objectives and emerging user needs. Earlier, Omosekejimi et al. (2019) defined strategic retooling as the systematic upgrading of librarians' professional skills alongside the adoption of modern information technologies, while Aslam et al. (2025) viewed it as an organizational renewal process that emphasizes innovation, capacity building, and technological integration. These perspectives collectively suggest that strategic retooling is a continuous process through which university libraries strengthen their ability to support teaching, learning, and research in a rapidly changing information landscape.

Closely associated with strategic retooling is the concept of service efficacy. Trivedi et al. (2021) explain that service efficacy refers to the extent to which library services effectively meet users' information needs through quality, accessibility, timeliness, and user satisfaction. Similarly, Khaemba and Mareri (2025) describe service efficacy as the ability of library services to deliver value by providing relevant information resources and support services that enhance academic productivity. According to Kinya and Muthee (2022), service efficacy encompasses not only the actual performance of library systems but also users' perceptions of their usefulness and effectiveness. Consequently, the ability of university libraries to achieve high service efficacy depends largely on the extent to which strategic retooling initiatives improve service quality and responsiveness. As noted by Kuyela (2025), investments in technology, infrastructure, and staff development often translate into better service outcomes and improved user satisfaction.

Predominant Forms of Strategic Retooling Initiatives

Several strategic retooling initiatives have been adopted by public university libraries in Nigeria to improve service delivery and adapt to emerging information needs. One of the most widely implemented initiatives is library automation. According to Devi (2022), automation involves the use of integrated library management systems to computerize routine library operations such as cataloguing, circulation, acquisitions, and serials management. Bagewadi et al. (2025) observed that automation has significantly enhanced operational efficiency by facilitating faster processing and retrieval of information resources. Supporting this position, Ikwuanusi et al. (2024) and Okojie and Olujobi (2025) reported that automated systems improve information access and reduce delays associated with manual library operations.

Another major strategic retooling initiative is the establishment of digital libraries and institutional repositories. Abubakar et al. (2021) noted that many university libraries have developed digital platforms for preserving and disseminating theses, dissertations, research articles, and other scholarly outputs. According to Olubiyo and Olubiyo (2023), institutional repositories increase the visibility and accessibility of research produced within universities while supporting global knowledge sharing. Similarly, Odaro-Ekhaguebor et al. (2023) emphasized that digital repositories have strengthened scholarly communication and improved access to institutional research outputs.

The subscription to electronic databases and online information resources also represents a significant aspect of strategic retooling. Ternenge and Kashimana (2019) observed that access to electronic journals and databases has expanded the range of scholarly materials available to students and researchers. Likewise, Okunola (2021) reported that databases such as JSTOR, EBSCOhost, ScienceDirect, and Research4Life have substantially improved access to current academic literature, thereby enhancing teaching, learning, and research activities within universities.

Staff training and professional development constitute another important component of strategic retooling. According to Abdullahi et al. (2024), the adoption of digital technologies in libraries requires librarians to acquire competencies in electronic resource management, information literacy instruction, and digital service delivery. In support of this view, Corrall and Jolly (2019) argued that continuous professional development is essential for enabling librarians to adapt to technological changes and provide innovative services that address contemporary user needs.

Furthermore, university libraries have increasingly invested in information literacy and user education programmes. Senthur and Ganesan (2022) explained that these programmes equip users with the skills needed to locate, evaluate, and effectively utilize information resources. Similarly, Twum et al. (2021) found that information literacy initiatives improve users' ability to maximize available resources and enhance their overall academic performance. Complementing these efforts are improvements in ICT infrastructure, including internet connectivity, computer facilities, and remote access systems. According to Onunka et al. (2023), modern ICT infrastructure enables users to access information resources conveniently regardless of location, while Emmanchika et al. (2026) emphasized that robust technological infrastructure is fundamental to the successful delivery of digital library services.

Users' Perception on Impact of Strategic Retooling Initiatives

The perceptions of library users regarding strategic retooling initiatives largely depend on the extent to which such initiatives improve access to information resources and enhance service quality. Mutula (2020) observed that users generally perceive digital library services positively when technological systems function efficiently and provide seamless access to information. Similarly, Esse and Haliso (2024) found that the availability of electronic resources and online services contributes significantly to positive user experiences. According to Oden et al. (2025), users often

associate strategic retooling initiatives with faster information retrieval, improved accessibility, and greater convenience in accessing library resources.

Digital literacy has also been identified as an important factor influencing user perceptions. Hamad et al. (2024) reported that users with higher levels of digital competence tend to derive greater benefits from digital library services and consequently perceive them more positively. Likewise, Akinyemi and Mary (2025) noted that inadequate digital skills may hinder effective utilization of electronic resources and reduce users' appreciation of retooled library services.

The effectiveness of automated systems further shapes users' perceptions. According to Lemounes (2024), well-designed and user-friendly systems improve users' experiences and satisfaction levels. In contrast, Igbudu and Ver (2020) found that poorly maintained systems often result in frustration and negative perceptions of service quality. Beyond technology, users continue to value human support services. Gómez-Cruz (2019) emphasized that responsive reference services and professional assistance remain critical determinants of user satisfaction, while Singha and Das (2021) highlighted the importance of librarian-user interactions in enhancing perceptions of service effectiveness. Nevertheless, infrastructural challenges such as inadequate funding, poor internet connectivity, and unstable electricity supply continue to limit the effectiveness of strategic retooling initiatives and negatively influence user perceptions, as reported by Ogunbote and Abimbola (2025).

Impact of Strategic Retooling Initiatives on Service Efficacy

Strategic retooling initiatives have significantly enhanced service efficacy in university libraries by improving the accessibility, quality, and efficiency of information services. According to Oyedokun (2025), technological innovations have transformed library operations and expanded opportunities for delivering user-centred services. Similarly, Meesad and Mingkhwan (2024) observed that digital transformation initiatives have improved the speed and effectiveness of information delivery in academic libraries.

The adoption of automation systems has improved cataloguing, circulation, and information retrieval services. Amannah and Ojekudo (2021) reported that automated operations reduce processing time and improve service quality, while Bagewadi et al. (2025) emphasized that automation enhances operational efficiency and information accessibility. In the same manner, digital repositories and electronic databases have expanded access to scholarly resources and improved research productivity among library users. According to Baryshev et al. (2020), these developments have increased user satisfaction and strengthened support for teaching, learning, and research activities.

Staff training and capacity-building initiatives have also contributed significantly to service efficacy. Omosekejimi et al. (2019) observed that professionally competent librarians are better positioned to support users in technology-driven environments, while Akintola (2021) argued that continuous training enhances librarians' ability to provide innovative and effective services. Furthermore, Tizhe (2025) noted that strategic retooling facilitates collaboration, resource sharing, and user engagement through digital platforms and virtual services.

Despite these benefits, the impact of strategic retooling is often constrained by inadequate funding, infrastructural deficiencies, and limited technological expertise. Haruna (2025) identified funding limitations as a major barrier to the successful implementation of digital initiatives in academic libraries. Likewise, Ogunbote and Abimbola (2025) observed that poor infrastructure continues to impede effective service delivery in many university libraries. Consequently, Esse and Haliso (2024), Bello and Adepegba (2023), and Masenya (2021) advocated increased investment in ICT infrastructure, staff development, and policy support as essential measures for maximizing the contribution of strategic retooling initiatives to service efficacy.

Research Methodology

A quantitative research method and descriptive survey design were adopted for the study. The population of the study comprised 13,483 registered library users in public university libraries in Akwa Ibom State, specifically the University of Uyo and Akwa Ibom State University. From this population, a sample size of 388 respondents was selected using the Taro Yamane formula. Data for the study were collected using a researcher-developed instrument titled Strategic Retooling and Perceived Service Efficacy Questionnaire (SRPSEQ). The instrument consisted of three sections: Sections A, B, and C. Section A elicited respondents' demographic information, Section B contained 21 items designed to obtain information on strategic retooling initiatives, while Section C comprised 14 items focused on perceived service efficacy.

The questionnaire items in Sections B and C were structured on a four-point rating scale of Always (4 points), Often (3 points), Sometimes (2 points), and Never (1 point). Mean and standard deviation scores were used to answer Research Questions One and Two, while the R-value of simple linear regression was used to answer Research Question Three. The F-ratio of simple linear regression was used to test the hypothesis at the 0.05 level of significance. For Research Questions One and Two, a criterion mean of 2.50 was adopted. Any item with a mean score of 2.50 and above was accepted (Agreed), while items with mean scores below 2.50 were rejected (Disagreed). The standard deviation was used to determine the degree of dispersion or closeness of respondents' opinions. For Research Question Three, the R-value was interpreted using a correlation strength classification in which 0.10–0.39 indicates a low relationship, 0.40–0.59 indicates a moderate relationship, 0.60–0.79 indicates a high relationship, while 0.80–0.99 indicates a very high

relationship. In testing the hypothesis, the null hypothesis was rejected whenever the p-value was less than the 0.05 level of significance, whereas the null hypothesis was accepted whenever the p-value was greater than 0.05.

DATA ANALYSIS AND PRESENTATION OF RESULTS

Research Question One

What are the predominant forms of strategic retooling initiatives undertaken by public university libraries in AkwaIbom State?

Table 1: Mean and standard deviation of the predominant forms of strategic retooling initiatives undertaken by public university libraries in Akwa Ibom State **(N=383)**

S/N	Forms of Strategic Retooling Initiatives	Mean	SD	Decision
1.	The use of automated library systems helps me find books and materials more quickly	3.72	0.55	**Agreed**
2.	Access to the university's digital library and intuitional repository has improved my academic work.	3.32	0.72	**Agreed**
3.	Electronic databases provided by the library are useful for my assignments and research	3.62	0.72	**Agreed**
4.	Library training or information literacy programmes have improved my ability to search and use information effectively.	3.32	0.84	**Agreed**
5.	Library staff provide adequate assistance when I need help with accessing information resources.	3.58	0.50	**Agreed**
6.	The availability of internet access, computers and Wi-Fi in the library makes it easier for me to use library services	3.24	0.68	**Agreed**
7.	The recent improvements in library services have made it easier for me to study and complete academic tasks.	3.37	0.73	**Agreed**
	Cluster Mean	**3.45**	**0.68**	Agreed

The result in Table 1 showed the predominant forms of strategic retooling initiatives undertaken by public university libraries in Akwa Ibom State. The findings revealed that the mean scores of items 1, 2, 3, 4, 5, 6, and 7 were above the criterion mean of 2.50, indicating that the respondents agreed with all the statements. The standard deviation values, which ranged from 0.50 to 0.84, indicate that the respondents' opinions were relatively consistent with little variation. Furthermore, the cluster mean of 3.45, which is above the criterion mean of 2.50, implies that the predominant forms of strategic retooling initiatives undertaken by public university libraries in Akwa Ibom State include the use of automated library systems, digital libraries and institutional repositories, electronic databases, information literacy programmes, staff support services, and ICT facilities aimed at improving library services and supporting academic activities.

Research Question Two

What are the perceptions of library users regarding strategic retooling initiatives in public university libraries in AkwaIbom State?

Table 2: Mean and standard deviation of the perceptions of library users regarding strategic retooling initiatives in public university libraries in AkwaIbom State **(N=383)**

S/N	Forms of Strategic Retooling Initiatives	Mean	SD	Decision
1.	The use of digital library systems makes it easier for me to access information resources efficiently	3.62	0.57	**Agreed**
2.	My level of digital skills affects how well I can use the library's electronic resources.	3.47	0.59	**Agreed**
3.	Automated library systems are reliable and make information retrieval faster for me.	3.27	0.71	**Agreed**
4.	Difficulty in using digital tools reduce my satisfaction with library services.	3.24	0.61	**Agreed**
5.	Library staff provide helpful guidance when I need assistance with finding information	3.27	0.77	**Agreed**
6.	Both physical and online reference services provided by the library meet my academic needs	3.18	0.80	**Agreed**
7.	Poor internet connection, power supply or lack of computers affects my perception of the library's effectiveness.	3.34	0.57	**Agreed**
	Cluster Mean	**3.34**	**0.66**	Agreed

The result in Table 2 showed the perceptions of library users regarding strategic retooling initiatives in public university libraries in Akwa Ibom State. The findings revealed that the mean scores of items 1, 2, 3, 4, 5, 6, and 7 were above the criterion mean of 2.50, indicating that the respondents agreed with all the statements. This implies that the library users had positive perceptions of the strategic retooling initiatives such as digital library systems, automated services, staff assistance, online reference services, and ICT facilities introduced to improve library services and academic activities. The findings also indicate that challenges such as poor internet connection, unstable power supply, and inadequate computer facilities affect users' perception of library effectiveness.

The standard deviation values, which ranged from 0.57 to 0.80, indicate that the respondents' opinions were relatively consistent. Furthermore, the cluster mean of 3.34, which is above the criterion mean of 2.50, implies that the perception of library users regarding strategic retooling initiatives in public university libraries in Akwa Ibom State is positive.

Research Question Three

What is the impact of strategic retooling initiatives on service efficacy in public university libraries in Akwa Ibom State?

Table 3: Result of Simple Linear Regression of the impact of strategic retooling initiatives on service efficacy in public university libraries in Akwa Ibom State (N=383)

Variables	R	R^2	Adjusted R^2
Strategic retooling initiatives	0.722	0.521	0.520
Service efficacy			

The result in Table 3 show a correlation coefficient (R-value) of 0.722, indicating a high positive relationship between strategic retooling initiatives and service efficacy in public university libraries in Akwa Ibom State. The coefficient of determination (R^2 – value) of 0.521 also shown in Table 3 indicates that 52.1 percent of the variance in service efficacy in public university libraries in Akwa Ibom State is explained or predicted by strategic retooling initiatives. This means that there is impact of strategic retooling initiatives on service efficacy in public university libraries in Akwa Ibom State.

Hypothesis One

There is no significant impact of strategic retooling initiatives on service efficacy in public university libraries in AkwaIbom State

Table 4 : Result of Simple Linear Regression of the impact of strategic retooling initiatives on service efficacy in public university libraries in AkwaIbom State (N=383)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1516.14	1	1516.14	77.99	.00[b]
	Residual	7407.16	381	19.44		
	Total	8923.30	382			

The result in Table 4 shows the F-ratio of 77.99 with the corresponding probability level of significance of .00 alpha at 1 and 381 degrees of freedom. This level of significance is less than .05 in which the decision is based. With this result, the null hypothesis was rejected. The result implies that there is significant impact of strategic retooling initiatives on service efficacy in public university libraries in Akwa Ibom State.

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Discussion of Findings

The findings of the study are here under discussed in line with the constructs used in the study.

Predominant Forms of Strategic Retooling Initiatives Undertaken by Public University Libraries

The findings of the study revealed that public university libraries in Akwa Ibom State have adopted several strategic retooling initiatives aimed at improving library operations and enhancing service delivery. The result showed that library automation, subscription to electronic databases, staff training and development, provision of internet facilities, digital library services, and information literacy programmes were among the predominant retooling initiatives undertaken by the libraries. This finding confirms the position of Onunka et al. (2023), who asserted that academic libraries must continuously upgrade their technological systems, information resources, and staff competencies to remain relevant in the digital information environment. The finding also supports that of Ajiboye et al. (2025), which observed that the establishment of digital repositories and electronic information systems has become a major retooling strategy in Nigerian university libraries.

Furthermore, the finding suggests that public university libraries are increasingly embracing digital transformation as a response to the changing information needs of users. The adoption of integrated library systems and electronic information resources indicates a shift from traditional library practices to more technology-driven service models. This finding is in agreement with Odularu (2025), who emphasized that strategic retooling in libraries involves the integration of technology, innovation, and staff development to improve operational effectiveness and service quality. Therefore,

the study demonstrates that strategic retooling initiatives have become central to the modernization and sustainability of university library services.

Impact of Strategic Retooling Initiatives on Service Efficacy in Public University Libraries

The findings of the study indicated that strategic retooling initiatives positively influenced service efficacy in public university libraries in Akwa Ibom State. Respondents agreed that automation, electronic databases, digital services, and staff development programmes improved access to information resources, increased the speed of service delivery, enhanced user satisfaction, and promoted efficient library operations. The finding aligns with the views of Devi and Bhatt (2024), who explained that service efficacy in libraries is measured through accessibility, responsiveness, service quality, and user satisfaction. The finding also corroborates the work of Paul et al. (2024), which revealed that libraries that invest in technological innovations and digital information resources provide more effective and user-oriented services.

The positive impact recorded in the study may be attributed to the ability of retooling initiatives to improve information accessibility and simplify library operations. Automation systems and online resources enable users to retrieve information more quickly and conveniently, thereby improving their perception of library services. Staff training programmes also contribute to improved service delivery because librarians become more competent in handling digital tools and supporting users effectively. However, despite these positive outcomes, the study also suggests that infrastructural challenges such as poor internet connectivity and inadequate funding may still limit the full realization of service efficacy in some public university libraries.

Relationship Between Strategic Retooling Initiatives and Service Efficacy in Public University Libraries

The findings of the study revealed that there is a significant relationship between strategic retooling initiatives and service efficacy in public university libraries in Akwa Ibom State. The result of the simple linear regression analysis showed that improvements in strategic retooling initiatives were associated with corresponding improvements in service efficacy. This finding implies that the modernization of library technologies, staff competencies, and information systems contributes significantly to the quality and effectiveness of library services. The finding supports the assertion of Kautonen and Nieminen (2018). that libraries that invest in technological innovation and human capacity development are better positioned to provide efficient and user-centred services. Similarly, Hamdani (2026) maintained that service efficacy is strongly influenced by the performance and effectiveness of library systems and services.

The finding further indicates that strategic retooling serves as a critical driver for improving service performance in university libraries. Libraries that adopt comprehensive retooling strategies such as automation, digital resource development, staff training, and improved ICT infrastructure are more likely to satisfy the information needs of users effectively. This finding also agrees with the study of Adeyemi et al. (2025), which found that technological innovation and strategic development initiatives significantly improve service delivery in academic libraries. Therefore, the study establishes that strategic retooling initiatives and service efficacy are closely interconnected, and continuous investment in retooling efforts is essential for sustaining efficient and responsive library services in Nigerian public universities.

Conclusion

The study concluded that strategic retooling initiatives play a significant role in enhancing service efficacy in public university libraries in Akwa Ibom State. The findings revealed that predominant retooling initiatives such as library automation, digital library development, subscription to electronic databases, staff training programmes, information literacy initiatives, and improved ICT infrastructure have contributed positively to the modernization of library services and improved access to information resources. These initiatives have enhanced operational efficiency, increased user satisfaction, and strengthened the ability of university libraries to support teaching, learning, and research activities effectively.

The study further established that there is a significant relationship between strategic retooling initiatives and service efficacy in public university libraries. Libraries that invested more in technological innovation, staff capacity building, and digital transformation were found to provide more efficient, accessible, and user-centred services. However, challenges such as inadequate funding, infrastructural deficits, and limited technological advancement may hinder the full realization of the benefits of strategic retooling. Therefore, continuous investment in modern technologies, staff development, and infrastructural improvement remains essential for sustaining effective library service delivery in Nigerian public universities.

Recommendations

Consequent upon the findings from this study, the following recommendations were proferred:

1. Public university management and government agencies should provide adequate and sustained funding for library automation, digital resource acquisition, internet facilities, and other technological infrastructures necessary for effective library service delivery.

2. University libraries should organize regular staff training, workshops, and professional development programmes to equip librarians with advanced digital competencies and emerging technological skills required for modern library operations.
3. Public university libraries should strengthen their strategic retooling efforts by expanding access to electronic resources, improving ICT infrastructure, and implementing user-centred digital services that enhance information accessibility and overall service efficacy.

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SUSTAINABLE DIGITAL REPOSITORIES IN LIBRARIES: A STUDY OF CURRENT TRENDS AND BEST PRACTICES

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Abstract

As libraries increasingly rely on digital collections, ensuring their long-term preservation and accessibility is crucial. This study investigates current trends and best practices in digital preservation, focusing on sustainable digital repositories that enable libraries to manage digital collections effectively. By examining challenges and opportunities in implementing sustainable digital preservation strategies, this research aims to inform the development of effective digital preservation frameworks that support long-term accessibility of digital information. The study sought to achieve the following research objectives: to investigate current trends and best practices in digital preservation in libraries; to examine challenges and opportunities in implementing sustainable digital preservation strategies; and to identify opportunities for libraries to leverage sustainable digital repositories in supporting long-term accessibility of digital information. A quantitative research method was used to study current trends and best practices of sustainable digital repositories in libraries. The targeted population was 183 registered and certified librarians in Nigeria, and one hundred and forty-two (142) responded to the questionnaire. The results showed that 90% of respondents perceived sustainable digital repositories as important in ensuring long-term accessibility of digital information, while 88.03% of the respondents thought that the lack of funding challenges effective digital preservation. The study concluded that by investing in digital preservation infrastructure, developing digital preservation policies, and providing training and support for library professionals, libraries can ensure the long-term preservation and accessibility of digital information. It was recommended that libraries should develop guiding policies, allocate resources, and train staff for sustainable digital preservation of their resources.

Keywords: Digital Preservation, Sustainable Digital Repositories, Library Collections, Digital Curation, Long-term Accessibility.

Introduction

Libraries have been vital institutions in acquiring, organizing, preserving, and disseminating knowledge since long ago. The role of academic libraries has, however, been greatly enhanced with the rapid development of digital technologies and the proliferation of digital information that is created in various forms including electronic journals, institutional repositories, e-books, and research data sets in the contemporary information age (Zareef & Jabeen, 2025). The shift has brought digital preservation practices and sustainable digital repositories to the forefront in today's library environment, especially in the context of long-term access to scholarly information. Digital preservation deals with the collection of processes, policies and technologies for the ongoing maintenance and continued access to digital content into the future, regardless of changes in technology, obsolescence or degradation of the data. In the academic library, digital preservation is realized in the form of institutional repositories and digital archiving systems, as structured platforms for the storage, management and dissemination of digital scholarly products. These systems are the primary independent variables of this study and therefore, reflect the strategies and practices of librarians in order to ensure the sustainability of digital information resources. A number of contextual factors affect the effectiveness of these digital preservation approaches: current trends in digital preservation, best practices used by librarians, challenges and opportunities in the institutional environment. The use of new technologies like cloud computing, artificial intelligence and digital curation systems in libraries to improve preservation practices and to ensure repository sustainability is growing increasingly common in both the global context and beyond (Zareef & Jabeen, 2025; Ailakhu, 2024). These trends are indicators of changing professional practice that impact on the management and maintaining of digital repositories over time.

The building of sustainable digital repositories is underway in Africa but it is not uniform. Research shows that, despite the growth of institutional repositories, there are still challenges to effective implementation including poor infrastructure, lack of technical skills and poor policy frameworks (Luthuli, 2023). Likewise, Shonhe (2025) underscores the increasing role of artificial intelligence in archives and records management, particularly in the context of digital preservation, where AI can help enhance efficiency; however, there is a need for adequate capacity development and governance arrangements. The reality is that empirical evidence shows that there are ongoing problems in sustainable implementation of digital preservation systems in academic libraries in Nigeria. According to Yusuf and Salisu (2022) and Olatokun and Ayanbode (2019), several factors such as lack of adequate funding, ICT infrastructure, and trained personnel have significant impact on the preservation practices. Ezeani and Igwesi (2021) also point out that although the awareness of digital preservation has increased, there remains a lack of uniformity and standardization of digital preservation strategies in many libraries. These challenges are important moderating factors that affect the successful

implementation of a digital repository system. In this context, the role of librarianship in tertiary institutions in Katsina State is crucial in managing digital repositories and for the sustainability of digital information resources. Their actions affect the preservation of digital materials and the accessibility of digital materials over time. Thus, the dependent variable of this study is long-term accessibility of digital information resources, representing the degree of trustworthiness regarding whether or not the digital information resources are available for users to access consistently in academic libraries. Thus, the general objectives of this study is to examine the trends and best practice in the use of sustainable digital repositories in libraries with of registered librarians in tertiary institutions in Katsina State, Nigeria.

Statement of the Problem

Libraries, particularly in tertiary institutions, should have very efficient and sustainable digital repository systems that will facilitate continuous preservation, access and integrity of digital information resources in an ideal academic environment. Hence, sustainable practices of digital preservation would be seamlessly embedded in the working of the library, means that knowledge resources would be accessible and usable even if the technology changes or the system becomes obsolete (Zareef & Jabeen, 2025; Ailakhu, 2024).

But, in practice, in most academic libraries in Nigeria and Katsina State in particular this is not a reality. Previous research reveals that despite the importance of digital preservation in libraries, many of them continue to grapple with problems such as inadequate infrastructure, weak policy frameworks, lack of technical expertise, and insufficient funding (Yusuf & Salisu, 2022; Olatokun & Ayanbode, 2019; Ezeani & Igwesi, 2021). While some institutions have already established institutional repositories, there are concerns about their sustainability and effectiveness as they have been poorly maintained, not widely adopted to the new technologies and have not developed a consistent preservation strategy. The difference between what is ideal and what really is, calls for the existence of the problem, since information resources, if left unmanaged, risk being lost, inaccessible, or obsolete. Hence, this research work aims to study sustainable digital repositories in libraries through the identification of trends, practices, problems and opportunities and possible measures to strengthen the sustainable digital repositories to improve the accessibility of digital information resources in the long term among tertiary institutions librarians in Katsina state, Nigeria.

Research Objectives

The objectives can be outlined as follows:

1. To identify the current trends and best practices in digital preservation in libraries
2. To find out challenges and opportunities for the implementation of sustainable approaches to digital preservation in libraries.
3. To ascertain opportunities to use sustainable digital repositories to enhance the Accessibility of information in the digital environment in libraries on a long-term basis.

Literature Review

Since the increasing change from print-based to digital information resources in academic libraries, digital preservation has become a central concern in the academic libraries. The shift has transformed libraries into proactive agents for the preservation and management of digital knowledge, necessitating the use of sophisticated technological systems to ensure its long-term preservation and accessibility. Recent literature shows that digital preservation is now more focused on artificial intelligence (AI) and cloud computing technologies, as well as on advanced digital curation systems. According to Ailakhu (2024) and Shonhe (2025), digital preservation is becoming more and more reliant on intelligent automation, and emerging technologies that provide support for the intelligent automation and predictive preservation and improved metadata management. This indicates a transition from conventional methods of manual preservation to more data-driven, automated solutions that enhance efficiency and accessibility. Digital preservation, on the other hand, is also increasingly fueled by artificial intelligence and new technologies that further automate, improve metadata management and information retrieval processes (Ailakhu, 2024; Shonhe, 2025). These technologies are also reshaping preservation practice in recent studies (Ailakhu, 2024; Shonhe, 2025) which focus on the advantages for classification, decision-making and access to digital resources over the long term. Yet, a scrutiny of literature shows that there is a definite bias towards theory over implementation in practice. Most of the studies concentrate on the capacities of the emerging technologies without proper evidence of their actual use in academic library environment; especially in developing countries like Nigeria. In such settings, technical skills, financial resources and infrastructure remain as restraints to the successful deployment of sophisticated digital preservation tools and systems, resulting in a disconnect between technology and practice.

The preservation strategies that are required to be sustainable, must be incorporated into an institutional repository, Luthuli (2023) and Zareef and Jabeen (2025). It has been mentioned in the literature that the management of institutional repositories, policy development and professionalism of librarians are very important factors in the success of digital

preservation initiatives and are important to sustainable digital preservation initiatives. Institutional repositories (IRs) are important infrastructures for the storage, structuring and dissemination of scholarly works in the digital environment. To ensure sustainability in preservation strategies, these strategies have to be embedded in an institutional repository as stated by Luthuli (2023) and Zareef and Jabeen (2025). The studies include some examples of best practice, such as the standardized metadata schemas, interoperability frameworks, and continuous migration models and structured digital curation workflows. Where these practices have been adopted worldwide, they are typically undertaken in good institutional conditions; with good infrastructure and funding. One caveat of this literature is that it mostly does not account for resource poor environments.

In developing countries, many academic libraries have been unable to put these best practices into practice due to a variety of reasons including technological infrastructure, lack of trained staff and financial resources. It is important to note that, while the frameworks may be good in their abstract form, they must be contextualised and tailored to the local context in order that they do not need to be imported without alteration (Omosor & Otaru, 2026 and Luthuli, 2023). In the case of these practices, if accepted globally, they are mostly carried out in good institutional settings with excellent infrastructure and funding. A major difficulty with this literature is that it excludes resource-poor settings. In developing countries, many academic libraries have been unable to put these best practices into practice due to a variety of reasons including technological infrastructure, lack of trained staff and financial resources. This suggests that frameworks good in their abstraction must be customized to the local context so that they are not just imported without modification.

Yusuf and Salisu (2022) and Olatokun and Ayanbode (2019) stated that the issue of digital preservation in academic libraries in Nigeria is beset by very many operational constraints that restricts effective implementation of digital preservation strategies. Similarly, Ezeani and Igwesi (2021) noted that although there is growing awareness of digital preservation, it is not always being put into practice because of institutional and technical constraints. Supported opportunities, on the other hand, are also found in the literature. Moruf and Etoroabasi (2023) pointed out that the adoption of ICT, development of institutional repositories and the rising consciousness about digital sustainability offer avenues to make preservation practices better. Most of the studies, however, are more focused on the identification of challenges rather than the development of workable and easily replicable solutions in specific institutional settings like in Katsina State tertiary institutions.

The long-term availability of digital information resources highlights the need for sustainable digital repositories for continued access to scholarly content, as demonstrated in the literature. Omosor and Otaru (2026) and Luthuli (2023) posited that Digital Repositories can have a profound impact on access, visibility and preservation of academic output, thus improving institutional memory and scholarly communication. Notwithstanding these theoretical contributions, however, empirical evidence of how librarians in particular regional contexts actively use these repositories to increase the long-term access to them is still scarce. Other studies like Ezeani and Igwesi (2021) and Olatokun and Ayanbode (2019) also indicate that the low use and effectiveness of institutional repositories are often attributed to poor implementation practices. This results in the mismatch between what is expected and what is achieved in the real world of academic libraries. A review of the literature suggests a significant international focus on technologically based digital preservation systems, best practices and sustainability models based in repositories. An analysis of the critical reveals, however, a continuing gap between the advanced theoretical models and practice in developing regions. The majority of studies are descriptive and technology oriented, and have too little empirical support in actual institutional settings. This highlights empirical research on the adoption, adaptation and implementation of sustainable digital preservation strategies by the librarians of Katsina State tertiary institutions for the purpose of making digital information resources accessible in the long term.

Methodology

The study adopted a descriptive survey research design using a quantitative research method to investigate the present status and best practices of sustainable digital repositories in libraries. The population of the study was 142 librarians from the tertiary institutions in Katsina state. All the population was included in the study by adopting an all-encompassing technique of sampling, which is total enumeration sampling technique. A structured questionnaire was used for collecting the data, and the content validity of the questionnaire was tested by experts of Library and Information Science. High reliability of this instrument has been obtained, which is 0.98. A total of 142 questionnaires were issued to the respondents, and 105 questionnaires were returned, which were properly filled out and analysed. Descriptive statistics were used to analyze the data using mean and standard deviation to understand the perceptions of librarians about sustainable digital repositories, digital preservation practices and challenges in the long-term preservation of digital information in libraries.

Result and Discussion

Table 1. To identify the current trends and best practices in digital preservation in libraries (N=105):

Statements	**Mean**	**STD**
Libraries adopt current digital preservation trends	2.96	1.31
Libraries apply international best practices in digital preservation	2.48	1.15
Cloud-based systems are used for digital preservation in libraries	2.78	1.40

Libraries use automated tools for digital archiving	2.60	1.39
Libraries follow standard metadata practices for preservation	2.26	1.32

(Source: Field Data, 2026, SD= Strongly disagree -1; **D**= Disagree -2; **UD**= Undecided -3; **A**= Agree -4; **SA**= Strongly agree –5)

Table 1 shows the respondents' opinions on what they see as the current trends and best practices in digital preservation within libraries. The results show that libraries tend to follow the current digital preservation trends with a mean score of 2.96 (SD = 1.31) being the highest one. The mean scores for use of cloud-based systems for digital preservation (2.78, SD = 1.40) were also relatively high, indicating moderate adoption in libraries. Likewise, the automated tools for digital archiving received a mean score of 2.60 (SD = 1.39) which reflects some libraries adopting technological solutions for preservation activities. The use of international best practices for digital preservation (Mean = 2.48, SD = 1.15) and standard practices for digital preservation metadata (Mean = 2.26, SD = 1.32) were rated lower, suggesting that these are important preservation practices that are not widely applied. The results indicated that libraries are actively working to follow emerging best practices and technologies for digital preservation but that efforts must be increased to more consistently meet international best practices and metadata standards for sustainable digital preservation.

Table 2. To find out challenges and opportunities for implementation of sustainable approaches to digital preservation in libraries.

Statements	**Mean**	**STD**
Challenges		
Libraries face inadequate funding for digital preservation	3.36	1.45
Lack of technical skills limits digital preservation	3.29	1.24
Poor infrastructure affects preservation activities	3.00	1.45
Obsolete technologies hinder digital preservation	2.98	1.32
Limited institutional support challenges implementation	3.10	1.27
Opportunities		
Digital preservation improves access to library resources	3.30	1.32
Collaboration enhances sustainable preservation practices	3.20	1.36
Emerging technologies support preservation development	3.69	1.39
Institutional policies encourage digital preservation growth	3.30	1.30
Capacity-building programs improve preservation practices	3.01	1.32

(Source: Field Data, 2026, SD= Strongly disagree -1; **D**= Disagree -2; **UD**= Undecided -3; **A**= Agree -4; **SA**= Strongly agree –5)

The results show that the most significant challenges encountered with the implementation of SDP in libraries are inadequate funding (Mean = 3.36, SD = 1.45), lack of technical skills (Mean = 3.29, SD = 1.24), limited institutional support (Mean = 3.10, SD = 1.27), poor infrastructure (Mean = 3.00, SD = 1.45), and obsolete technologies (Mean = 2.98, SD = 1.32). On the other hand, the emerging technologies were seen as the best opportunity (Mean = 3.69, SD = 1.39), followed by improved access to library resources and supportive institutional policies (Mean = 3.30, SD = 1.32; 3.30, SD = 1.30), collaboration (Mean = 3.20, SD = 1.36) and capacity-building programmes (Mean = 3.01, SD = 1.32). The data indicated that libraries are facing a lot of difficulties in regard to resources and capacity, but there is a lot of potential to improve the sustainable digital preservation practices.

Table 3. To ascertain opportunities to use sustainable digital repositories to enhance the Accessibility of information in digital environment in libraries on long term basis (N=105):

Statements	**Mean**	**STD**
Sustainable repositories ensure long-term information access	3.55	1.27
Digital repositories support preservation of scholarly outputs	3.27	1.38
Repositories improve accessibility of digital resources	3.44	1.32
Libraries use repositories for long-term content storage	3.69	1.39
Digital repositories enhance information retrieval efficiency	3.30	1.30

(Source: Field Data, 2026, SD= Strongly disagree -1; **D**= Disagree -2; **UD**= Undecided -3; **A**= Agree -4; **SA**= Strongly agree –5)

The results indicate that the biggest problems with sustainable digital preservation in libraries are inadequate funding (Mean = 3.36, SD = 1.45) and lacking in technical skills (Mean = 3.29, SD = 1.24). The results also show that there is a high level of awareness in the library community of the importance of sustainable digital repositories for long-term information access. Ensuring long-term access to information (Mean = 3.55, SD = 1.27) and improving the accessibility of digital resources (Mean = 3.44, SD = 1.32) were the second and third highest rated opportunities respectively, followed by use of repositories for long-term storage of content (Mean = 3.69, SD = 1.39).

Discussion of Findings

1. The results showed that the libraries incorporate the following trends in digital preservation moderately (Mean = 2.96, SD = 1.31) and use cloud based systems in digital preservation moderately (Mean = 2.78, SD = 1.40). The use of automated digital archiving tools was also moderately reported (Mean = 2.60, SD = 1.39), and

standard metadata practices was also low (Mean = 2.26, SD = 1.32), as was the application of international best practices (Mean = 2.48, SD = 1.15). The moderate presence of the current digital preservation trends, cloud-based systems and automated archiving tools while the low application of metadata standards and international best practices confirms the result obtained by Olatokun and Ayanbode (2019), and Ezeani and Igwesi (2021) which found that although academic libraries are now using digital preservation technologies, implementation of the recognized standards is reported to be low.

2. The results indicate that the challenges that hinder sustainable digital preservation in libraries are mainly lack of funding (Mean = 3.36, SD = 1.45) and technical skills (Mean = 3.29, SD = 1.24). Emerging technologies (Mean = 3.69, SD = 1.39) was also cited as the biggest opportunity for improving information preservation practices. Likewise, the inadequate funding of and technical skills to implement sustainable digital preservation initiatives in libraries was identified as a major challenge, which is in line with the findings of Moruf and Etoroabasi (2023) and Luthuli (2023). In addition, the recognition of emerging technologies as a key opportunity for sustainable digital preservation aligns with the conclusions drawn by Yusuf and Salisu (2022), Ailakhu (2024), and Shonhe (2025) who highlighted the potential of emerging technologies, such as AI and digital curation tools, to enhance the efficiency, sustainability, and accessibility of preserved digital resources.
3. The results show that the long-term storage of content (Mean = 3.69, SD = 1.39) and long-term access to information (Mean = 3.55, SD = 1.27) are most highly rated by the respondents, indicating that sustainable digital repositories can greatly improve the long-term access to information. The discovery that sustainable digital repositories further information accessibility and storage is also in line with the studies conducted by Luthuli 2023, Zareef and Jabeen 2025 and Omosor and Otaru 2026 which emphasized the significance of institutional repositories in ensuring long-term access to digital information, enhancing information retrieval, and preserving scholarly outputs. Thus, the current research builds on the existing work by proving that sustainable digital repositories are needed to support and maintain the accessibility of digital products in the face of continuing problems associated with funding, technical resources and policy implementation.

Conclusions

The study concludes that sustainable digital repositories are important for sustaining the preservation, storage and access to digital information in libraries. Mostly, digital preservation trends and tools such as cloud-based systems and automated archiving tools are adopted by libraries to a moderate level, while the adoption of standard metadata and international best practices are still not enough. The study also finds that insufficient funds, insufficient technical skills, limited institutional support are ongoing challenges for digital preservation, and emerging technologies offer great potential to improve preservation efforts. In order to ensure sustainable digital preservation and ongoing access to scholarly and digital resources in Libraries, more investments in preservation infrastructure, capacity building for staff, implementation of policies and use of new technologies are a must.

Recommendations

1. **Current Trends and Best Practices:** Libraries should increase support for international digital preservation standards and metadata practices by creating guidelines at the institutional level and by making them a routine part of all digital preservation repository systems.
2. **Challenges and Opportunities:** Library management and relevant stakeholders should make sufficient provision of funding and also continuous capacity building programmes for the librarians' technical skills shall be provided to make the library to work effectively on digital preservation and should make use of new technologies to enhance the preservation processes.
3. **Long-Term Accessibility of Information:** Libraries should develop and sustain digital repositories that have stable and dependable storage systems and an effective backup plan for the preservation and access of scholarly and digital information resources.

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Strengthening Career Development in Librarianship through Collaboration between Academic Librarians and LIS Departments in North-Western Nigeria

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Abstract

This study examined strengthening career development in librarianship through collaboration between academic librarians and Library and Information Science (LIS) departments in North-Western Nigeria. The study adopted quantitative methodology and a descriptive survey research design. The population comprised 335 academic librarians and LIS lecturers from selected federal universities, with a sample size of 182 respondents determined using Taro Yamane formula. Data were collected using a structured questionnaire and analyzed using frequency counts, percentages, and mean scores, with a criterion mean of 2.50 for decision-making.The findings revealed a high level of collaboration between academic librarians and LIS departments. Strategies such as joint research, workshops, mentorship programmes, and practical training were identified as key approaches for enhancing career development. However, challenges such as inadequate funding, lack of institutional support, workload, poor communication, and absence of clear policies were found to hinder effective collaboration. The study concludes that collaboration plays a significant role in strengthening career development in librarianship, but its effectiveness is limited by existing challenges. The study recommends improved institutional support, increased collaborative activities, and the establishment of clear policies to enhance sustainable collaboration and professional development.

Keywords: Academic librarians, LIS departments, collaboration, career development, federal universities, North-Western Nigeria.

Introduction

The rapid advancement in information and communication technologies (ICTs) has significantly transformed the roles of librarians in the 21st century. Academic librarians are now expected to provide services beyond traditional library operations, including digital literacy instruction, research support, electronic resource management, and scholarly communication (Rabasa & Abrizah, 2022). These emerging responsibilities require continuous professional development in order for librarians to remain relevant and effective in supporting teaching, learning, and research activities within universities (De Groote, 2023).

Library and Information Science (LIS) departments play an important role in preparing future librarians by providing theoretical knowledge and professional competencies required for effective practice. Academic libraries, on the other hand, provide practical environments where such knowledge is applied. Collaboration between academic librarians and LIS departments is therefore essential for improving curriculum relevance, research productivity, mentorship opportunities, and professional competence (Roy & Habib, 2024). Effective collaboration promotes knowledge sharing, innovation, and continuous skills development required in modern librarianship (Chen, Taylor, & Rorissa, 2024).

In North-Western Nigeria, federal universities serve as major centres for LIS education and professional practice. Strengthening collaboration between academic librarians and LIS departments will enhance career development opportunities, improve research productivity, and ensure sustainability of librarianship in the digital information environment.

Statement of the Problem

Career development is essential for improving the competence, productivity, and relevance of academic librarians in a rapidly changing information environment. Librarians are expected to continuously update their skills in areas such as digital librarianship, information literacy instruction, and research support services (Rabasa & Abrizah, 2022). However, collaboration between academic librarians and LIS departments in many federal universities in North-Western Nigeria appears to be limited and inadequately structured.

Limited collaboration may reduce opportunities for joint research, mentorship, curriculum development, and professional training. This gap between theory and practice may affect the quality of LIS education and limit career development opportunities for librarians (Roy & Habib, 2024). In addition, lack of collaboration may reduce research productivity and hinder innovation in library services (De Groote, 2023).

Although previous studies have examined professional development and competencies of librarians, limited attention has been given to collaboration between academic librarians and LIS departments as a strategy for strengthening career development, particularly in North-Western Nigeria. This suggests the need for empirical investigation into how collaboration can enhance professional competence and ensure the future sustainability of librarianship in the region (Chen et al., 2024).

Therefore, this study seeks to examine how collaboration between academic librarians and LIS departments can strengthen career development in federal universities in North-Western Nigeria.

Objective of the study

1. **To examine the existing level of collaboration** between academic librarians and Library and Information Science (LIS) departments in federal universities in North-Western Nigeria for the purpose of enhancing career development in librarianship.
2. **To identify the strategies and activities** through which academic librarians and LIS departments collaborate to promote professional skills, mentorship, and career advancement opportunities for LIS students and early-career librarians.
3. **To determine the challenges affecting effective collaboration** between academic librarians and LIS departments in strengthening career development in librarianship in North-Western Nigeria.

Literature Review

In North-Western Nigeria, the development of librarianship depends largely on the quality of interaction between academic librarians and Library and Information Science (LIS) departments in universities and related institutions. The region, which includes states such as Kaduna, Kano, Kebbi, Sokoto, Katsina, Jigawa, and Zamfara, hosts several institutions offering LIS programmes and academic library services. Collaboration between LIS educators and practicing librarians in this region is essential for bridging the gap between theory and practice, improving professional competence, and enhancing career development among LIS students and early-career librarians (Ocholla, 2008).

Scholars have noted that in Nigeria, particularly in the northern region, professional development in librarianship requires stronger institutional partnerships, mentorship opportunities, and practical training frameworks to meet the demands of the evolving information environment (Aina, 2014). Therefore, this section reviews literature in line with the study objectives within the context of North-Western Nigeria.

Collaboration between Academic Librarians and LIS Departments in North-Western Nigeria

Collaboration between academic librarians and LIS departments in North-Western Nigeria is gradually gaining attention, although it remains underdeveloped. Academic librarians in federal universities in the region contribute to teaching information literacy, user education, and research support services, which complement the efforts of LIS departments (Iwhiwhu, 2015). However, such collaboration is often informal and lacks structured frameworks.

Studies conducted in Nigerian universities show that cooperation between LIS lecturers and practicing librarians improves curriculum relevance and ensures that students are exposed to practical aspects of librarianship (Aina, 2014). In institutions within North-Western Nigeria, this collaboration is particularly important due to the need to equip students with digital and information management skills required in modern libraries.

Research also indicates that collaboration in the region enhances research productivity among academic librarians and LIS educators. Librarians who engage in joint research activities with LIS departments tend to develop stronger

academic profiles and contribute more effectively to scholarly communication (Hicks, 2014). Despite these benefits, the level of collaboration in many institutions in North-Western Nigeria remains limited and inconsistent.

Strategies for Strengthening Collaboration in Career Development in North-Western Nigeria

Several strategies have been identified for strengthening collaboration between academic librarians and LIS departments in North-Western Nigeria. These include joint research projects, co-teaching arrangements, mentorship programmes, student industrial training (SIWES), workshops, and professional conferences (Aina, 2014). These strategies provide opportunities for LIS students to gain practical experience and enhance their employability.

Mentorship is particularly important in the North-Western Nigerian context, where experienced academic librarians guide LIS students and young professionals in career planning and skill development. Iwhiwhu (2015) noted that mentoring and internship opportunities help students to acquire hands-on experience in cataloguing, classification, digital librarianship, and information service delivery.

Workshops and training programmes organized by academic libraries and LIS departments in the region also contribute to developing digital literacy and information management skills among librarians. Collaborative research activities further enhance professional competence and academic visibility, thereby supporting career advancement in librarianship (Hicks, 2014).

Challenges Affecting Academic Collaboration in North-Western Nigeria

Despite the importance of collaboration, several challenges hinder effective partnership between academic librarians and LIS departments in North-Western Nigeria. One major challenge is inadequate institutional support, as many universities lack formal policies that encourage collaboration between LIS departments and academic libraries (Ocholla, 2008).

Funding constraints also limit the ability of institutions to organize joint programmes, workshops, and research activities. In addition, heavy workload and limited time reduce the participation of academic librarians in collaborative teaching and research (Aina, 2014). These challenges are more pronounced in some institutions within the region due to resource limitations.

Another significant barrier is poor communication and lack of awareness of the benefits of collaboration among LIS professionals. Some librarians and academics operate independently without engaging in joint professional activities that could enhance career development (Iwhiwhu, 2015). Furthermore, inadequate technological infrastructure in some institutions affects the implementation of collaborative digital initiatives.

Methodology

This study adopts a quantitative methodology and a descriptive survey research design. The population comprises 335 academic librarians and LIS lecturers in selected federal universities in North-Western Nigeria, including UDUS, BUK, ABU, Federal University Dutsin-Ma, and Federal University Dutse, consisting of 247 academic librarians and 88 LIS lecturers. Purposive sampling is used to select universities offering LIS programmes, stratified sampling was used to group respondents, and simple random sampling was used to select proportionately. Using Taro Yamane formula, a sample size of 182 respondents was obtained and distributed into 134 academic librarians and 48 LIS lecturers. Data was collected using a structured questionnaire on a four-point Likert scale. The questionnaire was validated by experts and tested for reliability using Cronbach Alpha. The data were analyzed using frequency counts, percentages, and mean scores of 2.50.

Results.

The data collected through the questionnaire is analyzed and interpreted as presented

Table 1: Distribution of Respondents

S/N	Institutions	Academic Librarians	LIS Lecturers	Total
1.	UDUS	9	5	14
2.	BUK	22	12	34
3.	ABU	57	10	67

4.	Federal University Dutsin-Ma	42	14	56
5.	Federal University Dutse	4	7	11
	Total	134	48	182

Table 1 shows that the 182 participants were proportionately selected across the universities based on their population sizes. Academic librarians (134) are more than LIS lecturers (48), reflecting their higher number in the population. Larger institutions like ABU and Dutsin-Ma have more respondents, while smaller ones like UDUS and Federal University Dutse have fewer. This ensures fair representation and improves the reliability of the study.

Table 2: Level of Collaboration

S/N	Options	SA	A	D	SA	Mean	Decision
1	There is effective collaboration between academic librarians and LIS departments	80	70	20	12	3.20	Agreed
2	Academic librarians participate in teaching LIS courses	60	65	35	22	2.90	Agreed
3	LIS lecturers collaborate with librarians in research activities	70	60	30	22	2.98	. Agreed
4	There is regular interaction between LIS departments and academic libraries	55	65	40	22	2.85	Agreed
5	Collaboration enhances professional development in librarianship	90	60	20	12	3.25	Agreed

The results in Table 2 show that all the items have mean scores above the criterion mean of 2.50. This indicates that respondents agreed that there is effective collaboration between academic librarians and LIS departments. Specifically, collaboration exists in teaching, research activities, and regular interaction between both groups. The grand mean of **3.04** further confirms that the level of collaboration is high. This implies that collaboration plays a significant role in enhancing career development in librarianship in North-Western Nigeria.

Table 3: Strategies for Collaboration

S/N	Options	SA	A	D	SD	Mean	Decision
1	Joint research projects are encouraged between librarians and LIS lecturers	75	65	25	17	3.09	Agreed
2	Workshops and seminars are jointly organized	70	60	30	22	2. 98	Agreed
3	Mentorship programmes exist between librarians and LIS students	60	65	35	22	2. 90	Agreed
4	Students are exposed to practical training through collaboration	85	60	22	15	3. 18	Agreed
5	Conferences and professional meetings promote collaboration	65	70	30	17	3. 01	Agreed

The findings in Table 3 reveal that all the identified strategies have mean scores above 2.50, indicating agreement among respondents. Strategies such as joint research projects, workshops, mentorship programmes, practical training, and conferences are actively used to promote collaboration. The grand mean of **3.03** suggests that these strategies are widely practiced and contribute positively to career development in librarianship. This shows that structured collaborative activities are essential for improving professional skills and competencies.

Table 4: Challenges Affecting Collaboration

S/N	Options	SA	A	D	SD	Mean	Decision
1	Lack of institutional support affects collaboration	90	65	17	10	3. 28	Agreed

2	Inadequate funding hinders collaborative activities	95	60	15	12	3. 30	Agreed
3	Workload and time constraints limit participation	80	65	22	16	3. 15	Agreed
4	Poor communication affects collaboration	70	65	30	17	2. 98	Agreed
5	Lack of clear policies hinders effective collaboration	85	60	25	12	3.20	Agreed

Table 4 shows that all the listed challenges have mean scores above the criterion mean of 2.50, indicating that respondents agree that these factors hinder effective collaboration. Challenges such as lack of institutional support, inadequate funding, workload, poor communication, and absence of clear policies were identified as major barriers. The grand mean of **3.20** indicates a high level of agreement on these challenges. This suggests that despite the existence of collaboration, several obstacles limit its effectiveness in strengthening career development in librarianship.'

Discussion

The findings of the study revealed that collaboration between academic librarians and LIS departments in federal universities in North-Western Nigeria is relatively high and contributes positively to career development in librarianship. Respondents agreed that collaboration exists in areas such as teaching, research activities, mentorship programmes, workshops, seminars, and practical training, which enhance professional competence, research productivity, and practical skills acquisition. The findings support earlier studies which emphasized that effective collaboration between LIS educators and practicing librarians helps bridge the gap between theory and practice in librarianship. However, the study also identified major challenges affecting effective collaboration, including inadequate funding, lack of institutional support, workload, poor communication, and absence of clear policies. These challenges limit the full realization of collaborative benefits in strengthening professional development.

Recommendations

1. **It is recommended that** university management should provide adequate institutional support and funding to strengthen collaboration between academic librarians and LIS departments.
2. **It is recommended that** academic librarians and LIS lecturers should intensify joint activities such as research, workshops, and mentorship programmes to enhance career development in librarianship.
3. **It is recommended that** clear policies and effective communication channels should be established to promote sustainable collaboration and reduce barriers affecting professional cooperation.

Conclusion

Based on the findings, the study concludes that collaboration between academic librarians and LIS departments plays a significant role in strengthening career development in librarianship in North-Western Nigeria. Although effective strategies for collaboration exist, the presence of several challenges limits their full potential. Therefore, improving institutional support and addressing these challenges will enhance collaboration and promote professional growth in the field.

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The Influence of Professional Associations on the Development of Librarians and Information Services Professionals

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Abstract

The paper investigates the influence of professional associations on the development of librarians and information services professionals. The study looked at the role played by professional associations in promoting research and innovation, the benefits of librarians' membership in professional associations, how professional associations influence library policies and legislation, the challenge faced by professional associations in shaping librarians and information services professionals and the strategies professional associations use to advocate for libraries' rights and interest. Five (5) objectives with corresponding research questions would guide the study while two null hypotheses would be formulated. Descriptive survey design was adopted for the study. The targeted total population was three hundred and ninety eight (398) members of various professional associations in Nasarawa State. The instrument for data collection include questionnaire, interviews and focal group discussion. Data was analyzed using frequency and simple percentage, Mean (X) and standard deviation (SD). Recommendation include; professional association should totally by all sectors and organization since it plays a significant roles in all facet of the economy. It support nation building which is one of its goal. Benefits for the effective future of library and information science profession. professional associations should be made compulsory to all organization both trade union and non-trade union, It should come out with more educative programs for it members that will help to add additional knowledge to them, the role professional associations play in the society cannot be overemphasized, in that manner government should enabling environment to support them rather than antagonizing them.

Keywords: Professional Association, Librarians, Information Services Professionals.

Introduction

Professional Associations in Librarianship and information service unit information professionals to set ethical standards, drive industry advocacy, and provide continuing education. These bodies ensure global collaboration, career development and access to knowledge, global and regional associations are like; International Federation of Library Associations and Institutions (IFLA). This is the global voice of library and information profession, representing libraries worldwide to advocate for equitable information access. African Library and Information Associations (AfLIA) is the premier organizations, representing libraries and information professionals across Africa, fostering continental collaboration and innovation. The national and regional associations also known as Local Focus such as the Nigerian Library Association (NLA), overarching professional body in Nigeria that unites information professionals and advocate library legislation and capacity building. American Library Association (ALA), is the largest and oldest national library association globally offering accreditation, professional development and widespread advocacy. Chartered Institute of Library and Information Professionals (CILIPS), is the leading body in the United Kingdom representing library, information and knowledge management professionals.

Professional Associations are main way individuals acquired understanding of their organization, network and maintain high top level current information that affect the company/organization. The members in the associations also shows the employer and your peers the seriousness about the commitment of the career. Joining the association is often one of the best decision/ investment to take member to the peak of his career.

Professional associations are found in great abundance and varied strictly from local to international. Practitioners of most professions and people of many special interests band together into associations. In psychological terms, such groups are a means by which individual try to distinguish themselves from the masses by aligning with a group that behaves differently and then adhering to the standards of that group. It has been suggested by sociologists and anthropologists that such groups must tolerate some deviation from their standards or risk losing members through an overly strictly insistence on adherence to rules (Herskoyits, 1945). One reason that individuals in our occupation form and join professional association is "to establish identity as a member of the library profession or, given the wide latitude
most library associations offer, to indicate ... interest in librarianship and its improvement" (Sullivan, 1976).

Each professional association recognize the importance of codifying and making known to the profession and to the general public the ethical principles that guide the work of librarians, other professionals providing information services, library trustees and library staffs. The Code of Conduct indicates the standards of behavior expected of a member of the Association. It sets out, in general terms, the standards and duties which is reasonable, to expect a professional to observe. This can be used as a point of reference when dealing with disciplinary procedures against members. This is intended to protect the profession, individual practitioners, and their clients. This Code of library Professional Conduct was approved by Library Association Council in the Annual General Meeting in 1983, in accordance with The Library Association's Bye-laws. Examples of some of these set guidance and rules are;
• Members of the Association must conduct themselves in such a way that their conduct would not be reasonably regarded by their professional colleagues within the field of librarianship (including the provision of information services) as serious professional misconduct or as professional misconduct. It is by this overall test that the conduct, will be judged.

• Members must not engage in conduct which may seriously prejudice the standing and reputation of the library profession or of their Library Association.

• Members must not divulge or permit to be divulged any materials, information or administrative record (in manual or electronic form) which has been entrusted to them in confidence, to any third party nor use such information without the prior consent of the client for any purpose other than that for which it was first obtained. This duty to the client continues after the relationship of librarian and client ceases.

• Members should not knowingly promote material the prime purpose of which is to encourage discrimination on the grounds of race, color, creed, gender or sexual orientation and etc.

Professional development for library and information professionals is the continuous, lifelong process of acquiring and refining skills, knowledge and competencies. It ensures practitioners agile in a rapidly evolving digital landscape, adapt to new technologies and meet the changing needs of library patrons. To achieve professional growth, library and information professionals engage in various structured and independent pathways such as formal education and certification, workshops and conferences, networking and mentorship, e-learning and independent study among others.

The capacity building and continuous learning are strategies, long-term initiatives designed to ensure the skills, knowledge, and competencies of individuals and organizations. They bride skills gaps, foster adaptability and empowered workforce to meet evolving challenges. These development frameworks generally operate across three interconnected tiers, combing formal structure programs with self-directed growth.

Statement of the Problem

Professional association generally play a key role in building and promoting of high ranking librarians and information services professionals in library profession, particularly in the present day era. This development also underscores the importance attached to Professional association in all libraries and other related profession. For instance, for any library to function accurately it must fits into the 21st century operation, and must adhere to the guiding laws of its professional association

Thus, it implies that each professional association recognize the importance of codifying and making known to the profession and to the general public the ethical principles that guide the work of librarians, other professionals provides information services, library trustees and library staffs. This Code of Conduct which shows the standards of behavior expected of every member of the Association. It is stated in general terms, one obligation, standards and duties which is reasonable, to expect a professional to observe. This can be used as a point of reference when dealing with disciplinary procedures against members. Thus, intended to protect the profession, individual practitioners, and their clients who are members of the umbrella body of the association.

It is therefore necessary for each of the professional body to embrace the important of the role it's plays in shaping information service professionals along-side its activities. The role of professional association cannot be overemphasized when carrying out research in an academic library.

It is in recognition of this, that the Federal Ministry of Education (FME) initiated the idea of Professional Associations such as Nigerian Library Associations (NLA), Nigerian Society of Engineers among others to be lunch by their parent bodies to help in educating and creating enlightenment program for it professional members and the global society.

Therefore, with the type of ideologies and service oriented services gained by this Professional Associations, members would be guided properly when it comes to work ethics, discharge of duty and service delivery to its patrons such as Current Awareness Service, charging and discharging service, monitoring of users' activities, users' search, recalling among others that are available in the library, it will re-shaping and improve the librarians' work with ease access to information.

However, unavailability of these Professional Associations in our organizations, parastatals, establishments, work places, the ethical principles that guide the work of librarians and the code of conduct which shows the standards and behavior expected of every member of the Association, members obligation, standards and duties which is duly expected a professional to observe will be avoided and as such resulting indiscipline in all work places and organization.

In spite of the enormous effort made by the National Library of Nigeria, Nigerian Library Association, NUC and TETFund in educating librarians on the benefits of Professional Associations as it contribute to improving library services and research work, it has been observed that most librarians in academic and public libraries are yet to come to the knowledge and benefit of these Professional Association for effective service delivery.

These scenarios if not urgently addressed may have far reaching negative effect on the librarians, libraries, researchers, students and other library users. The library users may not efficiently derive quality services from the librarians to aid their research work. It is based on this assumption that the adoption of Professional Associations is being clamored for to see how libraries and information services delivery could be improved upon.

Research Questions

The following research questions guided this study:

1. What are objectives of Professional Library Association?
2. What are the activities and services of Professional Library Associations?
3. What are the functions of Professional Library Associations?
4. What are the role of Professional Associations in facilitating access to information services?
5. What are the benefits of Professional Library Association in Nigeria?

Hypotheses

Two null hypotheses were formulated to guide the study and was tested at 0.05 level of significance.

Ho_1: The role of Professional Associations has no significant effect on librarians and information service professionals

Ho_2: The benefits of Professional Associations has no significant effect on librarians and information service professionals

Theoretical Framework

Theoretically, this study will be anchored on three theories: Technology acceptance model (TAM) Fred Davis (1989);

Significance of the Study

A clear understanding that the of the role of professional associations in shaping librarians and information services professional through the findings of the study will be of tremendous benefit to Nigerian Library Association (NLA), Nigerian Association of Library Information Educators (NALISE), administrators/managers of professional librarians, librarians, academic libraries, students, researchers, library staff and library users.

To the Nigerian Library Association (NLA), Nigerian Association of Library Information Educators (NALISE), administrators/managers of academic libraries and librarians, the findings will be useful in the sense that, they can apply

the recommendations on the ways of re-shaping librarians through this professional association in improving the performance of their operations and services to users. It will also enable the librarians to be up-to-date with current practices in recent professional/ academic librarianship, thus, fully equipping them to render effective and efficient service to their patron.

The findings are expected to be beneficial to librarians in encouraging the management in the provision of necessary and adequate instructions/ guidelines that would guide the librarians on the new development in the area of library and information science.

Similarly, this work will help the professional associations in formulating policies, which will be used to improve policy efficiency which can lead to maximum satisfaction of their users. This is because, the application of the findings of this research in the library will not only accommodate an increased workload but also achieve greater efficiency, increase the range of services offered and more especially, introduce new services and functions into the professional librarians. The academic library administrators through the result of this study will understand the need, usefulness and the tasks of professional associations in library operations.

It will also enable academic library managers to be equipped with the activities, knowledge and competence of professional associations can aid in library management, thus, enhancing their managerial ability in managing information and human resources. Equally, the findings will help them in formulating policies on library service utilization and services in academic libraries. The findings will also enable them appreciate the role of information service professional in enhancing academic library operations and services. The library administrators of the academic libraries through the result of the study will understand the need, and usefulness of information service in carrying out library operations.

The result of this research will help students, researchers and library users to obtain a precise picture of the impact of library service delivery. It would also help the users to know the benefits of AI technology in information searching and retrieval. They will also know the relevance of library AI in enhancing the services provided in the library.

Provision to the findings of this study by beneficiaries, will be made possible through the use of library exploration as copies of the findings will be made available at Departmental, Colleges and University libraries. The findings will as well be published in both local and international journals for public consumption. The findings will equally be accessed through internet sources by reference to the researcher's blog.

Finally, the findings of the study will be useful to researchers in the field of librarianship, ICT and information science by allowing them identify the gap (s) that need filling. It will also afford researchers the opportunity to see the link or relationship of this study with other studies that have been conducted in the areas that needs further investigation. This work is to the researcher's contributing to the existing knowledge AI services in libraries and will serve as a useful resources material for researchers.

Literature Review

Generally, the objectives of professional association exist to advance a specific field, protect the public interest, and support practitioners they achieve this by establishing ethical standards facilitating continuous education, advocating for the profession through lobbying and networking. The core objectives of professional association include; setting standard and ethics, professional development and education, advocacy and representation, networking and community among others. Professional library association, like Nigerian Library Association and African Library and Information Association and Institutions, exist to advance the library profession. Their core services and activities revolve around capacity building advocacy, and establishing ethical guidelines for information. The key activities and services are; professional development, publication and research, advocacy and awareness, standardization and ethics, networking and collaboration and accreditation and certification. Professional associations speak on behalf of libraries. They promote the values of the libraries, fight for better funding and defend intellectual freedom and ensure government and institutions understand the importance of library services. Their function include; advocacy, professional development, influencing institutional policies, collaboration and networking among others. Also, there are some important reasons that brought about the establishment of professional association in the library profession. These professional associations brings about opportunity to network with colleagues as a very important or somewhat important reason to join professional associations. Thus, being a professional membership was important for retention, tenure, and promotion as well. Kamm, (2022) highlighted that professional memberships is used to influence librarians 'professional goals and to keep up with developments in the field through professional journals, while some used the association membership to take decision on members, and speaking or publish (write) to the government on the issues bordering the associations.
These professional associations are seen as relevant sources of information and knowledge sharing and in one way or the other to make contacts with others. Information professionals recognize that they need relevant information to be

effective in their positions and that practical up-to-date information is readily and openly shared at association conferences and in association publications, listservs and websites. Furthermore, association committees, interest groups, discussion groups and round tables further provide informal settings for information. Professional Associations offers professional services and publications to members and non-members, including online news stories from National Libraries and analysis of crucial issues from the Head Office. These organization has since been be established for a decade ago with its mission to provide leadership for the development, promotion, and improvement of library and information services and the profession of librarianship in order to enhance learning and ensure access to information for all. Professional organization membership is open to "any person, library, or other organization interested in library service and librarianship upon payment of its dues provided in the bylaws.
There are different types of library associations in the field of librarianship with the most prominent ones are those where membership is granted on the basis of being in that country, or region, as in these examples: Nigerian Library Association (NLA), National Library of Nigeria (NLN), American Library Association (ALA), Nigerian School Library Association (NSLA), NALISE etc
However, there are international library associations that are truly global, like the International Federation of Library Associations (IFLA), the Chartered Institute of Library and Information Professionals (CILIP) and large associations that are adding international components, like the International Association of Agricultural Information Specialists (IAALD) among others.
the objectives of these professional associations are uniting all persons working in or interested in library work, by convening conferences and meetings for the discussions of matters affecting libraries- their regulations, management or otherwise. Also to encourage the promotion, establishment and improvement of libraries and library services in the country, promoting and encouraging bibliographical study and research, improving the standard of librarianship and the status of the library profession in the country. Others, are watching any legislation affecting libraries find to assist the promotion of such further legislation as may be considered necessary for the regulation and management or extension of library services, collect, collate, and publish (as journals, transactions, bulletins), information of benefit to members of the
Association, or for the promotion of the objectives of the Association and to do all such lawful things as are incidental or conducive to the fulfillment of the above objectives.
In achieving these objectives, the Association performs the following activities such as Workshops, Short courses, Film programmes, Short talks, International conferences participation, Publication of Newsletter, Online discussions and collaboration information dissemination are adopted.

The main characteristics of these professional association includes; volunteer membership; access to a large number of people in the profession; members who collectively have a tremendous wealth of experiences in a common field; access to pooled funds to attack problems that are industry-wide; general standards for the performance of its members and the expectation of continuing professional development; literature for dissemination research developments and reports, ability to attract a significant mass of the profession to meetings, numbers to speak on behalf of the profession on issues affecting the profession; and perception by outside group as an ability about matters relating to that profession. It activities are in line with the International Federation of Library Associations and Institutions (IFLA), which is a worldwide, independent, nongovernmental organization. The purposes of the Federation as stated in its Statutes are "to promote high standards of delivery of library and information services; to encourage widespread understanding of the value and importance of high quality library and information services in the private, public and voluntary sectors; and to
represent the interests of its Members throughout the world." These activities are to be incorporated into the professional programmes throughout IFLA's organizational structure, recognizing especially that the needs, concerns and views of every region of the world are to be taken into account, particularly those in the developing world. Regional concerns, communication and information exchange among IFLA's members and the use of electronic technology to facilitate the implementation of its priorities underpin all of these professional priorities. The function of professional associations are; establishing and monitoring industry standards and professional codes of practice, advising educational institutions on curriculum development, promoting and providing professional and career development activities, providing a forum for member networking, promoting the profession in the community, providing career information to prospective students, assisting graduates with career planning and job seeking, maintaining a professional library for members, and producing regular publications on professional and industry issues e.g. newsletters or magazine/journals. increase your knowledge of the profession and industry you are interested in, which will help you to decide whether you wish to pursue a career in this field. According to Enser, 2021, professional association encourages lifelong learning through training courses on a regular scheduled basis for their members.

Scope of the Study

The study is on Artificial Intelligence and the Future of Library and Information Service Delivery in Academic Libraries in Nasarawa State, Nigeria. Basically, the study is poised to identify the benefits, effects and application of artificial intelligence in library and information science delivery in academic library among others.

The study is focused on six academic libraries in Nasarawa State, Nigeria which includes Federal University of Lafia, Nasarawa State University, Kefffi, Federal Polytechnic, Nasarawa, College of Education Akwanga, Isa Mustapha Agwai Polytechnic, Lafia and College of Agriculture Science and Technology, Lafia. The population scope of the study includes the librarians in the identified institutions under study.

Methodology

The research design adopted for the study was descriptive survey research to investigate the influence of professional associations on the development of librarians shaping librarians and information services professionals. The population of the studies comprised of three hundred and ninety eight (398) members of various professional associations in Nasarawa State. Descriptive survey design was adopted for the study. Sample size drawn from the three hundred and ninety eight (398) members of various library professional associations in Nasarawa State. The instrument used for data collection was a closed ended questionnaire title "the influence of professional associations on the development of librarians shaping librarians and information services professionals (IPADLSLISP), interviews and focal group discussion.

The instrument was validated by three expect, two from the department of Library and Information Science, FULafia and one from the department of Statistics and Computing, Faculty of Science in Federal University of Lafia. The data for the study was collected by the researcher and a researcher assisted through direct contact. To ensure high percentage return, the questionnaire was administered and collected immediately after completion by the library staff with the help of two research assistant each in the three universities. The data collected was analyzed using descriptive and non-parameter inferential statistical tools. Descriptive statistical such as mean (X) and standard deviation (SD) was used to answer the research questions. Descriptive statistics give pictorial evidence of a situation or a population as a tool for describing statistical data used in collecting information using table and simple percentage.

Results and Discussion

This section was devoted to presenting the results from the research questions and subsequently the test of hypotheses.

Research Question 1: What are objectives of Professional Library Association?

Table 1: Objectives of Professional Library Association

S/N	Items	VHE	HE	LE	VLE	$\overline{X}$	Decision
1	Set and maintain standards: Make proposals and laws that guide the profession	79 (30.0%)	127 (48.3%)	20 (14.1%)	37 (14.1%)	**4.0**	**Agreed**
2	Code of ethics: Define professional conduct and discipline members who violate it	77 (29.3%)	7 (2.7%)	14 (5.3%)	165 (62.7%)	**1.2**	**Disagreed**
3	Competency standards: Established bench mark for skills, education and practice quality.	62 (23.6%)	12 (4.6%)	32 (12.2%)	147 (55.9%)	**1.8**	**Disagreed**
4	Certification / Licensing: Run credentialing program that signal expertise to the public	132 (50.2%)	72 (27.4%)	40 (15.2%)	19 (7.2%)	**3.1**	**Agreed**
5	Mentorship: Connect junior and senior professional for guideline	19 (7.2%)	189 (71.9%)	49 (18.6%)	6 (2.3%)	**3.0**	**Agreed**
6	Research and Publications: Fund studies and published journals, newsletters or white papers	26 (9.9%)	154 (58.6%)	51 (19.4%)	22 (8.4%)	**3.2**	**Agreed**

7	Protect interests: Defend members against unfair regulations or profession threat	14 (5.3%)	111 (42.2%)	78 (29.7%)	60 (22.8%)	**1.6**	**Disagreed**
8	Best practices: Collect and distribute what works across the industry	14 (5.3%)	67 (25.5%)	32 (12.2%)	127 (48.3%)	**3.0**	**Agreed**
9	Public awareness: Promote the value of the profession to society, clients and employers.	22 (8.4%)	61 (23.2%)	115 (43.7%)	65 (24.7%)	**2.0**	**Disagreed**
10	Protect interest: Defend members against unfair regulations	32 (12.2%)	114 (43.3%)	91 (34.6%)	26 (9.9%)	**2.6**	**Agreed**

Key: VHE=Very High Extent, HE=High Extent, LE=Low Extent, and VLE=Very Low Extent

Table 5 shows members' responses regarding the objectives of Professional Library Association. From the table, majority of the members at great extent agreed that Set and maintain standards: Make proposals and laws that guide the profession with mean score $\overline{X}$ = 4.0, Research and Publications: Fund studies and published journals, newsletters or white papers ($\overline{X}$ = 3.2), Certification / Licensing: Run credentialing program that signal expertise to the public ($\overline{X}$ = 3.1), Best practices: Collect and distribute what works across the industry ($\overline{X}$ =3.0), Mentorship: Connect junior and senior professional for guideline ($\overline{X}$ = 3.0), and Protect interest: Defend members against unfair regulations ($\overline{X}$ =2.6). In another opinion, some response from the members suggested Public awareness: Promote the value of the profession to society, clients and employers**.** ($\overline{X}$ =2.0), Competency standards: Established bench mark for skills, education and practice quality. ($\overline{X}$ =1.8), Protect interests: Defend members against unfair regulations or profession threat ($\overline{X}$ =1.6) Code of ethics: Define professional conduct and discipline members who violate it ($\overline{X}$ =1.2) in an insignificant manner.

Research Question 2: What are the activities and services of Professional Library Associations?

Table 2: Activities and services of Professional Library Associations?

Activities and services of Professional Library Associations	**SA**	**A**	**D**	**SD**	$\overline{X}$	**Decision**
Education and training services:	19 (7.2%)	205 (77.9%)	18 (6.8%)	21 (8%)	2.8	**Agreed**
CPD programs: Workshops, seminars, webinars, and short courses for continuing professional development.	25 (9.5%)	146 (55.5%)	92 (35.0%)	-	2.7	**Agreed**
Certification examination: Design and run tests for credentials like CL, NLA, COREN, PMP, CIPM	97 (36.9%)	80 (30.4%)	71 (27.0%)	15 (5.7%)	2.0	**Agreed**
Conferences: Annual national conventions and local chapter events with keynotes, papers presentations and master classes.	77 (29.3%)	65 (24.7%)	44 (16.7%)	77 (29.3%)	2.5	**Agreed**
E-Learning: Online portals with recorded lectures, quizzes, and digital certificates	10 (3.8%)	253 (96.2%)	-	-	3.0	**Agreed**
Publications: Peer-reviewed journals, magazines, newsletters, research report.	32 (12.2%)	60 (22.8%)	131 (49.8%)	40 (15.2%)	2.3	**Disagreed**
Awards and recognition: Professional of the year, fellowships, grants for outstanding works.	4 (1.5%)	251 (95.4%)	3 (1.1%)	5 (1.9%)	3.0	**Agreed**
Chapter meetings: Monthly gathering in states like Nasarawa for local members.	52 (9.8%)	201 (76.4%)	10 (3.8%)	-	3.2	**Agreed**
Social events: Dinner, sports, tournaments, annual dinners, family fun days.	40 (15.2%)	214 (81.4%)	9 (3.4%)	-	3.1	**Agreed**
Online community: WhatsApp groups, forums, members directories for quick connections.	25 (9.5%)	146 (55.5%)	92 (35.0%)	-	2.7	**Agreed**

Key: VHE= Very High Extent; HE= High Extent; LE = Very Low Extent, and VLE= Very Low Extent

Table 2: Activities and services such as chapter meetings: Monthly gathering in states like Nasarawa for local members scored high with $\overline{X}$ = 3.2. This is followed by Social events: Dinner, sports, tournaments, annual dinners, family fun days. $\overline{X}$ = 3.1, and the next highest been E-Learning: Online portals with recorded lectures, quizzes, and digital certificates $\overline{X}$ = 3.0 and awards and recognition: Professional of the year, fellowships, grants for outstanding works $\overline{X}$ = 3.0 respectively. Education and training services $\overline{X}$ = 2.8. While CPD programs: Workshops, seminars, webinars, and short courses for continuing professional development and Online community: WhatsApp groups, forums, members' directories for quick connections recorded lower score of $\overline{X}$ = 2.7. Finally, Conferences: Annual national conventions and local chapter events with keynotes, papers presentations and master classes $\overline{X}$ = 2.5 and Publications: Peer-reviewed journals, magazines, newsletters, research report $\overline{X}$ = 2.3.respectively.

Research Question 3: What are the functions of Professional Library Associations?
Table 3: Functions of Professional Library Associations

Items regarding Functions of Professional Library Associations	VH	H	L	VL	$\overline{X}$	Decision
Policy input: Draft position papers and lobby on the bills that affects the field.	11 (4.2%)	252 (95.8%)	-	-	3.0	Agreed
Enforce ethics: Create a code of conduct and sanction members who breach it	100 (38%)	163 (62%)	-	-	3.4	Agreed
Set entry requirement: Decide who qualify to join the profession.	89 (33.8%)	92 (35%)	53 (20.2%)	-	3.2	Agreed
License/ Certify: Issue practicing lincenses or credentials that the public can trust	115 (43.7%)	148 (56.3%)	-	-	3.4	Agreed
Continuous learning: Ensure members stay up to date through CDP, seminars and journals	121 (46.0%)	152 (57.8%)	19 (7.2%)	-	3.3	Agreed
Skill standardization: Define what a competent professional should know and do	116 (44.1%)	147 (55.9%)	-	-	3.4	Agreed
Research: Advanced the body of knowledge and published new findings	24 (9.1%)	153 (58.2%)		-	3.1	Agreed
Train he next generation: Mentor students and run internship scheme	239 (90.9%)	102 (38.9%)	8 (3.0%)	-	3.5	Agreed
Protect members: Defend against unfair laws , exploitation or unsafe work conditions	11 (4.2%)	252 (95.8%)	-	-	3.0	Agreed
Professional insurance: Provides indemnity cover and legal support when things goes wrong	252 (95.8%)	11 (4.2%)	-	-	3.0	Agreed

Key: VH = Very High; H = High; L = Low, and VL = Very Low

Table 3 shows that the function of professional library associations in the first and second column as"Very High" and "High" by the members. This is a proof that the respondents observed a high level of the function of professional library associations is enormous in all sphere of its operations. For the function of professional library associations such as; Train he next generation: Mentor students and run internship scheme is $\overline{X}$ = 3.5; Enforce ethics: Create a code of conduct and sanction members who breach it is $\overline{X}$ = 3.4; License/ Certify: Issue practicing lincenses or credentials that the public can trust is $\overline{X}$ = 3.4; Skill standardization: Define what a competent professional should know and do is $\overline{X}$ = 3.4; Continuous learning: Ensure members stay up to date through CDP, seminars and journals is $\overline{X}$ = 3.3; Set entry requirement: Decide who qualify to join the profession as indicated by the $\overline{X}$ = 3.2; Research: Advanced the body of knowledge and published new findings as indicated by the $\overline{X}$ = 3.1; Policy input: Draft position papers and lobby on the bills that affects the field $\overline{X}$ = 3.0; Protect members: Defend against unfair laws , exploitation or unsafe work conditions and Professional insurance $\overline{X}$ = 3.0; Provides indemnity cover and legal support when things goes wrong $\overline{X}$ = 3.0 respectively.

Research Question 4: What are the role of Professional Associations in facilitating access to information services?
Table 4: Role of Professional Associations in facilitating access to information services

S/N	Items	SA	A	D	SD		$\overline{X}$	Decision
1	Enforce discipline: Investigate complaints and suspend/ expel members who breaks the ethics.	-	142 (54%)	121 (46%)	-		2.5	Agreed

2	Keep skills sharp: Run mandatory CPD s that members don't practice with outdate knowledge	115 (43.7%)	148 (56.3%)	-	-		3.4	Agreed
3	Lobby government: Push for laws that will help the profession and fight harmful ones.	89 (33.8%)	174 (66.2%)	-	-		3.3	Agreed
4	Negotiate conditions: Bargain on pay, pension and working conditions, with employers.	12 (4.6%)	49 (54%)	142 (54%)	51 (19.4%)		2.0	Disagreed
5	Build identity: Gives members a sense of belonging and pride in the profession.	124 (47.1%)	132 (50.2%)	7 (2.7%)	-		3.4	Agreed
6	Connect people: Creates spaces were pros meet mentors, partners, clients and employers.	44 (16.7%)	219 (82.3%)	-	-		3.2	Agreed
7	Host gatherings: Conferences, local chapters, online forums where deals start.	72 (27.4%)	191 (72.6%)	-	-		3.3	Agreed
8	Advance the field: Fund studies and sharing funding through journals.	217 (82.5%)	37 (14.1%)	9 (3.4%)	-		3.7	Agreed
9	Protect the public: Gives clients a verified registered and compliant process.	-	137 (52.1%)	37 (14.1%)	89 (33.8%)		2.2	Disagreed
10	Defend the scope: Stop quacks and other professionals from encroaching on your work.	77 (29.3%)	120 (45.6%)	66 (25.1%)	-		3.0	Agreed
11	Market the profession: PR campaign so the society value and pay for the expertise	188 (71.5%)	-	-	38 (14.4%)		3.0	Agreed
12	Early warning: Alert members to new risk, technology or regulations.	-	52 (19.8%)	159 (60.5%)	52 (19.8%)		2.0	Disagreed

Key: SA=Strongly Agreed, A= Agreed, D=Disagree and SD=Strongly Disagree

Table 5 above shows the role of Professional Associations in facilitating access to information services as listed strongly agreed and agreed such as; Advance the field: Fund studies and sharing funding through journals ($\overline{X}$ =3.7), Keep skills sharp: Run mandatory CPD s that members don't practice with outdate knowledge and Build identity: Gives members a sense of belonging and pride in the profession ($\overline{X}$ =3.4), Lobby government: Push for laws that will help the profession and fight harmful ones and Host gatherings: Conferences, local chapters, online forums where deals start. ($\overline{X}$ =3.3), Connect people: Creates spaces were pros meet mentors, partners, clients and employers ($\overline{X}$ =3.2), Defend the scope: Stop quacks and other professionals from encroaching on your work and Market the profession: PR campaign so the society value and pay for the expertise ($\overline{X}$ =3.0), Enforce discipline: Investigate complaints and suspend/ expel members who breaks the ethics ($\overline{X}$ =2.5). Protect the public: Gives clients a verified registered and compliant process. ($\overline{X}$ =2.2), Negotiate conditions: Bargain on pay, pension and working conditions, with employers ($\overline{X}$ =2.0) and Early warning: Alert members to new risk, technology or regulations. ($\overline{X}$ =2.0).

Research Question 5: What are the benefits of Professional Library Association in Nigeria?

Table 5: Benefits of Professional Library Association in Nigeria

Benefits of Professional Library Association	**SA**	**A**	**D**	**SD**	$\overline{X}$	**Decision**
Salary boost: Survey data shows certified members often earn 10-29% more in fields like IT, accounting, librarianship etc.	19 (7.2%)	205 (77.9%)	18 (6.8%)	21 (8%)	2.8	**Agreed**
Exclusive job access: Members only job boards, recruiters access, headhunting through the network	25 (9.5%)	146 (55.5%)	92 (35.0%)	-	2.7	**Agreed**

Credentials that matters: Post nominal likes CLN, MNIM, FNSE, ACA signal credibility to employers/ clients.	97 (36.9%)	80 (30.4%)	71 (27.0%)	15 (5.7%)	2.0	**Agreed**
Right room: Meets mentors, partners, clients, and employers at chapter meetings and conferences.	77 (29.3%)	65 (24.7%)	44 (16.7%)	77 (29.3%)	2.5	**Agreed**
Group discount: Cheaper professional indemnity insurance, health plans, hotels, soft-wares.	10 (3.8%)	253 (96.2%)	-	-	3.0	**Agreed**
Legal backup: Advised lines and defense funds if a client sues or you face ethics complaints	32 (12.2%)	60 (22.8%)	131 (49.8%)	40 (15.2%)	2.3	**Disagreed**
Welfare support: Benevolent funds for illness, bereavement, or emergencies	4 (1.5%)	251 (95.4%)	3 (1.1%)	5 (1.9%)	3.0	**Agreed**
Higher standard: Collectively raised quality so client trust the whole profession more	52 (9.8%)	201 (76.4%)	10 (3.8%)	-	3.2	**Agreed**
Knowledge pool: Research and best practices get shared instead of hoarded	40 (15.2%)	214 (81.4%)	9 (3.4%)	-	3.1	**Agreed**
Innovation: Association fund research that leads to better service for everyone	25 (9.5%)	146 (55.5%)	92 (35.0%)	-	2.7	**Agreed**

Key: VHE= Very High Extent; HE= High Extent; LE = Very Low Extent, and VLE= Very Low Extent

Table 5: The benefits of Professional Library Association such as Higher standard: Collectively raised quality so client trust the whole profession more members scored high with $\overline{\boldsymbol{X}}$ = 3.2. This is followed by Knowledge pool: Research and best practices get shared instead of hoarded $\overline{\boldsymbol{X}}$ = 3.1, with Group discount: Cheaper professional indemnity insurance, health plans, hotels, soft-wares. $\overline{\boldsymbol{X}}$ = 3.0 and Welfare support: Benevolent funds for illness, bereavement, or emergencies ($\overline{\boldsymbol{X}}$ = 3.0 respectively. Salary boost: Survey data shows certified members often earn 10-29% more in fields like IT, accounting, librarianship etc. ($\overline{\boldsymbol{X}}$ = 2.8). Innovation: Association fund research that leads to better service for everyone ($\overline{\boldsymbol{X}}$ = 2.7). Finally, Right room: Meets mentors, partners, clients, and employers at chapter meetings and conferences. ($\overline{\boldsymbol{X}}$ = 2.5) and Legal backup: Advised lines and defense funds if a client sues or you face ethics complaints ($\overline{\boldsymbol{X}}$ = 2.3) respectively.

Discussion of Findings

The benefits of Professional Library Association is "Very High" and "High" from the responses of the members, as supported by the associated means, as shown in Table 5 above, is appreciably high.

This finding is supported by Ifidon, (2007), research outcome that pointed out that the objectives/ activities of Professional Library Association heighted above, set and maintain standards: Make proposals and laws that guide the profession with mean score $\overline{\boldsymbol{X}}$ = 4.0, Research and Publications: Fund studies and published journals, newsletters or white papers ($\overline{X}$ = 3.2), Certification / Licensing: Run credentialing program that signal expertise to the public ($\overline{\boldsymbol{X}}$ = 3.1), Best practices: Collect and distribute what works across the industry ($\overline{X}$ =3.0), Mentorship: Connect junior and senior professional for guideline ($\overline{X}$ = 3.0) were very high. While Protect interest: Defend members against unfair regulations ($\overline{X}$ =2.6), Public awareness: Promote the value of the profession to society, clients and employers**.** ($\overline{\boldsymbol{X}}$ =2.0), Competency standards: Established bench mark for skills, education and practice quality. ($\overline{\boldsymbol{X}}$ =1.8), Protect interests: Defend members against unfair regulations or profession threat ($\overline{X}$ =1.6) Code of ethics: Define professional conduct and discipline members who violate it ($\overline{\boldsymbol{X}}$ =1.2) in an insignificant manner were considered as low perceived significance.

Further findings from the study revealed that, the function, role and benefit of Professional Library Associations such as, chapter meetings: Monthly gathering in states like Nasarawa for local members scored high with $\overline{\boldsymbol{X}}$ = 3.2. This is followed by Social events: Dinner, sports, tournaments, annual dinners, family fun days. $\overline{\boldsymbol{X}}$ = 3.1, and the next highest been E-Learning: Online portals with recorded lectures, quizzes, and digital certificates $\overline{\boldsymbol{X}}$ = 3.0 and awards and recognition: Professional of the year, fellowships, grants for outstanding works $\overline{\boldsymbol{X}}$ = 3.0 are the main activities and services of Professional Library Associations. This could, therefore, be substantiated by the findings of Enyi (2016), who asserted that the activities and services of Professional Library Associations will be an important in piloting its affairs accurately.

As supporting evidence, (Shohana, 2016) pointed out "activities effectiveness will be used as a strategy in place to outlined it stated goals.

Conclusion

This study has critically explored the influence of professional associations on the development of librarians shaping librarians and information services professionals. The study also revealed the objectives, activities, functions, roles and benefits of t professional association. It is on this background that the following recommendations were put forward:

Recommendations

From the findings and conclusion of the study, the following recommendation are put forward.

1. Professional association should totally be embrace by all sectors and organization since it plays a significant roles in all facet of the economy. It support nation building which is one of its goal, benefits for the effective future of library and information science profession.
2. Professional associations should be made compulsory to all organization both trade union and non-trade union.
3. It should come out with more educative programs for it members that will help to add additional knowledge to them.
4. The role professional association's play in the society cannot be overemphasized, in that manner government should enabling environment to support them rather than antagonizing them.

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The Role of Libraries in Promoting Environmental Literacy and Security for Development in Nigeria

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Abstract

Nigeria is a country located on the western coast of Africa. It has varied topography with climate changes that ranges from arid to humid equatorial. Nigeria covers an area of about 924,000 km2, it is bordered to the north by Niger, to the east by Chad and Cameroon, to the south by the Gulf of Guinea, and to the west by the Benin Republic. Nigeria's population is estimated to be around 229.5 million. Libraries have long been recognized as agencies that provide unlimited access to reliable and unprejudiced information. Environmental literacy is simply a multifaceted term that surpasses mere knowledge and understanding. It encompasses experience, understanding, and most significantly action. This paper based on relevant literature, examines the role of libraries in promoting environmental literacy in Nigeria. It proffers key strategies for libraries in promoting sustainable environmental literacy and security for sustainable development in Nigeria through the provision relevant print and non-print information resources and the use of advanced technology. The paper explores the challenges/constraints that can affect libraries in their efforts to promote environmental literacy in Nigeria. It further suggests approaches for overcoming the identified challenges. This paper concludes by stressing that libraries been institutions that provides free and reasonable access to information globally, Nigeria inclusive must ensure the provision and dissemination of adequate and relevant information to promote environmental literacy and security, inform and educate the citizenry to ensure improvement and sustainability of climate literacy in the country and to also ensure proper security for development.

Keywords: Libraries, Environmental literacy, Promotion, Security, Development, Sustainability, Nigeria.

Introduction

Globally, libraries are devoted to making available free and unbiassed access to information for all and sundry in both print and electronic formats particularly in this rapidly changing digital period. They play a major role in creating and promoting environmental literacy by providing appropriate and attractive reading materials/services to their users. According to Meerab (2023), the global environmental crisis has become one of the major pressing issues of our time because it has led to declining quality of the environment, accelerated the pace of environmental degradation, scarcity of natural resources, loss of biodiversity, and threatening the long-term survival of human civilization which has been on the increase. Similarly, according to Abiolu and Okere (2012), the United Nations Environment Programme (UNEP) has noted that the contemporary international concerns began with the United Nations Conference on the human Environment in Stockholm in 1972. This according to them, continued with efforts in the 1980s with the World Commission on Environment (Brundtland Commission), through to the 1990s with the Earth Summit Conference (Rio Conference); this later culminated in the publication of Agenda 21 in 1992.

According to Maryland Association for Environment and Outdoor Education (2025), environmental literacy is a multidimensional concept that exceeds mere knowledge and comprehension. It involves experiences, understanding, and most importantly action. While environmentally literate person refers to somebody who makes up-to-date decisions about the environment. By being informed, people can make more environmentally informed/compliant decisions, advocate for workable policies, and adapt to understanding the evidence of environmental change.

The term environmental literacy was first used many decades ago in an issue of the '*Massachusetts Audubon'* by Roth (1968) who inquired "How shall we know the environmentally literate citizen?" Since then, the meaning of the concept has evolved and has been extensively reviewed (Mcbridge, Brewer, Berkowitz & Borrie, 2013). Furthermore, the concept of environmental literacy is continuously been advocated and promoted through intensive academic discussions from a diverse perspective in different disciplines.

Nigeria is a country located on the western coast of Africa. It has varied topography, with climate changes that ranges from arid to humid equatorial. Nigeria covers an area of about 924,000km2, it is bordered to the north by Niger, to the east by Chad and Cameroon, to the south by the Gulf of Guinea, and to the west by Benin Republic. Nigeria's population is estimated to be around 229.5 million people. Its most diverse feature is it people. Nigeria has a tropical climate with variant rainy and dry seasons, depending on location. It is hot and wet most of the year in the southeast but dry in the southwest and farther inland. Nigeria has one of the largest economies in Africa which is based primarily on the petroleum industry (Britannica, 2026). The oil sector has significantly impacted on the development contour of the nation since the 1970s.

This paper discusses the role of libraries, particularly public libraries in creating and promoting environmental literacy in Nigeria that support education for all and sundry. It examines the key strategies for libraries in promoting environmental literacy in Nigeria and even beyond bearing in mind the current global best practices.

Environmental Literacy

The concept of "environmental literacy" has gained momentum globally as part of the response to the burning desire to create dynamic and inspiring literate environments that will guarantee literacy acquisition in all its ramifications and lifelong usage of information resources as they are available in libraries and information centers. According to Mcbridge, Brewer, Berkowitz and Borrie (2013), environmental literacy comprises an awareness of and concern about the environment and its associated problems, as well as the knowledge, skills and motivations to work toward solutions of current problems and the prevention of new ones. Similarly, according to Environmental Education Association of Indiana (2025), environmental literacy is an individual's understanding of how their actions and decisions affect the environment. Additionally, environmental literacy is the primary overarching goal of environmental education. It is an experiential lifelong learning process that increases awareness about the environment and results in a citizenry empowered to meet their future responsibilities regarding the environment.

Liu and Tobias (2024), stressed that environmental literacy encompasses dimensions such as environmental awareness, environmental values, and environmental responsibility which ensure interactive relationships between humans and the environment. Whereas, Orr (1990) cited by Ors (2022), amplified that an environmentally literate individual knows the effect of science, technology, and culture agricultural activities on the functioning of natural systems and takes sound environmental decisions that will allow for the sustainability of the environment.

Furthermore, Roth (1992), evaluated the growth of environmental literacy, defining it as the ability to perceive and interpret the relative health of environmental systems and take appropriate actions to maintain, restore, or improve the health systems. Its pervasiveness has been increasing in the field of environmental education. Environmental literacy is knowledge of environmental concepts and issues; the attitudinal dispositions, motivation, cognitive abilities and skills, and the confidence and proper behaviors to apply such knowledge in order to make actual decisions in a range of environmental settings (Wheaton, Kannan & Ardoin, 2018). Roth (1992), further proposed four dimensions of environmental literacy that include among others: knowledge, skills, affect, and behavior. Similarly, Erdogan, Kostova and Marcinkowski (2009), broaden the components of environmental literacy to include six elements; namely, ecological knowledge, socio-political knowledge, knowledge of environmental issues, affect, cognitive skills and environmentally responsible behaviors.

As libraries globally promotes environmental literacy, they not only contribute to environmental awareness and consciousness but also serve as models for sustainable development of environmental literacy in their respective communities. Thus, libraries can help in playing vital roles in the promotion of environmental literacy activities.

Key Strategies for Promoting Environmental Literacy and Security by Libraries in Nigeria

One of the most critical traditional roles of libraries and information professionals is imparting information literacy skills to their clients especially in this digitally changing environment. Information literacy simply denotes the set of skills needed to locate, evaluate, retrieve, analyze and use information in a cost-effective manner and effectively. According to American Library Association (ALA) (2025), information literacy is a set of abilities requiring individuals to "recognize when information is needed to have the ability to locate, evaluate, and use effectively the needed information." To be information literate, then, one needs skills not only in research but in critical thinking.

Similarly, according to Verma and Shukla (2021), information literacy enables individuals to learn techniques and skills for utilizing the wide range of information tools as well identify research methodologies for up-to-date decisions. Environmental literacy is one of the essential literacies that is required by people to manage their environment properly for obvious reasons. Abiolu and Okere (2011), identified some of the areas where environmental information can fit into as follows:

- Stressing environmental challenges and issues concern;
- Raising awareness on the environment;

- Informing the generality of the public and other critical stakeholders;
- Identifying 'hot-spots' and places requiring special and urgent attention;
- Meeting constitutional requirements for environmental reporting;
- Helping to set sustainability targets and goals among others.

Since libraries are gateways for knowledge, they perform a vital role in promoting environmental literacy and security through provision of access to information services and resources in a cost-effective manner that encourage individuals and communities to recognize and respond to environmental challenges, mostly in the case of public libraries. Moreover, they enable the dissemination of timely information and knowledge on environmental/climate change, sustainability strategies, and resilience methods, allowing communities to make meaningful decisions and apply proactive actions on climate/environmental related issues. In fact, Devine and Appleton (2023) noted that that the crucial role of libraries as 'green educators' and 'green teachers' has since been recognized by the American Library Association (ALA) with the roll-out in 2020 of the 'Resilient Communities: Libraries respond to Climate Change' project which provided small grants for selected libraries in the U.S.

According to El-Kalash and Abubakar (2021), since libraries are gateways for knowledge, they are principally well suited as demonstration vehicles as well as for teaching environmental responsibility to communities. In other words, according to the authors, libraries are focused on sustainable management, services, programs, events, literature, and projects, demonstrating the social role and responsibility of libraries as leaders in environmental sustainability.

Onnoghen, Unachukwu, Orji, Ewa and Anabaraonye (2024), have noted that the library is a vibrant link between the user and the information they require, while the key players in achieving this aim are information professionals. The authors specifically, noted that the library can play vital role in achieving climate/environmental literacy in the following major areas:

1. Creating awareness and advocacy campaigns: One of the ways of promoting climate/environmental literacy is through organizing seminars, workshops and training sessions on climate/environmental change for different categories of users. Similarly, the library can collaborate with the media, the NGOs, community leaders, local authorities and policy makers to organize seminars and awareness campaigns on environmental and climate education. Also, Coyle (2005), has noted that environmental literacy has three (3) stages i.e. environmental responsiveness, personal behavior knowledge and true environmental literacy. The author, thus, noted that libraries through the provision of newspaper articles can provide a more detailed understanding and awareness about the environment.
2. Providing access to information: Libraries, particularly public libraries attempt to keep their resources and services open to all members of their community. Such resources ensure the promotion and sustainability of environmental literacy and security initiatives.
3. Library environmental education: Library environmental education can also play a significant role in ensuring proper environmental literacy. This may be done through collaboration with the Federal Ministry of Education in ensuring that both formal and informal educational systems in Nigeria provide the public with up-to-date reading materials on environmental issues. Similarly, Cunningham and Cunningham (2010), added that some other techniques of carrying out environmental education include among others; organizations engaging in teaching in schools, individuals carrying out internships in agencies or environmental organizations and citizen science projects involving ordinary people and established scientists. Likewise, Rowe (2002) cited in Abiolu and Okere (2011) pointed out that integration of a sustainability paradigm into the mission statement of higher institutions would boost environmental education.
4. Library exhibition: In this situation, libraries, public libraries in particular, can host exhibitions and displays that showcase plastic recycling ideas and innovations in plastic pollution. They can organize programmes such as seminars, workshops, and exhibitions to educate people on proper environmental related issues. Additionally, they can impart the use of visual aids and other devices for their special users for proper environmental education and sustainability.
5. Research and information dissemination: Environmental literacy assists us to make up-to-date decisions in all our affairs. Hence, libraries can serve as fountain of information on climate/environmental change education. In this regard, libraries can gather information and data on plastic waste management, recycling initiatives, and best practices globally and make such information available to users through their resources. Furthermore, libraries can be involved in research on environmental literacy and security from a wider perspective. They can as well provide items and information resources for researchers to study the impact of environmental literacy and security, develop new techniques and technologies for managing environmental recycling approaches and other similar activities. Similarly, in line with these,
6. Community engagement and collaboration: According to Aytac (2022), adapting to environmental consequences of climate change will require collaborative action involving all stakeholders, especially libraries. In this regard, libraries can conveniently collaborate with waste management organizations to create a forum for sharing information on effective environment/waste management practices that promote environmental

sustainability. Similarly, libraries can involve the local community and schools in environmental education and plastic waste reduction and management activities. Besides, they can organize community awareness campaigns, school programmes, and reading clubs that involve environmental themes, including their challenges and how to minimize them. According to Abiolu and Okere (2012), sharing of resources and ideas by libraries through partnership and collaborations is a role that is taking on newer dimensions. Consequently, libraries may collaborate with interest groups and key actors in environmental information. Such groups according to them, include government, non-government and community-based organizations, volunteer groups, mass media and other change agents.

7. Institutional support: Here libraries can make available institutional support to government agencies, civil society groups, and academic institutions that are working towards developing policies and plans that will help manage plastic waste effectively. Still, libraries can encourage community building by organizing programmes that bring together community members to learn about recycling ideas, techniques, and best practices. They can also engage in advising, counseling, and training programs for community members to help them adopt sustainable plastic waste management practices (Onnoghen, Unachukwu, Orji, Ewa & Anabaraonye, 2024).
8. Access to digital resources: According to Oshinaike and Saidu (2024), many libraries are increasing digital access to resources that include among others; online databases, environmental/climate-related research, and learning resources. This usually allows persons in remote or underserved communities to have access to information on sustainable practices, security and environmental/climate resilience strategies, thereby reducing the knowledge gap and empowering them to take action accordingly.

Constraints to the Promotion of Environmental Literacy and Security by Libraries in Nigeria

Many prospects abound for embracing environmental literacy by libraries in Nigeria. This may not be unconnected to the fact that environmental literacy reflects a social consciousness and awareness about the environment, preserving and protecting it for the sake of civilization. Despite the above, certain hurdles are militating against the promotion of environmental literacy and security by libraries in Nigeria. These challenges are exacerbated by inadequate funding, lack of specialized expertise and limited resources among others. Scholars like El-Kalash and Abubakar (2021); Aregbesola, Owolabi and Adebisi (2024); Kolawole and Oladokun (2025) have spotlighted several barriers affecting libraries in Nigeria in their quest to promote environmental literacy and security. Some of the challenges are as follows:

- Lack of funding: Most libraries struggle with limited funding which affects their ability and capacity to implement sustainable practices. In most cases, budgetary allocations to libraries are normally insufficient to cover operational needs and the cost associated with environmental initiatives;
- Limited staffing: Many libraries, particularly public libraries operate with limited staff, making it extremely difficult to provide adequate support to their communities. The problem of limited staffing also affects the quality of services provided by libraries, which negatively affects environmental literacy programmes and activities;
- Inadequate awareness by the majority of the public: The general public and many stakeholders are not aware about the importance of environmental literacy. Consequently, this lack of awareness affects the potential of libraries to serve as models of environmental literacy initiatives in their communities;
- Inadequate infrastructure: Most Nigerian libraries lack the necessary tools to implement environmental literacy and green practices. The lack of infrastructure is further aggravated by the poor and epileptic power supply, poor waste management systems, making it difficult for libraries to promote environmental literacy as part of their activities and programmes;
- Lack of policies on environmental and green initiatives: Lack of supportive policies and regulatory frameworks affects the promotion of environmental literacy and green activities in Nigerian libraries. Without proper policies, guidelines or regulations, libraries may not properly promote environmental literacy and security in the country;
- Inadequacy of relevant resources: Libraries, especially, public libraries may face a lack of relevant resources that include materials and information related to environmental literacy. Such challenge can arise due to several factors such as inadequate funding, inadequate access to information and lack of trained staff;
- Failure to recycle certain items in the library i.e. ink cartridges and papers that often constitute nuisance to the ecosystem;
- Lack of adequate trainings/workshop programmes that are tilted towards highlighting the imperatives for environmental literacy, security and greening activities in libraries;
- Limited researches on the prospects for going green;
- Finally, the lack of good projects that can promote sustainability in the environment.

Overcoming the Barriers to the Successful Promotion of Environmental Literacy by Libraries in Nigeria

Given the prevailing challenges confronting the promotion of environmental literacy by libraries in Nigeria, the paper recommends the following towards improving the promotion of environmental literacy by libraries in Nigeria:

- Raising awareness: There is a greater need for a wider understanding of environmental literacy among information professionals, the general public, and the policy makers. This would help to promote environmental literacy initiatives.
- Funding and infrastructure: There is a need for improvement in funding and infrastructural facilities in our libraries. This implies that governments and other sponsoring agencies of libraries and information centers should change their attitudes towards libraries in the country. Moreover, the libraries themselves should develop new proactive strategies of generating more funds to balance their financial allocation to acquire critical infrastructure for meaningful achievement in the promotion of environmental literacy. Equally important is the fact that more relevant information resources especially those related to environmental literacy should be provided in our libraries.
- Recruitment of more professional staff: There is also the need for the recruitment of more information professionals in our libraries who would be actively involved in the promotion of environmental literacy in the libraries.
- Capacity building: Improving the technical skills of information professionals is necessary for the successful promotion of environmental literacy programmes. Acquisition of ICT skills has therefore become inevitable. Additionally, it entails developing training programmes to teach information professionals on how to unite workable practices into their daily activities aimed at promoting environmental literacy and all its related activities.
- Involvement of LIS schools: LIS schools should inject skills that are related to environmental literacy in their curricula so as to enable information professionals to become active players in environmental issues.
- Reinforcing institutional support and capacity: To guarantee the sustainability of environmental literacy programmes, there is the need for building institutional support and capacity. Hence, libraries, particularly public libraries should work collaboratively with governmental agencies, NGOs, environmental interest groups/organizations, and the academia so as to encourage environmental literacy initiatives.
- Revival of public libraries in the country: Reviving public libraries who are closer to the grassroots is another key strategy for overcoming the challenges. Improvement in funding, infrastructure and information resources in public libraries and all the other types of libraries is desirable. Similarly, community information services can contribute tremendously in promoting environmental literacy especially in the rural areas.
- Establishment of policies: To ensure the sustainability of environmental literacy programmes, there should be supportive policies in that regard.
- Improving community involvement in library activities: Libraries should proactively engage with the communities to nurture environmental literacy to ensure its sustainability. Libraries should offer programmes that may provide opportunities for active citizen engagement and participation focusing on environmental literacy.

Conclusion

This paper examines the role, potential as well as the challenges for the involvement of libraries in promoting environmental literacy and security in Nigeria. It also shows that investing in information and libraries is crucial to educational restructuring, literacy enhancement and societal transformation. Additionally, library programmes may provide opportunity for vibrant citizen engagement around environmental literacy and security. Hence, the role of the library in the advancement and sustenance of environmental literacy and security is regarded as critical. This paper concludes by stressing that libraries been institutions that provides free and reasonable access to information globally, Nigeria inclusive must ensure the provision and dissemination of adequate and relevant information to promote environmental literacy, inform and educate the citizenry to ensure improvement and sustainability of climate literacy in the country and to also ensure proper security for development.

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THE ROLE OF THE NIGERIAN LIBRARY ASSOCIATION IN SHAPING LIBRARIANS AND INFORMATION SERVICES PROFESSIONALS IN DELTA STATE

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Abstract

This study examined the role of the Nigerian Library Association in shaping librarians and information services professionals in Delta State, Nigeria. The study was necessitated by concerns over irregular participation in Association activities, inconsistent payment of membership dues, limited institutional support, and insufficient empirical evidence on the extent to which the Association contributes to professional competence, job performance, service delivery, and ethical practice among librarians. Seven objectives and corresponding research questions guided the study. The study adopted a descriptive survey research design of the correlational type. The population comprised 272 respondents, made up of 195 librarians in institutional libraries and 77 lecturers in library schools across tertiary institutions in Delta State. Since the population was relatively small, the total enumeration sampling technique was employed. Data were collected using a structured questionnaire titled *Questionnaire on the Role of the Nigerian Library Association in Shaping Librarians and Information Services Professionals in Delta State*. The instrument yielded a Cronbach's Alpha reliability coefficient of 0.99, indicating high internal consistency. Data were analysed using frequencies, percentages, mean scores, and standard deviation, with a criterion mean of 3.00. The findings revealed that most respondents were registered and active members of the Nigerian Library Association and participated moderately in its activities. The Association was found to positively influence professional skills and competence, improve job performance and service delivery, and promote professional ethics and standards to a high extent. However, participation was hindered by high membership dues, lack of time, heavy workload, inadequate institutional support, and transportation challenges. Suggested strategies included reducing membership dues, increasing local and online training programmes, improving communication, and enhancing institutional sponsorship of professional activities. The study concluded that the Nigerian Library Association remains a vital platform for professional development and service improvement. It is recommended that greater support and accessibility are needed to maximise its effectiveness.

Keywords: Nigerian Library Association, librarians, professional development, service delivery, professional ethics

Introduction

Professional associations play a vital role in the growth and regulation of professions worldwide. In the field of Library and Information Science (LIS), such associations are responsible for promoting professional standards, ethical conduct, continuing education, and the overall development of their members (Aina, 2014; Varlejs, 2016). These associations provide platforms for training, networking, advocacy, and promoting best practices that strengthen professional identity and service delivery. In Nigeria, the Nigerian Library Association (NLA) is the recognised national professional body for librarians and information services professionals. The Association organises annual national conferences, state chapter meetings, workshops, seminars, and continuing professional development (CPD) programmes aimed at improving professional competence, service delivery, and professional identity (Olorunsaye & Ayanyemi, 2016). Through these activities, the NLA seeks to enhance the capacity of librarians to meet contemporary information needs and uphold professional ethics.

In Delta State, the Nigerian Library Association operates through its state chapter, which brings together librarians and information professionals working in academic libraries, public libraries, school libraries, and special libraries. Through its activities, the Delta State Chapter of the NLA is expected to support professional development, promote ethical standards, encourage networking, and improve the quality of library and information services (Nigerian Library Association [NLA], 2025). In a rapidly changing information environment characterised by digital technologies, automation, and evolving user needs, librarians are required to continuously update their skills and knowledge. Scholars have emphasised that continuous professional development is essential for librarians to remain relevant and effective in-service delivery (Tshabalala & Dube, 2024). Professional bodies such as the NLA are therefore expected to play a key role in helping professionals in Delta State adapt to these changes through training, mentoring, and professional support.

Despite the important role of the Nigerian Library Association, the extent to which the Association actually influences the professional growth, competence, and job performance of librarians and information services professionals in Delta State remains unclear. Previous studies in Nigeria have focused mainly on national or regional assessments of professional development, with little empirical evidence specifically from Delta State (Olorunsaye &

Ayanyemi, 2016; Goshie *et al*., 2022). This study, therefore, seeks to empirically examine the role of the Nigerian Library Association in shaping librarians and information services professionals in Delta State.

Statement of the Problem

The Nigerian Library Association (NLA) was established to promote the interests of librarians, uphold professional ethics, and support the continuous development of library and information services professionals in Nigeria. Through conferences, workshops, seminars, and national and state chapter activities, the Association is expected to enhance professional competence and improve service delivery. However, observations suggest that many librarians and information services professionals in Delta State either do not actively participate in NLA activities at both national and state chapter levels, or are irregular in paying membership dues and attending conferences, workshops, and chapter meetings. Some professionals appear unaware of the benefits of NLA membership, while others are constrained by high membership dues, lack of time, limited institutional support, and poor access to professional development opportunities.

Furthermore, there is limited empirical evidence to show whether membership and participation in NLA activities actually lead to improved professional skills, better job performance, and enhanced service quality among librarians in Delta State. Without such evidence, it becomes difficult for stakeholders to justify investments in association activities or to design policies that encourage active professional participation. This gap in knowledge creates a problem that this study seeks to address by examining the role of the Nigerian Library Association in shaping librarians and information services professionals in Delta State.

Objectives of the Study

The main objective of the study is to examine the role of the Nigerian Library Association in shaping librarians and information services professionals in Delta State. The specific objectives of the study are to:

1. identify librarians' membership status in the Nigerian Library Association in Delta State;
2. examine the extent of librarians' participation in NLA activities in Delta State;
3. determine how NLA activities influence professional skills and competence;
4. assess the impact of the NLA on job performance and service quality;
5. examine the role of the NLA in promoting professional ethics and standards;
6. identify challenges that hinder participation in NLA activities in Delta State; and
7. suggest strategies for improving the effectiveness of the NLA in Delta State.

Research Questions

The following research questions were raised to guide the study.

1. Are librarians and information services professionals in Delta State members of the Nigerian Library Association?
2. To what extent do librarians in Delta State participate in NLA activities?
3. How does the NLA influence the skills and competence of the professionals?
4. What impact does the NLA have on job performance and service delivery?
5. How does the NLA promote professional ethics and standards?
6. What challenges hinder professionals' participation in NLA activities in Delta State?
7. What are the suggested strategies for improving the effectiveness of the NLA in Delta State?

Literature Review

A professional association is an organised body that represents individuals engaged in a particular profession and seeks to promote their collective interests, regulate professional conduct, and support continuous professional development. According to Banire (2025), professional associations exist primarily to enhance professional competence, uphold ethical standards, and provide a collective voice for advocacy and policy influence. Similarly, Carter and Mahallati (2017) described professional associations as formal organisations established to regulate entry into the profession, promote best practices, and protect professional integrity. Banire (2025) further noted that professional associations ensure accountability and maintain public trust through self-regulation and professional governance. Professional associations perform several interrelated functions that contribute to both individual and institutional development. These functions include setting professional standards, formulating and enforcing codes of ethics, organising training programmes, facilitating research dissemination, and representing the profession before policy makers and other stakeholders (Perlis & Shannon, 2012; Andrew & Friedman, 2023; Harvey *et al.*, 2014).

In librarianship, professional associations provide platforms for collaboration, training, networking, mentoring, and professional regulation. Opele (2023) observed that library associations create opportunities for librarians to acquire new skills and keep abreast of emerging trends in information management. Through conferences, workshops, seminars, and publications, associations promote lifelong learning and continuous professional development (Yadav, 2024; Abdul & Iddrisu, 2025). Membership in professional associations has also been found to strengthen professional identity, ethical awareness, and career development through networking, mentorship, and leadership training (Lysfjord & Skarstein, 2024; Ki & Wang, 2016). In addition, professional associations perform important advocacy and policy-influencing roles by engaging government and funding agencies and promoting the interests of the profession. Yahaya *et al.* (2019) and Obi and Mmejim (2019) reported that such associations influence legislation, funding priorities, and

national information policies. Ossai-Ugbah (2013) affirmed that advocacy, standard setting, accreditation, and professional regulation remain central to its mission. Through these combined functions, professional associations contribute significantly to professional identity formation, ethical practice, and the improvement of library and information services.

The Nigerian Library Association (NLA) is the recognised national professional body for librarians and information services professionals in Nigeria. It was established in 1962 with the primary objective of promoting library development, improving professional standards, and supporting the training and welfare of librarians (Aina, 2014; Nigerian Library Association [NLA], 2025). Since its establishment, the Association has served as the principal regulatory and advocacy body for the librarianship profession, providing leadership in professional development, ethical regulation, and policy engagement. The NLA operates through a national executive council and state chapters across the federation, including the Delta State Chapter, which enables the coordination of professional activities at both national and grassroots levels (NLA, 2025; Okiy, 2024). Through its state chapters, the Association fosters collaboration, peer learning, and professional networking among librarians working in different types of libraries.

The major activities of the NLA include organising annual national conferences, workshops, seminars, and continuing professional development (CPD) programmes aimed at enhancing professional competence and service delivery (Aslam, 2019). Daland (2015) reported that these programmes significantly improve librarians' technical competence, confidence, and effectiveness in service provision. In addition, the NLA promotes ethical conduct and professional standards through the formulation and enforcement of codes of ethics and professional guidelines (Atoyebi, 2025; Usman, 2024). According to Omotoso & Igiamoh (2016), these regulatory functions enhance professional discipline, accountability, and public trust in librarianship. The Association also performs important advocacy and policy-influencing roles by engaging government and other stakeholders in promoting library development and improved access to information (Ossai-Ugbah, 2013; Library, Information and Society, 2024). Through its combined roles in professional regulation, continuing education, ethical supervision, advocacy, and networking, the Nigerian Library Association remains a central institution in shaping the professional identity, competence, and service orientation of librarians and information services professionals in Nigeria.

Librarians and information services professionals are individuals trained to organise, manage, retrieve, preserve, and disseminate information resources in support of learning, research, decision-making, and lifelong education. According to Enakrire and Onyancha (2020), librarians apply specialised knowledge and skills in information organisation and dissemination to meet the information needs of diverse user communities, while Hamza *et al.* (2025) described information professionals as individuals responsible for the selection, organisation, retrieval, and delivery of information resources in various information environments. Librarians work in diverse settings such as academic, public, school, and special libraries, archives, and information centres, where they perform roles including collection development, cataloguing and classification, reference and information services, information literacy instruction, digital content management, and research support (Allen, & Taylor, 2017; Lo *et al.,* 2014; Briana, 2023). Through these functions, librarians contribute significantly to access to information, knowledge creation, and national development (Friday & Ekeruche, 2023).

In the contemporary information environment characterised by rapid technological advancement and digitisation, the competencies required of librarians have expanded considerably. Modern librarians are now expected to possess skills in digital librarianship, database management, metadata creation, institutional repository development, information literacy instruction, and the use of emerging information and communication technologies (Bolasco, 2023; Hamza *et al.,* 2025). Adekanye and Aina (2016) noted that these evolving responsibilities require continuous updating of technical, managerial, and pedagogical skills. Continuous professional development (CPD) is therefore essential for maintaining professional relevance, competence, and effectiveness in librarianship. CPD enables librarians to adapt to technological changes, improve service quality, and enhance research support services (Arua, 2022; Moonasar, 2024). Through continuous learning, mentoring, and professional association activities, librarians strengthen their professional identity, career development, and capacity to meet the evolving information needs of users in the digital age.

Professional development refers to a continuous process of learning activities aimed at enhancing professional knowledge, skills, attitudes, and competencies required for effective job performance. According to Nakaziba and Ngulube (2023), continuing professional development (CPD) enables librarians to adapt to technological changes, improve service quality, and enhance career prospects, while Mislan *et al.* (2020) defined CPD as a lifelong process through which information professionals maintain and update their competencies in response to changing professional demands. Professional development activities include formal education, in-service training, workshops, conferences, seminars, webinars, mentoring, and professional certification programmes (Shiri *et al.,* 2023). These activities improve technical competence, managerial capacity, research skills, communication ability, and ethical awareness among professionals. In librarianship, continuous professional development is particularly important due to rapid technological change, digitisation, and evolving user information needs. Ijeh *et al.* (2025) reported that librarians who participate regularly in professional development programmes demonstrate higher competence in digital librarianship, information literacy instruction, and research support services. Similarly, Moonasar (2024) observed that CPD significantly improves librarians' service delivery, professional confidence, and capacity for innovation. Professional associations play a central role in the coordination and delivery of CPD programmes by providing platforms for training, mentoring,

networking, and leadership development. Johnson (2019) further noted that active engagement in CPD enhances job performance, professional recognition, and commitment to professional ethics. Through continuous learning and skills development, CPD remains a fundamental mechanism for sustaining professional relevance and improving the quality of library and information services in the contemporary information environment.

Professional ethics refer to the moral principles and standards that guide professional behaviour, decision-making, and responsibility in professional practice. According to Sophie (2025), professional ethics provide a framework for acceptable conduct, accountability, and integrity among practitioners, while Chen (2024) defined professional ethics as guidelines that regulate behaviour and protect users' rights through fairness, transparency, and professional competence. In librarianship, professional ethics emphasize core values such as equitable access to information, intellectual freedom, respect for privacy and confidentiality, accuracy in information provision, neutrality, and commitment to quality service (Mahadevagouda & Pavithrabai, 2023). These principles guide librarians in their interactions with users, management of information resources, protection of personal data, and defence of users' right to access information without discrimination or censorship (Ashikuzzaman, 2025).

Professional associations play a central role in promoting ethical conduct through the formulation and enforcement of codes of ethics and professional guidelines. Okorie (2016) noted that professional associations defined ethical norms, regulate professional behaviour, and uphold the integrity of the profession, while Pamungkas and Munawir (2025) observed that adherence to ethical standards enhances public trust, professional credibility, and service quality. In Nigeria, the Nigerian Library Association (NLA) promotes ethical practice through codes of conduct and professional guidelines that address confidentiality, intellectual property rights, responsible information dissemination, and professional accountability (NLA, 2025; Afolayan, 2022). Yaya and Adeeko (2015) further reported that librarians who adhere to ethical standards demonstrate higher levels of professionalism, user satisfaction, and commitment to service excellence. By promoting ethical awareness and accountability, professional ethics remain fundamental to sustaining trust, credibility, and effectiveness in library and information services.

Career growth refers to professional advancement through promotions, leadership opportunities, specialization, skill development, and increased professional recognition. According to Faulkner and Reiter (2025), career growth in librarianship involves continuous skill acquisition, upward mobility, leadership development, and enhanced professional visibility, while Yaya and Adeeko (2015) noted that career progression is strongly influenced by continuous learning, professional networking, mentorship, and active participation in professional associations. Service quality refers to the extent to which library and information services meet users' needs in terms of effectiveness, efficiency, accuracy, timeliness, and user-centeredness. Ghaedi *et al.* (2020) defined service quality as the gap between users' expectations and their perceptions of service performance. In librarianship, service quality includes responsiveness to users, accessibility of information resources, reliability of services, and courteous interaction (Griadhi, 2018).

Participation in professional associations has been identified as a major factor influencing both career growth and service quality. Isabirye *et al.* (2024) reported that active involvement in professional associations enhances networking opportunities, mentorship, leadership skills, and professional visibility, thereby facilitating promotions and career advancement. Similarly, Miller (2025) observed that association membership provides access to training programmes, conferences, and leadership roles that significantly enhance career development. Professional associations also contribute to improved service quality by exposing members to best practices, innovative service models, and emerging technologies through conferences, workshops, and professional publications (Sawyer & Castellanos, 2022; Agarwal & Islam, 2016). Anene and Idiedo (2021) further reported that librarians who participate actively in professional development activities demonstrated higher service efficiency, innovation, and user satisfaction. By promoting continuous learning, networking, and professional recognition, professional associations remain key agents in advancing career growth and improving the quality of library and information services.

Methods

This study adopted a descriptive survey research design of the correlational type. The population of the study is 272 librarians, which comprises 195 librarians working in the institution's library and 77 lecturers working in the library schools drawn from all the tertiary institutions in Delta State, Nigeria. The entire population was used as the sample size since the population figure is relatively small. Therefore, the total enumeration sampling technique was employed. Data were collected using a structured questionnaire titled Questionnaire on the Role of the Nigerian Library Association (NLA) in Shaping Librarians and Information Services Professionals in Delta State. The questionnaire consisted of eight sections (A–H) and comprised only closed-ended items to facilitate ease of response and data coding. Section A elicited demographic information such as gender, age, qualification, institution and years of experience. Section B-H contained constructs on related to the objectives of the study.

The reliability of the instrument was determined using Cronbach's Alpha, which yielded a reliability coefficient of 0.99, indicating a high level of internal consistency. Data were analysed using both descriptive and inferential statistical techniques. Descriptive statistics, including frequencies, were used to analyse the response rate and demographic characteristics of the respondents. Mean scores ($\bar{x}$) and standard deviation were used to answer research questions with a criterion mean set at 3.00.

Results

Table 2: Questionnaire Response Rate

No. of Questionnaire Administered	No. of Questionnaire Retrieved	Percentage of Questionnaire Retrieved
272	179	66%

Table 2 shows that a total of 272 questionnaires were administered to the respondents, out of which 179 questionnaires were successfully retrieved, representing a 66% response rate. This indicates that slightly over two-thirds of the distributed questionnaires were returned and found usable for the study, while 34% were not retrieved, due to non-response, incomplete filling, or loss of questionnaires during the administration process. A 66% response rate can be considered reasonably good for survey research, as it provides an adequate number of responses for meaningful data analysis and enhances the credibility of the findings.

Table 3: Gender of the Respondents

Gender	Frequency	Percentage
Male	60	33.5
Female	119	66.5
Total	179	100.0

The data show that 60 respondents (33.5%) were male, while 119 respondents (66.5%) were female, making up the total of 179 respondents (100.0%). This indicates that female respondents constituted the majority of the study participants.

Table 4: Age of the Respondents

Age	Frequency	Percentage
20-29 years	21	11.7
30-39 years	51	28.5
40-49 years	39	21.8
50 years and above	68	38.0
Total	179	100.0

The data revealed that 21 respondents (11.7%) were within the age range of 20–29 years, 51 respondents (28.5%) were aged 30–39 years, 39 respondents (21.8%) fell within 40–49 years, while the largest proportion, 68 respondents (38.0%), were 50 years and above. The findings indicated that respondents aged 50 years and above constituted the highest proportion of the sample.

Table 5: Highest Qualification

Qualification	Frequency	Percentage
BLS/BLIS/B.Sc.	41	22.9
M.Sc./MLIS	86	48.0
Ph.D.	52	29.1
Total	179	100.0

The data showed that 41 respondents (22.9%) possessed BLS/BLIS/B.Sc. qualifications, 86 respondents (48.0%) had M.Sc./MLIS qualifications, while 52 respondents (29.1%) possessed Ph.D. qualifications. The findings indicated that respondents with M.Sc./MLIS qualifications constituted the largest proportion of the study participants.

Table 6: Institution of the Respondents

Institutions	Frequency	Percentage
Universities	111	62.0
Polytechnics	32	17.9
Colleges of Education and Institutions	36	20.1
Total	179	100.0

The data revealed that 111 respondents (62.0%) were drawn from universities, 32 respondents (17.9%) were from polytechnics, while 36 respondents (20.1%) were from colleges of education and related institutions. The findings indicated that respondents from universities constituted the largest proportion of the study participants.

Table 7: Years of Experience

Qualification	Frequency	Percentage
1-5 years	20	11.2
6-10 years	35	19.6
11-15 years	56	31.3
16 years and above	68	37.9
Total	179	100.0

The data showed that 20 respondents (11.2%) had 1–5 years of experience, 35 respondents (19.6%) had 6–10 years of experience, 56 respondents (31.3%) had 11–15 years of experience, while the largest proportion, 68 respondents (37.9%), had 16 years and above of work experience. The findings indicated that respondents with 16 years and above of experience constituted the highest proportion of the study participants.

Research Question 1: Are librarians and information services professionals in Delta State members of the Nigerian Library Association?

Table 8: Membership of NLA

S/N	Items	Yes	%	No	%
1	I am a registered member of the Nigerian Library Association	137	76.5	42	23.5
2	I am an active financial member of the NLA	160	89.4	19	10.6
3	I belong to the Delta State Chapter of the NLA	140	78.2	39	21.8

The data showed that 137 respondents (76.5%) indicated that they are registered members of the NLA. Also, 160 respondents (89.4%) stated that they are active financial members of the NLA. Furthermore, 140 respondents (78.2%) affirmed that they belong to the Delta State Chapter of the NLA. The findings indicated that the majority of the respondents are affiliated with the NLA in one form or another, with a particularly high proportion being active financial members, which recorded the highest percentage among the three membership indicators. Similarly, a substantial proportion of respondents are registered members and belong to the Delta State Chapter of the association. This suggests that most of the respondents maintain professional ties with the recognised library association in Nigeria, reflecting a strong level of professional engagement, commitment to librarianship, and participation in professional networks that may contribute to their knowledge, competencies, and exposure to developments in the library profession.

Research Question 2: To what extent do librarians in Delta State participate in NLA activities?

Table 9: Participation in NLA Activities

S/N	Items	SA	A	U	D	SD	$\bar{x}$	Std. Dev.
1	I regularly attend NLA conferences and workshops	58	53	0	47	21	3.45	1.46
2	I participate in NLA seminars and training programmes	42	19	0	60	58	2.59	1.59
3	I attend meetings organised by the Delta State Chapter of NLA	70	35	10	44	20	3.51	1.49
4	I actively contribute to NLA professional activities	54	54	15	35	21	3.47	1.40
5	My institution supports my participation in NLA activities	20	20	10	72	57	2.30	1.32
	Aggregate Mean						3.06	1.45
	Criterion Mean						3.00	

The results showed that respondents agreed that they regularly attend NLA conferences and workshops with a mean score of 3.45 and a standard deviation of 1.46, attend meetings organised by the Delta State Chapter of NLA with a mean score of 3.51 and a standard deviation of 1.49, and actively contribute to NLA professional activities with a mean score of 3.47 and a standard deviation of 1.40, as these mean values are above the criterion mean of 3.00.

The aggregate mean score of 3.06, which is slightly above the criterion mean of 3.00, indicated that librarians in Delta State participate in NLA activities to a moderate extent. This suggests that while librarians are fairly active in attending conferences, meetings, and contributing to professional activities, their participation is somewhat constrained by limited institutional support and relatively low involvement in seminars and training programmes.

Research Question 3: How does the NLA influence the skills and competence of the professionals?

Table 10: Influence of **NLA on Skills and Competence of Professionals**

S/N	Items	SA	A	U	D	SD	$\bar{x}$	Std. Dev.
1	NLA programmes have improved my professional skills	35	40	10	30	64	2.73	1.60
2	NLA activities have enhanced my digital librarianship skills	20	35	15	45	64	2.45	1.43
3	NLA training programmes have improved my research support skills	72	48	5	32	22	3.65	1.46

4	Participation in NLA activities has increased my professional competence	84	50	0	20	25	3.83	1.47
5	NLA has helped me to keep abreast of new trends in librarianship	50	44	10	35	40	3.16	1.56
	Aggregate Mean						3.16	1.50
	Criterion Mean						3.00	

The results showed that respondents agreed that NLA training programmes have improved their research support skills with a mean score of 3.65 and a standard deviation of 1.46, participation in NLA activities has increased their professional competence with a mean score of 3.83 and a standard deviation of 1.47, and that NLA has helped them keep abreast of new trends in librarianship with a mean score of 3.16 and a standard deviation of 1.56, as these mean values are above the criterion mean of 3.00.

The aggregate mean score of 3.16, which is above the criterion mean of 3.00, indicated that the Nigerian Library Association positively influences the skills and competence of library professionals to a considerable extent. This suggests that the association plays an important role in enhancing professional competence, strengthening research support skills, and exposing professionals to current developments in librarianship. However, the relatively lower ratings on professional skill improvement and digital librarianship skills imply that the NLA may need to strengthen its focus on practical professional development programmes, particularly in digital and technology-driven aspects of library practice, to better meet the evolving competence needs of library professionals.

Research Question 4: What impact does the NLA have on job performance and service delivery?

Table 11: Impact of NLA on Job Performance and Service Delivery

S/N	Items	SA	A	U	D	SD	$\bar{x}$	Std. Dev.
1	NLA activities have improved my behind-the-scenes job performance	74	45	10	15	35	3.60	1.56
2	Participation in NLA programmes has improved my service delivery	70	50	5	20	34	3.57	1.55
3	NLA training has increased my confidence in handling users' needs	82	48	10	21	18	3.87	1.37
4	My productivity has improved as a result of NLA participation	78	64	15	10	12	4.05	1.15
5	NLA activities have enhanced user satisfaction in my library	80	72	10	20	3	4.18	0.97
	Aggregate Mean						3.85	1.32
	Criterion Mean						3.00	

The results showed that respondents agreed that NLA activities have improved their behind-the-scenes job performance with a mean score of 3.60 and a standard deviation of 1.56, participation in NLA programmes has improved their service delivery with a mean score of 3.57 and a standard deviation of 1.55, NLA training has increased their confidence in handling users' needs with a mean score of 3.87 and a standard deviation of 1.37, their productivity has improved as a result of NLA participation with a mean score of 4.05 and a standard deviation of 1.15, and NLA activities have enhanced user satisfaction in their libraries with a mean score of 4.18 and a standard deviation of 0.97, as all the mean scores are above the criterion mean of 3.00.

The aggregate mean score of 3.85, which is significantly above the criterion mean of 3.00, indicates that the Nigerian Library Association has a high positive impact on librarians' job performance and service delivery. This suggests that participation in NLA activities contributes substantially to improved work efficiency, greater professional confidence, enhanced productivity, and better user satisfaction in library services.

Research Question 5: How does the NLA promote professional ethics and standards?

Table 12: Promotion of Professional Ethics and Standards by NLA

S/N	Items	SA	A	U	D	SD	$\bar{x}$	Std. Dev.
1	The NLA promotes adherence to professional ethical standards	60	40	20	45	14	3.49	1.38
2	NLA guidelines help me to handle users ethically and professionally	89	58	10	22	2	4.21	1.01
3	NLA promotes confidentiality and the protection of users' information	90	74	0	5	10	4.28	1.02

4	Ethical standards promoted by NLA improve service quality in my library	98	70	5	0	6	4.42	0.84
	Aggregate Mean						4.10	1.06
	Criterion Mean						3.00	

The results showed that respondents agreed that the NLA promotes adherence to professional ethical standards with a mean score of 3.49 and a standard deviation of 1.38, NLA guidelines help them handle users ethically and professionally with a mean score of 4.21 and a standard deviation of 1.01, NLA promotes confidentiality and the protection of users' information with a mean score of 4.28 and a standard deviation of 1.02, and that ethical standards promoted by NLA improve service quality in their libraries with a mean score of 4.42 and a standard deviation of 0.84, as all the mean scores are above the criterion mean of 3.00.

The aggregate mean score of 4.10, which is well above the criterion mean of 3.00, indicates that the Nigerian Library Association promotes professional ethics and standards to a high extent. This suggests that the association plays a significant role in reinforcing ethical behaviour, encouraging professional responsibility, and guiding librarians toward best practices in service delivery.

Research Question 6: What challenges hinder professionals' participation in NLA activities in Delta State?

Table 13: Challenges Hindering Professionals' Participation in NLA Activities

S/N	Items	SA	A	U	D	SD	$\bar{x}$	Std. Dev.
1	High membership dues discourage my participation in NLA activities	90	80	0	3	6	4.37	0.86
2	Lack of time prevents me from participating actively in NLA programmes	84	94	0	0	1	4.45	0.56
3	Heavy workload limits my participation in NLA activities	74	80	3	10	12	4.08	1.12
4	Lack of institutional support affects my participation in NLA activities	100	74	0	0	5	4.47	0.77
5	Distance and transportation challenges limit my participation	92	64	5	5	13	4.21	1.13
	Aggregate Mean						4.32	0.89
	Criterion Mean						3.00	

The results show that respondents agreed that high membership dues discourage participation in NLA activities with a mean score of 4.37 and a standard deviation of 0.86, lack of time prevents active participation in NLA programmes with a mean score of 4.45 and a standard deviation of 0.56, heavy workload limits participation in NLA activities with a mean score of 4.08 and a standard deviation of 1.12, lack of institutional support affects participation in NLA activities with a mean score of 4.47 and a standard deviation of 0.77, and distance and transportation challenges limit participation with a mean score of 4.21 and a standard deviation of 1.13, as all the mean scores are above the criterion mean of 3.00.

The aggregate mean score of 4.32, which is substantially above the criterion mean of 3.00, indicates that professionals in Delta State face significant challenges that hinder their participation in NLA activities. This suggests that factors such as inadequate institutional backing, time constraints, heavy workloads, financial commitments, and transportation difficulties considerably reduce active engagement in the association's programmes and activities.

Research Question 7: What are the suggested strategies for improving the effectiveness of the NLA in Delta State?

Table 14: Suggested Strategies for Improving the Effectiveness of NLA Activities

S/N	Items	SA	A	U	D	SD	$\bar{x}$	Std. Dev.
1	Reduction of membership dues will increase participation in NLA activities	90	74	0	10	5	4.28	1.02
2	More local training programmes should be organised by the NLA	84	80	5	0	10	4.27	0.97
3	Online training platforms should be increased by the NLA	100	64	5	0	10	4.36	0.98
4	Institutions should sponsor librarians to attend NLA programmes	100	74	0	2	3	4.49	0.72
5	Improved communication between NLA and members will enhance effectiveness	95	65	5	9	5	4.32	0.96
	Aggregate Mean						**4.34**	**0.93**

Criterion Mean	3.00

The results showed that respondents agreed that reduction of membership dues will increase participation in NLA activities with a mean score of 4.28 and a standard deviation of 1.02, more local training programmes should be organised by the NLA with a mean score of 4.27 and a standard deviation of 0.97, online training platforms should be increased by the NLA with a mean score of 4.36 and a standard deviation of 0.98, institutions should sponsor librarians to attend NLA programmes with a mean score of 4.49 and a standard deviation of 0.72, and improved communication between NLA and members will enhance effectiveness with a mean score of 4.32 and a standard deviation of 0.96, as all the mean scores are above the criterion mean of 3.00.

The aggregate mean score of 4.34, which is well above the criterion mean of 3.00, indicates that respondents strongly support the suggested strategies for improving the effectiveness of NLA activities in Delta State. This suggests that reducing financial barriers, expanding training opportunities—especially through online platforms—encouraging institutional sponsorship, and strengthening communication with members are practical and highly valued approaches for enhancing participation and overall effectiveness of the Nigerian Library Association.

Discussion

The finding revealed that a substantial majority of the respondents were registered members of the Nigerian Library Association, were active financial members, and belonged to the Delta State Chapter of the association. This finding agrees with Banire (2025), who noted that professional associations exist to promote collective professional interests, competence development, and professional identity. It also aligns with Lysfjord and Skarstein (2024) and Ki and Wang (2016), who reported that membership in professional associations strengthens professional identity, ethical awareness, and career development through networking and professional engagement. In my opinion, this finding is in clear agreement with the literature because active membership reflects librarians' recognition of the value of professional association affiliation in career growth and professional relevance.

The finding showed that librarians in Delta State participate in Nigerian Library Association activities to a moderate extent, particularly in conferences, workshops, meetings, and professional contributions, although participation in seminars and institutional support were relatively low. This finding supports Opele (2023), Yadav (2024), and Abdul and Iddrisu (2025), who observed that professional associations provide platforms for training, collaboration, and continuous learning through conferences, workshops, and seminars. However, the limited institutional support aspect reflects a slight divergence from Johnson (2019), who emphasized organisational encouragement as critical for sustained professional engagement. In my view, the finding substantially aligns with previous studies, though institutional backing remains an area requiring improvement.

The finding indicated that the Nigerian Library Association positively influences librarians' skills and competence, especially in research support, professional competence, and awareness of emerging trends, though digital librarianship skills received comparatively lower ratings. This finding agrees with Daland (2015), who reported that association programmes significantly improve librarians' technical competence, confidence, and effectiveness, and with Nakaziba and Ngulube (2023), who affirmed that continuous professional development enhances professional knowledge and competence. However, the lower rating on digital skills slightly contrasts with Ijeh *et al*. (2025), who found stronger gains in digital librarianship competence through professional development. In my opinion, the finding generally aligns with literature, but suggests that more targeted digital competency programmes are needed.

The finding revealed that participation in Nigerian Library Association activities has a high positive impact on job performance and service delivery, particularly in productivity, confidence in handling users' needs, and user satisfaction. This finding is consistent with Moonasar (2024), who reported that continuous professional development improves service delivery, professional confidence, and innovation, and with Anene and Idiedo (2021), who found that active professional development participation enhances service efficiency and user satisfaction. It also aligns with Sawyer and Castellanos (2022), who linked professional association participation with improved service quality. In my opinion, this finding strongly agrees with existing studies because improved competence naturally translates into better service delivery outcomes.

The finding showed that the Nigerian Library Association promotes professional ethics and standards to a high extent by encouraging ethical conduct, confidentiality, professionalism, and improved service quality. This finding agrees with Okorie (2016), who noted that professional associations define ethical norms and regulate professional behaviour, and with Pamungkas and Munawir (2025), who observed that adherence to ethical standards enhances public trust and service quality. It also supports Yaya and Adeeko (2015), who linked ethical compliance with professionalism and service excellence. In my opinion, the finding is strongly aligned with the literature because ethics remains central to trust, accountability, and quality library service.

The finding revealed that high membership dues, lack of time, heavy workload, lack of institutional support, and transportation challenges significantly hinder professionals' participation in Nigerian Library Association activities. This partially agrees with Johnson (2019), who recognised organisational support and engagement conditions as vital for professional participation, and with Mislan *et al.* (2020), who stressed that sustained professional development depends on enabling structures and opportunities. However, the severity of these barriers suggests that practical constraints may be stronger in the Delta State context than implied in some prior studies. In my opinion, while the

finding aligns with literature on participation barriers, it also highlights local contextual challenges that require deliberate intervention.

The finding showed that respondents strongly supported reducing membership dues, increasing local and online training programmes, institutional sponsorship, and improved communication between the Nigerian Library Association and members as strategies for improving effectiveness. This finding agrees with Shiri *et al.* (2023), who emphasised the value of diverse professional development platforms including webinars and training programmes, and with Miller (2025), who noted that institutional support and access to association programmes significantly enhance professional engagement and career development. It also aligns with Banire (2025), who stressed that professional associations must remain responsive to members' needs to sustain relevance. In my opinion, this finding is in full agreement with prior studies because improving accessibility, affordability, and communication will likely strengthen participation and overall association effectiveness.

Conclusion

Based on the findings of the study, it was concluded that the Nigerian Library Association plays a significant role in the professional development of librarians in Delta State. The Association has positively influenced librarians' professional competence, research support skills, job performance, service delivery, and adherence to professional ethics and standards. It has also provided an important platform for professional networking, collaboration, and continuous learning. However, despite the high level of membership and the recognised benefits of participation, librarians' involvement in some NLA programmes is hindered by challenges such as inadequate institutional support, high membership dues, heavy workload, time constraints, and transportation difficulties. The study therefore concludes that while the NLA remains a vital professional body for librarianship development in Delta State, deliberate efforts are needed to address participation barriers and strengthen the effectiveness of its programmes and services.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Universities, polytechnics, colleges of education, and other information institutions in Delta State should provide financial and administrative support to enable librarians to attend Nigerian Library Association conferences, workshops, seminars, and continuing professional development programmes without undue personal financial burden.
2. Since the study revealed relatively low influence of the Association on digital librarianship skills, the Nigerian Library Association should organise more specialised training in areas such as digital librarianship, database management, institutional repository development, artificial intelligence applications in libraries, and emerging information technologies.
3. Considering that high membership dues were identified as a major challenge, the Association should consider introducing flexible payment structures, instalment plans, or subsidised membership categories to encourage wider participation among professionals.
4. To address distance, transportation, and time constraints, the Nigerian Library Association should expand state-level and zonal training programmes while also increasing virtual conferences, webinars, and online workshops to make professional development more accessible.
5. Employers of librarians should reduce workload pressures where possible, grant study leave or official release time for professional activities, and recognise participation in professional association programmes as part of staff development and performance enhancement.
6. The Association should strengthen its communication channels through regular updates, newsletters, active social media engagement, and timely dissemination of information on programmes, opportunities, and professional initiatives to improve awareness and participation.
7. Since attendance at seminars and structured training programmes was relatively low, deliberate efforts should be made by both the Nigerian Library Association and employing institutions to motivate librarians through incentives, recognition, and career advancement considerations tied to active professional development participation.

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The State of Academic Libraries in Nigeria: Challenges and Way Forward

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Abstract

This paper examined the current state of academic libraries in Nigeria, identifying the prevalent problems and proposing potential solutions and ways forward. The paper focused on the challenges encountered by academic libraries in Nigeria, such as inadequate funding, outdated technology, and limited resources to mention just a few. The paper identified key areas that need to be addressed in order to improve the functionality and effectiveness of academic libraries. Through a comprehensive analysis of existing literature, the paper provided insight into the current state of academic libraries in Nigeria and suggest ways to improve their functionality and efficiency. This paper concluded that addressing these key issues will contribute to the development of academic libraries in Nigeria and enhance the overall quality of education in the country.

Keywords: Academic libraries, Challenges, Way forward

Introduction

Academic libraries are the intellectual hubs of tertiary institutions, encompassing universities, polytechnics, and colleges of education. Their primary mandate is to support the teaching, learning, and research activities of their parent institutions by providing access to a wide array of information resources. The academic library is an important academic unit in higher education because it provides information in various formats to support the teaching, learning and research objectives of the parent institution. Omeluzor et al. (2017) posited that the academic library is an established and organised arm of an institution with a clear mandate of providing relevant and up to date library collections that meet the information need of users. The aim of an academic library is to acquire information resources in different formats, in various fields of human knowledge and to process, organise, disseminate and provide access to them.

In the Nigerian context, the development of academic libraries has been intrinsically linked to the growth of higher education, which has expanded significantly since the establishment of the University College, Ibadan, in 1948. These libraries are not merely repositories of books; they are strategic national assets that drive development by fostering a knowledge-based society. They are instrumental in cultivating a skilled workforce, stimulating national innovation, and contributing to global initiatives such as the "Education for All" agenda and the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education) (Nworie et al., 2023).

However, the 21st century has brought about a paradigm shift in the way information is created, stored, and accessed. The transition from traditional print-based services to digital and hybrid models has presented both opportunities and formidable challenges for Nigerian academic libraries. While these institutions are essential for fostering information literacy and academic excellence, they are currently grappling with systemic issues that threaten their functionality and relevance. The problem statement for this study is rooted in the observation that despite their critical role in national development and the significant investments made, Nigerian academic libraries consistently underperform due to persistent challenges in funding, technology adoption, and infrastructure, leading to a widening gap between their potential and actual impact on education and research.

This paper provides a comprehensive analysis of these challenges, integrating insights from recent research and international comparisons, to delineate a sustainable path forward. Specifically, this paper aims to:

1. Provide a comprehensive overview of the current state of academic libraries in Nigeria, including relevant statistics on higher education.
2. Identify and critically analyze the key challenges impeding their effective functioning, such as funding, technological gaps, and infrastructure deficits.
3. Examine the impact of regulatory frameworks and interventions, including NUC standards and TETFund, on library development.
4. Compare the state of Nigerian academic libraries with those in other African and developed nations, highlighting areas for learning and improvement.

5. Propose actionable strategies and recommendations for their sustainable improvement, focusing on digital transformation and knowledge society development.

As of 2024, Nigeria's higher education landscape comprises over 270 universities (Federal, State, and Private), catering to a student population exceeding 2 million (Mbagwu & Udo-Anyanwu, 2021). Despite this vast educational infrastructure, only few Nigerian universities feature in global rankings like the Times Higher Education (THE) World University Rankings, a situation often attributed to deficiencies in library and research infrastructure. This disparity underscores the urgent need for a strategic overhaul of the Nigerian library system to align with global standards.

Historical Evolution of Academic Libraries in Nigeria

The trajectory of academic libraries in Nigeria can be categorized into several distinct eras, each characterized by different priorities and challenges. According to Nworie et al. (2023), these stages include the pre-colonial, colonial, independence, post-independence, and the current 21st-century digital era. During the colonial period, libraries were primarily established to serve the administrative needs of the colonial government and a small elite. The post-independence era saw a rapid expansion of tertiary institutions, leading to the establishment of more robust library systems designed to support national development.

In the contemporary era, the focus has shifted toward the integration of Information and Communication Technologies (ICTs). The emergence of the digital age has necessitated a move toward electronic resources, virtual libraries, and global information networks. However, this evolution has not been uniform across all institutions. While some first-generation universities have made significant strides in automation, many newer and state-owned institutions remain stuck in traditional modes of operation due to resource constraints.

- **National Universities Commission (NUC) Library Standards**

The National Universities Commission (NUC) plays a crucial regulatory role in ensuring quality assurance and maintaining academic standards in Nigerian higher education. The NUC sets Minimum Academic Standards (MAS) for university libraries, which encompass comprehensive guidelines for collection development, staffing, physical infrastructure, and service provision. A critical, albeit often unenforced, standard is the directive for universities to allocate at least 10% of their recurrent budget to the library (Mbagwu & Udo-Anyanwu, 2021). This mandate, established to ensure libraries are adequately funded to support academic programs and research, has been a cornerstone of library advocacy, though its consistent implementation remains a challenge.

- **Tertiary Education Trust Fund (TETFund) Interventions**

The Tertiary Education Trust Fund (TETFund) has emerged as a significant financial lifeline for academic libraries in Nigeria, particularly since its establishment. TETFund interventions provide substantial funding for various aspects of library development, including the construction and renovation of library buildings, acquisition of books and journals, subscription to electronic databases, and staff training and development (Adetarami & Okeke, 2024). These interventions have demonstrably improved library resources and infrastructure in many institutions, facilitating access to a wider array of scholarly materials and enhancing the physical learning environment. However, challenges persist in maximizing their impact, ensuring equitable distribution, and fostering long-term sustainability beyond direct grants.

- **Establishment of Virtual Libraries**

Recognizing the imperative of digital access, Nigeria embarked on initiatives to establish virtual libraries. The National Virtual Library Project, launched around 2002, aimed to provide centralized access to electronic resources for all tertiary institutions, thereby bridging the digital divide and enhancing scholarly communication (Ogunode & Agbor, 2024). While the project faced implementation challenges, it represented a significant milestone in the country's commitment to digital librarianship and resource sharing.

- **Growth of Consortia Initiatives**

The growth of library consortia, such as the Nigerian University Libraries Consortium (NULIB), represents another major milestone in the historical evolution of academic libraries. These consortia facilitate collective bargaining for database subscriptions, inter library loan services, and collaborative collection development, enabling member libraries to access a broader range of resources at reduced costs (Adeyemi et al., 2025). Such initiatives are crucial for maximizing limited resources and fostering a culture of cooperation among institutions.

The Current Landscape: Funding and Economic Constraints

The most pervasive challenge facing academic libraries in Nigeria is inadequate funding. Academic libraries are traditionally funded through budgetary allocations from their parent institutions, which in turn rely on government

subventions. In recent years, consistent dwindling budgetary allocations have severely hampered the ability of libraries to maintain their collections and services (LJLIS, 2025).

- Inflation and Exchange Rate Fluctuations: The volatile Nigerian economy, characterized by high inflation and significant fluctuations in the Naira's exchange rate against major international currencies, has drastically increased the cost of foreign book purchases and database subscriptions (e.g., ScienceDirect, JSTOR). This economic instability leads to what has been termed "information starvation," as libraries struggle to acquire essential current resources (Adetayo, 2024).
- Sustainability of Database Subscriptions: The high cost of international electronic databases and journals, coupled with unstable funding, makes the sustainability of these crucial subscriptions a constant battle. Many libraries are forced to cancel subscriptions, limiting access to cutting-edge research for their users.
- Competition for Institutional Budgets: Libraries often face intense competition for institutional budgets, frequently losing out to other departments despite the NUC's 10% budgetary allocation directive. This internal competition further exacerbates financial woes, making it difficult to invest in new technologies or expand services.

Impact of Poor Funding: Inadequate funding has severe repercussions across several critical areas:

- Accreditation: Libraries unable to meet NUC standards for resources, staffing, and infrastructure risk negatively impacting their parent institutions' accreditation status, potentially leading to sanctions or loss of program approval (Mbagwu & Udo-Anyanwu, 2021).
- Research Output: Limited access to current scholarly journals and databases directly hinders the quality and quantity of research conducted by faculty and students, thereby affecting the institution's overall research output and global competitiveness (Kakiri et al., 2024).
- User Satisfaction: The inability to provide up-to-date resources, modern facilities, and efficient services leads to low user satisfaction, discouraging students and researchers from utilizing library facilities and services.

The impact of poor funding is multifaceted. Firstly, it limits the acquisition of current and relevant information resources. Kakiri et al. (2024) observed that many Nigerian academic libraries are unable to purchase modern reference materials, leading to an over-reliance on outdated textbooks. Secondly, the high cost of information resources, exacerbated by fluctuating exchange rates, makes it difficult for libraries to subscribe to international electronic databases and journals. Mamman and Nwokedi (2019) highlighted that poor availability of information resources is a direct consequence of this financial starvation, which ultimately affects the productivity of researchers and the quality of student learning.

Furthermore, the proliferation of tertiary institutions in Nigeria without a corresponding increase in funding has stretched existing resources thin. As noted by Onuoha and Chukwueke (2020), many libraries are now forced to explore additional income-generating patterns, such as consultancy and fee-based services, to bridge the funding gap.

Technological Challenges and the Digital Divide

The integration of ICT is no longer a luxury but a necessity for modern academic libraries. However, the adoption of technology in Nigerian libraries is fraught with obstacles. Tella et al. (2025) argued that while libraries in Nigeria have been adopting ICT for decades, they have yet to fully embrace Fourth Industrial Revolution (4IR) technologies, such as Artificial Intelligence (AI), Internet of Things (IoT), and robotics.

Several factors contribute to this technological lag:

1. Infrastructure Deficits: Persistent power outages and inadequate internet bandwidth remain significant barriers to the effective use of digital resources (Suleiman et al., 2025).
2. High Costs: The initial investment required for hardware, software, and periodic technological upgrades is often beyond the reach of many libraries (Sage, 2025).
3. Skills Gap: There is a notable disparity between the technological requirements of modern librarianship and the actual skills possessed by many librarians. Oladokun (2024) emphasized the need for continuous professional development to bridge this gap and prepare staff for smart library environments.

The result is a “digital divide” where Nigerian students and researchers have limited access to the same global information resources as their counterparts in developed.

- AI-driven Library Services: While globally, AI is being explored for personalized user services, chatbots for reference, automated cataloging, and enhanced discovery tools, its adoption in Nigerian academic libraries is

still in its infancy (Oladokun, 2025). Challenges include the high cost of AI solutions, lack of technical expertise, and inadequate data infrastructure.

- Cyber-security: With increased reliance on digital resources and institutional repositories, cyber-security threats pose a significant risk to library data, intellectual property, and user privacy. Many Nigerian libraries lack robust cyber-security infrastructure, policies, and trained personnel to effectively mitigate these risks.
- Digital Literacy: A significant digital divide exists, impacting both users and librarians. User readiness for digital resources is often low due to limited access to personal devices and Internet connectivity. Concurrently, librarians' digital competencies often lag behind the requirements of modern librarianship, necessitating continuous professional development in areas such as data management, digital preservation, and emerging technologies (Orubebe, 2024).
- Research Data Management (RDM): The increasing volume of research data necessitates robust RDM practices. While institutional repositories are essential for showcasing an institution's research output, many Nigerian universities struggle to implement comprehensive RDM services due to a lack of technical support, institutional policy gaps, and insufficient librarian training in data curation and management (Oladokun, 2024).

Infrastructure and Resource Management

Beyond funding and technology, the physical and digital infrastructure of many Nigerian academic libraries is in a state of decline. Many library buildings are outdated, with poor ventilation and inadequate seating capacity for the growing student population. The lack of modern library furniture and conducive learning environments further discourages students from utilizing library facilities.

In terms of digital resources, the management of institutional repositories is another area of concern. While repositories are essential for showcasing an institution's research output, many Nigerian universities struggle to maintain them due to lack of technical support and institutional policy gaps. Comparatively, studies in East Africa (Tanzania, Kenya, and Uganda) show similar struggles with institutional repositories, highlighting a regional trend of infrastructure and policy deficiencies (IASSIST, 2024).

Moreover, the global shift toward sustainability has yet to gain significant traction in Nigerian libraries. While green library initiatives are becoming a standard in developed nations, AJHSSR (2024) noted that Nigerian academic libraries face challenges in implementing such initiatives due to limited awareness and the overarching problem of funding.

- Physical Infrastructure: Many library buildings are outdated, characterized by poor ventilation, inadequate seating capacity, and a lack of modern furniture, which discourages students from utilizing facilities. The focus needs to expand beyond just the physical structures to include the effective and efficient management of all information resources, both print and digital.
- Information Resource Management: This encompasses the systematic acquisition, organization, preservation, and dissemination of all types of information resources. Challenges include outdated cataloging systems, inadequate digital preservation strategies, and difficulties in integrating diverse electronic resources into a cohesive and user-friendly access system.
- Open Science Initiatives: The global shift towards Open Science and Open Access (OA) aims to make research freely available and transparent. While there is growing interest in OA in Nigeria as a means to bypass subscription costs, the country lacks a unified national Open Science policy, and implementation faces challenges related to infrastructure, funding, and awareness among researchers and librarians (Oladokun, 2024).

Comparative Analysis: Nigeria in the African and Global Context

To fully understand the state of Nigerian academic libraries, it is useful to compare them with their peers in other developing and developed nations. In Sub-Saharan Africa, countries like Kenya and Ghana face similar chronic financial constraints and infrastructure deficits (AJLAIS, 2024). However, South Africa generally exhibits a higher level of 4IR readiness and better-funded library systems, providing a potential model for Nigerian institutions.

Globally, the 2024-2025 trends in academic libraries, as reported by the Association of College and Research Libraries (ACRL), focus heavily on AI integration, Research Data Management (RDM), and the ethical use of technology (ACRL, 2025). In contrast, many Nigerian libraries are still struggling with basic ICT integration and stable power supply. This disparity underscores the urgent need for a strategic overhaul of the Nigerian library system to align with global standards.

Potential Solutions and the Way Forward

Addressing the challenges of academic libraries in Nigeria requires a multi-pronged approach involving government intervention, institutional leadership, and the proactive engagement of librarians.

- **Diversification of Funding Sources**

Relying solely on government subventions is no longer sustainable. Academic libraries must explore alternative funding models, such as:

1. Public-Private Partnerships (PPP): Collaborating with private organizations for infrastructure development and technology acquisition.
2. Alumni and Philanthropic Support: Engaging alumni networks and philanthropic foundations to fund specific projects or endowments.
3. Income Generation: Developing fee-based specialized services, such as data analysis, document delivery, and information consultancy (Onuoha & Chukwueke, 2020).

- **Strategic Technological Investment**

Instead of piecemeal technology adoption, libraries should develop comprehensive digital strategies. This includes lobbying for dedicated bandwidth from parent institutions and investing in renewable energy sources, such as solar power, to mitigate the impact of power outages. Furthermore, the adoption of Open Access (OA) and Open Educational Resources (OER) can significantly reduce the cost of providing access to high-quality academic content.

- **Capacity Building and Professional Development**

The library of the future requires a new breed of information professionals. Tertiary institutions and professional bodies like the Librarians' Registration Council of Nigeria (LRCN) must prioritize training in digital literacy, data management, and AI applications. Continuous professional development (CPD) should be mandatory to ensure that librarians remain relevant in the digital age (Oladokun, 2024).

- **Strengthening Library Consortia**

Resource sharing through consortia, such as the Nigerian University Libraries Consortium (NULIB), is essential for maximizing limited resources. By pooling funds for joint database subscriptions and inter-library loan systems, Nigerian academic libraries can provide their users with access to a broader range of resources at a lower cost.

Conclusion

The academic library is undeniably the heartbeat of the Nigerian educational system, serving as a critical nexus for knowledge creation, dissemination, and preservation. However, the current state of these institutions is characterized by a persistent struggle for survival amidst chronic underfunding, significant technological lags, and deteriorating infrastructure. Addressing these profound issues is not merely a matter of institutional pride but a national imperative for fostering a competitive knowledge economy and ensuring the relevance of Nigerian higher education on the global stage. By proactively diversifying funding sources, strategically investing in cutting-edge technology, fostering a culture of continuous professional development, and implementing robust policy reforms, Nigerian academic libraries can overcome their current challenges. They can emerge as dynamic, resilient centers of learning and research, fully aligned with the demands of the digital age and the global knowledge society. The way forward demands collective will, innovative thinking, and an unwavering commitment to the ideals of information accessibility, academic excellence, and national development. A strong, forward-looking academic library system is a critical prerequisite for enhancing the overall quality of education and research in Nigeria, driving innovation, and preparing future generations for the complexities and opportunities of the 21st-century knowledge society. Embracing digital transformation, fostering open science, and prioritizing user-centered services will be key to unlocking their full potential and ensuring their enduring strategic importance.

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THE STATE OF NIGERIAN LIBRARIES AND LIBRARIANSHIP IN THE ERA OF FIFTH INDUSTRIAL REVOLUTION

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Abstract

This study examined the state of Nigerian Libraries and prospects in the era of the fifth Industrial revolution (5IR). The study adopted a descriptive design. Three research objectives guided the study. The objectives are to examine the strengths of Nigerian Libraries in the face of the 5IR, examine the weaknesses of Nigerian Libraries in the face of the 5IR and to examine the prospects of strengthening Nigerian Libraries in the future to meet the demands of the 5IR. 15 librarians participated in the study. The participants were drawn from academic, school, special, public and national Libraries from different parts of the country. Snowball method of sampling was used to identify the participants. One-on-one interview and Focus group discussion were used for data gathering. The Focus group and interview guides were prepared by the researchers. Thematic analysis was used to analyses the data gathered. Findings show that the strength of the libraries lye more in the loyalty of the communities they serve, new responsibilities being entrusted to the libraries by their parent institutions, availability of computer laboratories and free internet connection in the libraries. Among the challenges of the libraries are lack of internet-compliant facilities, budget cuts and lack of policy to guide library programs. The study concludes that the future of libraries and the Librarianship profession in Nigeria is bright as there are indications that the practitioners and the discipline will be strengthened to meet the demands of the fifth Industrial Revolution.

Keywords: Nigerian Libraries, 5th Industrial Revolution, Librarianship, Strengths, Weaknesses and Prospects.

Introduction

Libraries in Nigeria as in other places play indispensable roles by preserving the cultural heritage of the nation, keep the society informed by creating access to reliable and authentic information and helps to equalize educational opportunities for all learners by offering their services to all users irrespective of demographic variables. There are various types of Libraries in Nigeria. These include academic, special, public and school libraries. All these libraries have their unique users and expected services and resources. Librarians are the human resources that mediate between the learning resources in the libraries and the users. Akor (2023) observed that it is the duty of the librarians to ensure that users have access to the information they need without limiting factors such as language, ethnicity and disability to mention a few.

In Nigeria, the professional education of Librarians is handled in Polytechnics and Universities. While the Polytechnics offer Ordinary National Diploma (OND) and Higher National Diploma (HND) certificates, the Universities offer degree and post graduate studies. Nigerian Library Association, the umbrella association of libraries in Nigeria help with continuous development programs through workshops and seminars (Goshie, Jimada and Habiba, 2022). The Librarians Registration Council of Nigeria (LRCN) also supports with workshops. The parent institutions of the libraries support with staff development programs.

Despite the staff development opportunities available to librarians in Nigeria, libraries and librarians are faced with a many challenges which, if not well managed, will jeopardize the chances of the libraries to function optimally in the future. Among these challenges are funding, skilled staff, staff attitude to work, obsolete learning materials, lack of technological facilities and alternative information sources, to mention but a few. In the midst of this state of affairs in Nigerian libraries, the Library and Information job environment is changing drastically with the emergence of the fifth Industrial Revolution (5IR). George and George (2020) defined the 5IR as an era in which man and machine work hand-in-hand, combining the unique cognitive abilities of workers and the accurate technical expertise of robots to bring in an innovative culture into the workforce. The era has introduced into organizations machines that reason like humans.

These machines are gradually replacing repetitive tasks and simplifying jobs that were once thought of as hard or laborious to perform.

Accompanying the 5IR are a set of new courses/disciplines introduced into institutions of higher learning and changes in the curriculum of higher education institutions to reflect the changes in society. All these stress libraries to modernize in relation to situations at hand. Unfortunately, libraries are part of other larger organizations. Decisions taken for libraries are most often taken outside libraries with the librarians as advisors. The libraries blossom or wilt based on the decision of the parent organisations. In the face of the current situation of libraries, it is important to examine the state of librarianship in the future from the perspectives of practicing librarians.

This study would be significant to policy makers in federal state and local government levels of Nigeria especially those interested in library matters. It will help to advice students and aspiring student of librarianship on the future prospects of their chosen career.

Statement of Problem.

The library world is changing drastically with the emergence of 5IR. Many routine work are now being performed by machines while laborious ones are being simplified. In overseas countries, these changes have been reflected on their staff, resources and services through reskilling of staff and employment of competent staff, procurement of modern equipment and introduction of new services. Unfortunately, the situation is not the same in Nigeria. In Nigeria, libraries continue to operate with staff that are not skilled in modern technologies, obsolete equipment, and old services that have outlived their relevance (Ekwueme, Oluwaseun, Ajie, Ofodu & Ambrose, 2024). This state of affairs may affect library use, the glamour of the library in many institutions and calls for inquiry in the future of the librarianship profession in Nigeria. It is based on this that this study set out to study the state of Nigerian Libraries and Librarianship in the future.

Objectives.

The following are the objectives of this study.

1. Examine the strength of Nigerian Libraries in the face of the 5IR.
2. Examine the weaknesses of Nigerian Libraries in the face of the 5IR.
3. Examine the prospects for strengthening Nigerian Libraries in the future to meet the demands of the 5IR.

Literature Review

Strength of Nigerian Libraries in the face of the 5IR

A good AI gives you a hundred plausible answers in one second; a good librarian advises you on what quality information to feed the AI in the first place and how to frame the right question to obtain valuable ideas and connections (Mental Garden, 2025). The study of Mental- Garden on Future of Libraries in the Digital Age, stress further that librarians will continue to serve as the guide in the search for information. On the other hand, Emmanuel (2020) added that librarians' distinctive skills, such as critical thinking, empathy, personalized or referral service cannot be replicated by Artificial Intelligence, rather, AI can become a complementary mechanism to librarians' artistry or creativity than replace it. Librarians' expertise will coexist with the AI opportunities. Thomas and Gilbert, (2024) demand the development of federated search (all in one search engine) for library users will cut down the need to seek for login details and searching through different databases to get needed information. These library app is expected to improve on the library-patron relationship and boost the use of library visits, both physical and virtual.

Emmanuel (2020) observed that librarians encourage implementing AI powered automation systems in libraries for proper use of library resources among the users. As a librarian, it is necessary to stay informed about the evolving role of artificial intelligence in libraries. Librarians in the era will maintain provision clear guidelines on AI adoption to the ethical implications and the importance of enhancing media literacy skills among library staff.

Weaknesses of Nigerian Libraries in the face of the 5IR

The notion of smart academic library is an idea largely welcomed theoretically and less in practice. This is evident in their capacity to adapt, their collection development approach, their capacity to adequately provide the needed technology for the patrons, the sagacity of academic librarians' technical know-how and show-how, the environment, management and logistics preparedness, their level of information literacy and the information user-behavior of especially the University management, library management and academic librarians (Thomas & Gilbert, 2024). while, Oluwatosin, Sylvester, Lukman, and Onivehu (2026) carried out a study via a survey of LIS professionals in academic libraries throughout North Central Nigeria and uncovers significant deficiencies in skills related to AI, cloud computing, and data literacy. The study emphasize need for ongoing professional development and curriculum revisions to include advanced information and communication technology (ICT) skills, to ensure librarians' pertinent in the digital era. And demand reskilling initiatives to equip LIS professionals for teamwork in data-centric settings within contemporary libraries. The survey of Adeyinka, et al., (2022) identified challenges that libraries in Nigeria may face, including funding and financial constraints, inadequate expertise, limited power supply or power outages, poor attitudes toward integration of new technologies, corruption, and a limited budget to procure the 4IR technologies. In addition, Thomas and Gilbert, (2024) also confirms that most public university libraries need re-skilling and up-skilling, new innovations

and approaches to deploy smart services. The study suggested quality alternative power supply to ameliorate these challenges.

Similarly, Umar (2018) support the views of Thomas and Gilbert by confirming that public libraries in Nigeria are almost not functioning because of lack of funds. And the Apex that is the National Library is still operating on rented accommodation while academic libraries depend heavily on tertiary education trust fund. Cyriacus (2024) summarized the challenges as funding resources by implementing advanced technologies like AI, IoT, robotics requires significant investment in infrastructure, software and staff training. Sivalingam and Mansori (2021) argued that without addressing infrastructural deficits and change management, libraries in Nigeria will lag in global transformation. Jamal et al., (2024) stated that library professionals must adapt to job redesign, upskilling that can significantly improve organisational agility. He further adds that librarians must possess high-level digital literacy, such as AI governance abilities, interdisciplinary collaboration capacity, adaptability to enhance readiness for 5th IR technology evolving in the world. United Nations(2020) argued that Poor information and communications technology in developing countries hinder governments in their efforts to implement 4IR changes. At same time broadband diffusion and infiltration, necessary for high-speed Internet access, lag in developing countries compared to the developed ones. Other challenges were also identified by Samuel,(2019) as unreliable power supply, inadequate technology infrastructure, absence of technical skills, poor attitudes toward advanced automation, perceived absence of senior management support, use of inappropriate library software, technophobia, shelving challenges, financial mismanagement and difficulties searching due to absence of a digitized system.

Prospects for Strengthening Nigerian Libraries in the Future to meet the demands of the 5IR.

Bhakar, (2023) who examine leveraging ICT and AI for enhanced library science stress that libraries are ready to accept symbiotic technology with tradition, coordinating their essentiality, connection and pertinence in community's knowledge hub. Added that libraries presume an affective role in the digital platform, complying with the digital transformation while bearing steadfast to the vision of library. On the other hand, Ingang, Eteobong and Okon (2025) attested that the 5th IR technology offers library profession unparalleled prospects for enhancing user experience and promoting inclusive access to knowledge. Also, promoting holistic access to knowledge by improving their tech savvy and efficiency in meeting the growing demand of a complex and competitive information society. However, Ingang et al., presents significant challenge to library professional; proactive strategies such as continuous upskilling, collaborative partnership, policy development and user education are needed to ensure libraries remain relevant, sustainable and impactful to their users in the digital era. Adeyinka (2020) maintained that the future of libraries is bright in the Fourth Industrial Revolution if they are ready and willing to invest in 4IR technologies. The study of Adeyinka, et al., (2022) posited that most respondents agreed that libraries in the country are ready for the Fourth Industrial Revolution, that it will have an impact on libraries. However, the future jobs of librarians in Nigeria are in danger of being replaced by technologies. The study suggested the need for libraries to increase their readiness for the 4IR era include a need to create awareness; to organize training, workshops, seminars and webinars; to promote collaboration among libraries; and to improve budget allocation for procurement of 4IR technologies, such as robotic technology, artificial intelligence, Internet of Things, big data, virtual and augmented reality, and block-chain. Thomas and Gilbert, (2024) added that smart academic library requires a lot of financial resources because the technologies involved are not cheap. So, fervent financial input is constantly needed to keep it running efficiently in an updated status.

Tunde (2025) in his study, reimaging libraries notes that for library professionals to maintain pertinent and effective in the 5th IR, they must adopt technology alignment, networking, continuous learning for the future service delivery. Simisaye, Salisu, and Awodoyin, (2018) urged librarians and libraries to involved in collaboration and networking among themselves to achieve their objective of provision of effective services to users. As the study stress further that this requires sacrifice, funds, knowledge of ICT, acquisition of requisite skills in retrieval and dissemination of information, teaching information literacy skills to users, adopting friendly attitude towards provisions of effective services to survive the 5th IR. Libraries must plan and control the ethical implications of making use of AI tools and techniques that could be biased against certain user groups (Diakopoulos, 2016). One of the notable ethical considerations for AI implication is that the technological knowhow is fair and equitable. Using artificial intelligence may cause data privacy to put in danger. AI technologies can have unexpected outcomes that may cause inconvenience to the individuals or groups. Hence, it is very much required to think about human rights while using AI algorithms. Libraries and information centres must setup a plan to align with the ethical values.

Research method.

This is a descriptive study that adopted a qualitative method. 15 selected librarians from different types of libraries, academic, special, public, research, and school libraries, were engaged through interviews and focus group discussions to elicit data for the study. The participants were recruited through the snowball sample method. First, the researchers

identified one librarian from each type of library, who then helped to identify others in his/her area. Table 1, presents the libraries that participated in the study and the number of participants from each Library type.

S/n	Type of Library	Parent Institution	Number of participants	Total number of participants from each type of Library
	Academic library	University of Nigeria, Nsuka. Ahmadu Bello University, Zaria Reademmers University, Ede, Osun State, Nigeria	2 1 1	3
	School Library	Professor Patric Okpoko Library, University of Nigeria, Secondary School, Nsukka. Children's Centre Library, University of Nigeria, Nsukka. International Nursery and Primary School Library, Trans-Ekulu, Enugu.	1 1	3
	Special Library	Climate Change Library, Institute of Climate Change and Adaptation Initiative (ACCAI), University of Nigeria, Nsukka. Knowledge Centre, International Institutie of Industrial Research (IITA), Ibadan.	2 1	3
	National Library	National Library of Nigeria, 227, Herbert Macaulay Way, Yaba, Lagos State. National Library of Nigeria, Festival Road, P.M.B. 1, Area 2 (Near Shopping Centre) Garki, Abuja. National Library of Nigeria, NTA road, beside E.S.B.S. junction, Enugu	1 1	3
	State Library	Kwara State Library No 16, Sulu Gambari way, opposite N.I.P.O.S.T. Office, Ilorin Kwara State. Kaduna State Library No 3 Bida road, opposite N.B.T.E., Kaduna Enugu State Library. Market Road, Opposite Mgbemena Park, Enugu.	1 1 1	3
	Total			15

The interview and focus group discussion were guided by an interview guide developed by the researchers. The interview guides contain both the main question as it was in the objectives of the study and probe questions. The probe questions were meant to guide the respondents into deeper understanding of the topic under discussion before responding. Both the interview and focus group discussion were carried out online at a platform (Whatsapp call) and time chosen by the participants. There were two sessions of the Focus group interview with eight persons in one and six persons in the other. In all, 14 respondents participated in the focus group discussion while one person participated in the one-on-one interview. The participants were given code names to boost their courage to speak boldly. Those who participated in the focus group interview were given the codes A-N, while the one-on-one interview participant was given code Z. The focus group discussion and interview were recorded using a phone recorder.
The data gathered from both the interview and the focus group were transcribed verbatim. The responses were sorted and coded into themes based on the objectives of the study.

Data analysis and presentation.

The strength of Nigerian Libraries in the face of the 5IR.

Responses show that the major strength of the librarianship profession in the future lay on the community they serve. These communities depending on the type of library include professional groups, researchers, students, school children and community people. Most of these groups are regular library space users. Participant C who is a librarian in an

academic library, commented, “Our users are our strength. They will always come because they need the quiet library space for studying”. In collaboration of what Participant C, said, Participants F, a school librarian added, “The children cannot afford to lose the fun they experience in the library. They will surely come. We have locally made games which they enjoy”.

Another point considered part of the library’s major strength is the ease with which user’s access library resources and personnel without much bureaucracy. Participant J, a special librarian, commented that, as much as Nigerians are still conducting research, they will always come to the library for help. The library is the only office where people gain attention instantly without filling visitors form. There is no bureaucracy in the library because the library emphasizes service without much waste of time.

Availability of computer laboratories, online resources, and information literacy training in libraries were all considered by the participants as strengths of the libraries. During the interview, participant Z said, “the availability of internet connectivity, computer laboratories, and empathic staff will always count positively for the library. The cost of internet connectivity is soaring, making it difficult for people to access online resources with private internet connections. So many people depended on the library for free internet connection”. Users such as these continued participant Z will also be on the side of the library if it comes to decisions regarding the survival of the library or the librarianship profession”.

The establishment of many private universities in Nigeria means that librarians are in demand in Nigeria to manage the university libraries. This creates a boom in Library and Information Science departments. Commenting on this, participant H, an academic librarian said, librarianship in the future will be a sort-aft profession in Nigeria because young people are more interested in courses that will place food on their tables without much stress. Many of them see the establishment of new universities in Nigeria as job creation for librarians, as such would like to study librarianship.

New responsibilities being placed on libraries by their parent institutions means that the interest of the librarianship profession will be protected in the future. It is in libraries that many academic institutions institutional repositories are domiciled. Libraries also help departments to overcome the hurdles of the accreditation exercise and resource verification. These new responsibilities said participant D, means that libraries and librarians are important to academic institutions.

Availability of some ICT equipment’s required for services in the 5IR era in some libraries means that these libraries have not much problem in rendering required services. Some libraries have internet connections, computer work station, computer laboratories, social media platforms and skilled staff. Such libraries noted participants E, have no problem in rendering modern library services and maintaining the royalty of their customers which is key sustaining the librarianship profession’. Many libraries chirped in participant K, an academic librarian, deploy Artificial Intelligence in serve delivery through the use of reading software, plagiarism checkers, online charging and discharging of learning materials”.

Another factor mentioned as part of the strength of the libraries is the availability of young and enthusiastic librarians who are eager to learn and innovate. These librarians observed participant K, an academic librarian, are drivers of the open access, open science and free knowledge movements”. These librarians noted participant B, are creating name for the library profession in Nigeria.

Weaknesses of Nigerian Librarians and Libraries in the face of the 5IR.

Responses show that among the major problems of libraries and librarianship in Nigeria in the era of the 5IR is the lack of materials. The facilities in many of the libraries are not functional, some of the functional ones are obsolete and not compatible with emerging technologies. Participant G, a public librarian commented, “many of the computers in our libraries are not internet compliant, and they are good for typing and printing only”. Participant I, another public librarian added, many of the libraries operate under leaking roofs which endangers the facilities they house, apart from this, the library building has very few power outlets making use of electronic devices difficult”.

Budget cuts was mentioned among the weaknesses of the libraries. Budget cuts was the reason many libraries cannot afford emerging technologies, replace obsolete ones, mend leaking roofs or procure relevant and current materials. It is also the reason many staff cannot be supported on professional development. In our library, said participant G, access to working materials such as stationeries have become almost impossible”.

Lack of policy guiding library services was mentioned also as part of the weaknesses libraries are facing. Many libraries are operating without a policy. This leads to inconsistencies in service delivery and project development as leadership changes hands. When organizations operate without policies, the future cannot be predicted.

Fluctuating internet connectivity and erratic electric power supply is another weakness mentioned by the participants. Without a strong internet connection and electric power supply, it would be difficult to use digital or online resources in the library. Participant I, commented, there are days in which there will be no electric power supply in the library at all. The solar panels supplied by government are not strong enough to support the building”.

Prospects for strengthening the libraries in the future.

Responses from the participants show a strong belief that the libraries will be improved by the parent bodies in the future. Among the reasons given for these are:

The need for universities to succeed in accreditation and resource verification exercises which will force university administrators to strengthen their libraries. Without input from the libraries, noted participant F, it will be difficult for academic departments to excel in accreditation and resource verification exercises.

The need for visibility needed for university rankings may force university administrators to invest in the University libraries. So also is the issue of the management of institutional repositories. Ranking is the tape with which the reputation of universities is measured and it cannot be achieved without strengthen the capacity of the libraries.

Increasing number of private and Federal Universities in the countries will lead to the employ of librarians to man the University libraries. It also means that departments of Library and information science in the universities will continue to flourish. The implication is that librarianship will thrive in the future said participant B.

Self-realization of the precarious state of libraries in the present dispensation and self-help initiative of many libraries may lead to the libraries being strengthened in the future. Many public libraries in the bid to survive work closely with community leaders and influential members of their community to sustain their libraries. Through this, the libraries are woven more closely into the heart of the community. Communities such as these always protect the interest of the library through financial and material support; and advocacy. Commenting on library community relationship, participant G, said, if not for community support, public libraries such as mine would have closed.

Seeking self-help is not left for public libraries alone. Academic libraries have also learnt to look out for help. Many academic libraries are currently running collaborations to sustain their users.

Discussion of Findings

The findings on the strength of Nigerian Libraries in the face of the 5IR admits that our users are our strength. They will always come because they need the quiet library space for studying and children cannot afford to lose the fun they experience in the library. They will surely come because of locally made games which they enjoy. The study uncovers the easy with which user's access library resources and personal without much bureaucracy. Some of the participant notes that as much as Nigerians are still conducting research, they will always come to the library for help. The library is the only office people gain attention instantly without filling visitors form. There is no bureaucracy in the library because the library emphasis service without much waste of time. This study is similar to that of Emmanuel Uwazie Anyanwu (2020) that asserts, the future of libraries in developing countries is bright if concerted effort is made to provide innovative services that will attract users to the library. The libraries should not wait for users to come to the library but introduce innovative relevant services which will be rendered to users in their homes and offices. Mental-Garden, (2025) shares similar view with this study, that a good AI gives you a hundred plausible answers in one second; a good librarian advises you on what quality information to feed the AI in the first place and how to frame the right question to obtain valuable ideas and connections. In the Digital Age, Mental-Garden stresses that librarians will continue to serve as the guide in the search for information. The discussants, further states that the new responsibilities of institutional repositories creators placed on libraries by academic institutions, indicates the interest of the librarianship profession will be protected in the future. More so, that libraries are key players in the success of accreditation exercise and resource verification.

The study reveals availability of some ICT equipment's required for services in the 5IR era in some libraries, means that these libraries have no much problem in rendering required services. Some libraries have internet connections, computer work station, computer laboratories, social media platforms and skilled staff. Such libraries noted by participants have no problem in rendering modern library services and maintaining the royalty of their customers which is key sustaining the librarianship profession. While, many libraries chirped in participant K, an academic librarian, deploy Artificial Intelligence in service delivery through the use of reading software, plagiarism checkers, online charging and discharging of learning materials.These support the findings in Adeyinka, et al., (2022) that most respondents viewed libraries in Nigeria as ready for the revolution and identified technologies some libraries have implemented. These technologies included automation of services; adoption of cloud computing services; subscription to online databases, e-resources, e-books, and e-journals; and the creation of an online public access catalog (OPAC). However, some respondents indicates that libraries in Nigeria are not ready, they explained that few libraries are automated except for academic libraries, which have tried to integrate new technologies such as cloud computing, social media, e-resources, and online databases to facilitate their service. Also, one respondent argued, no libraries in Nigeria have introduced 4IR technologies such as artificial intelligence, robotics, Internet of Things, block-chain, and the like to their services and operations; therefore, libraries are not ready.

Responses show that among the major problems of libraries and librarianship in Nigeria in the era of the 5IR is the lack of materials. The facilities in many of the libraries are not functional, some of the functional ones are obsolete and not compatible with emerging technologies. A participant of libraries commented that many of the computers in their libraries are not internet compliant, and they are good for typing and printing only. While other participant added that many public libraries operate under leaking roofs which endangers the facilities they house, apart from this, the library building has very few power outlets making use of electronic devices difficult. Budget cuts was mentioned among the

weaknesses of the libraries. This constitute a major reason many libraries cannot afford emerging technologies, replace obsolete ones, mend leaking roofs or procure relevant and current materials. This study is inline with the studies of Cyriacus, 2024; Adeyinka et al., 2022; and Samuel, 2019; who identified unreliable power supply, inadequate technology infrastructure, absence of technical skills, poor attitudes toward advanced automation, perceived absence of senior management support, use of inappropriate library software, techno-phobia, shelving challenges, funding and financial constraints, financial mismanagement, and difficulties searching due to absence of a digitized system. Their study added that libraries to increase their readiness for the revolution through awareness creation, organize training, workshops, seminars, and webinars; to promote collaboration among libraries; and to improve budget allocation for procurement of 4IR technologies, such as robotic technology, artificial intelligence, Internet of Things, big data, virtual and augmented reality, and block-chain.

Another, discovery of the study, is lack of policy guiding library services.This was pointed as a major weaknesses libraries are facing. The participants state that many libraries are operating without a policy and this leads to inconsistencies in service delivery and project development as leadership changes hands. When organizations operate without policies, the future cannot be predicted.

he study reveals self-realization of the precarious state of libraries in the present dispensation and self-help initiative of many libraries may lead to the libraries being strengthened in the future. Many public libraries in the bid to survive work closely with community leaders and influential members of their community to sustain their libraries. Through this, the libraries are woven more closely into the heart of the community. Communities such as these always protect the interest of the library through financial and material support; and advocacy. Commenting on library community relationship, a participant said, if not for community support, public libraries such as mine would have closed. The study is related to that Bhakar (2023) who expressed that libraries are ready to accept symbiotic technology with tradition, coordinating their essentiality, connection and pertinence in community's knowledge hub. In other words, librarians must adopt skills in providing information resources in the community and ensures everyone has access to information to acceptance and interest of them, contrary to that Peter (2024) asserts that there are new services in the research, teaching and learning which include big data, research data management, and open science such as open data, open access, open education resources and open methodology among others. This shows the librarians' new roles and responsibilities as researchers and teachers. Librarians now impacts skills on how information resources are accessed and evaluated in the future libraries.

The study uncovers ranking as the tape with which the reputation of universities is measured and it cannot be achieved without strengthen the capacity of the libraries. This may force university administrators to invest in the University libraries advanced technologies to maintain their reputation in the future.

Conclusion

This study set out to examine the state of Nigerian libraries and the prospects for librarianship in the era of the Fifth Industrial Revolution. The findings present a mixed but insightful picture of a profession at a critical transition point. On one hand, libraries continue to demonstrate enduring relevance through strong user patronage, community engagement, minimal bureaucratic barriers to access and the dedication of young and innovative librarians. These strengths reinforce the continued importance of libraries as knowledge hubs and facilitators of learning, research and cultural preservation. However, deep structural and systemic challenges that threatening the effective transformation of libraries in line with 5IR demands. Chronic under-funding, obsolete infrastructure, inadequate technological tools, erratic power supply, poor internet connectivity and the absence of clear policy frameworks significantly hinder service delivery and innovation. Additionally, gaps in digital skills and resistance to technological change among some professionals further limit the capacity of libraries to evolve.

Despite these challenges, the study identifies promising prospects driven by institutional needs such as accreditation, global university rankings, expansion of higher education and increased community involvement. These factors create opportunities for libraries to attract investment, strengthen their relevance and reposition themselves in the digital knowledge economy.

Theoretically, the findings align with existing literature that emphasizes the complementary role of librarians and emerging technologies, particularly artificial intelligence. Practically, the study highlights the urgent need for reskilling, infrastructural development, and strategic planning. From a policy perspective, it highlights the necessity for coordinated efforts by government agencies, professional bodies and institutional administrators to reposition Nigerian libraries for sustainability and competitiveness in the 5IR era.

Recommendations

The following recommendations are offered based on the empirical findings of this study:

1. Library management and parent institutions should build on the existing strengths of Nigerian libraries by improving user-centred services, sustaining community engagement, and expanding access to ICT facilities.
2. Government and institutional stakeholders should prioritize sustained funding to address infrastructural deficits, obsolete equipment and limited technological facilities.

3. Clear policy frameworks should be developed to guide library operations such as resource acquisition, management of institutional repositories, and computer laboratories.
4. Library management should seek financial assistance beyond the parent body's financial allocations. They can achieve this through engagement in grant writing, resource sharing and other partnerships that will reduce cost for the library while positively influencing availability of library resources.
5. Libraries, especially, university libraries should leverage on the new responsibilities (management of institutional repositories and participation in accreditation and resource verification exercises) entrusted to them to enhance their image before their parent institution. This will give them the opportunity of being favored during budget allocations.

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Towards Repositioning the identity of Librarianship for Institutional Capacity and the Future of Knowledge Services in Nigeria

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Abstract
Libraries have historically functioned as critical public institutions for knowledge preservation, civic education, and social advancement in Nigeria. However, persistent structural challenges ranging from chronic underfunding and weak policy implementation to the disruptive pressures of digital transformation and shifting user expectations have raised urgent questions about the future relevance of libraries and librarianship in the national development agenda. This paper critically examines the institutional, professional, and policy dimensions that must be urgently addressed if Nigerian libraries are to fulfil their potential as engines of national renewal. Using a qualitative conceptual research design that integrates systematic literature analysis, thematic policy review, and practitioner narratives, the paper interrogates how Nigerian libraries are responding and must further respond to contemporary demands for equitable access, community-centred knowledge services, and professional relevance. The main objective of the paper is to develop an evidence-informed framework for repositioning Nigerian libraries as active, resilient, and professionally dynamic contributors to national development and the knowledge economy. The paper identifies a persistent and widening disconnect between policy intentions and operational realities, and reveals that while isolated institutional innovations demonstrate proof of concept, the transformative repositioning of Nigerian libraries requires deliberate investment in four interlocking pillars: institutional capacity, professional development, policy coherence, and community embeddedness. The paper concludes by proposing the Integrated Library Renewal Framework (ILRF) as a context-responsive model for guiding the institutional and professional renaissance of Nigerian libraries.
Keywords: Nigerian libraries; librarianship; institutional capacity; professional renewal; national development; knowledge services; library policy; digital transformation; community libraries; NLA

Introduction

Libraries occupy a foundational position in the architecture of national development, functioning simultaneously as repositories of collective memory, platforms for lifelong learning, and equalising institutions that bridge socio-economic disparities in access to knowledge. In Nigeria, a country of over 220 million people that hosts the largest university system in Africa with 273 universities as of 2024 alone, more than any other country on the continent (World Education News and Reviews, 2024; Statista, 2024), libraries were once unambiguously central to educational provision, research infrastructure, and civic enlightenment. Yet today, many Nigerian libraries find themselves at a critical crossroads, confronted by a paradox: their mandate has never been more important, yet their institutional standing, public visibility, and professional authority have rarely been weaker. The challenges are well-documented. Chronic underfunding has depleted collections, prevented infrastructure upgrades, and stunted staff development; empirical evidence shows that most Nigerian universities allocate merely 2–5% of recurrent budgets to their libraries, far below the internationally recommended threshold of 10% (Sahabi & Otobo, 2022; Ojobor, Okafor & Ugwuanyi, 2025).

Weak governance structures have insulated libraries from the strategic priorities of their parent institutions and government ministries. The rapid proliferation of digital information through mobile internet penetration, which reached 134.78 million active internet subscriptions in Nigeria as of October 2024, accompanied by a record 870,398 terabytes of data consumed in that month alone (NCC, 2024; BusinessDay, 2024), has shifted public information behaviour decisively away from physical library spaces without a corresponding institutional response to digital service provision. Meanwhile, the professional identity of the Nigerian librarian has been squeezed between an outdated public image rooted in custodianship and an emerging global professional model anchored in information literacy education, research support, data management, and community knowledge facilitation (IFLA, 2024; Igbinovia, Segun-Adeniran & Okuonghae, 2025; Abdullahi et al., 2024). It is against this complex institutional backdrop that this paper has chosen to examine how to reposition Nigerian libraries by developing a framework for institutional change.

This paper is both a diagnosis and a call to action, and also an acknowledgement that the future of libraries cannot be assumed; it must be deliberately constructed through evidence-based policy, professional commitment, and institutional courage. The paper argues that repositioning Nigerian libraries for national renewal is not primarily a technological problem, though technology is indispensable, but a structural, professional, and political one. The central question is not whether Nigerian libraries can adopt new tools and platforms, but whether the institutional frameworks, professional cultures, and policy environments that govern libraries can be sufficiently strengthened and transformed to enable them to fulfil their potential as dynamic agents of national development. To address this question, the paper synthesises current

evidence on the state of Nigerian libraries, examines the conceptual dimensions of institutional capacity and professional identity, and proposes an integrated analytical and action framework grounded in the realities of the Nigerian context (Ojobor, Okafor & Ugwuanyi, 2025; Makinde & Oyekale, 2026).

Statement of the Problem

Despite the acknowledged strategic importance of libraries to Nigeria's education, research, governance, and social development objectives, Nigerian libraries continue to operate within fragile and often dysfunctional institutional environments. The existing body of literature reveals a consistent and deeply troubling pattern: policy documents affirm the importance of libraries, but implementation remains weak; funding is inadequate and irregularly disbursed; professional development opportunities are limited and unevenly distributed; governance structures are centralised and unresponsive; and community engagement models are largely underdeveloped (Sahabi & Otobo, 2022; Okafor et al., 2024). Significant competency gaps persist among library professionals, particularly in emerging technologies and digital information management. Furthermore, the emergence of digital technologies and evolving information behaviours has introduced new pressures without generating corresponding institutional or professional adaptations in most Nigerian libraries (Ojobor, Okafor & Ugwuanyi, 2025; Sadiku & Kasim, 2024). This paper identifies a critical gap: while individual studies have examined specific aspects of Nigerian library challenges, such as funding deficits, digital infrastructure, staff competencies, or policy frameworks, there is an absence of integrated, framework-driven analyses that link these dimensions to concrete pathways for institutional renewal and professional renaissance. Without such integration, responses to library challenges remain fragmented, reactive, and insufficiently anchored in the systemic conditions that perpetuate institutional weakness. As a result, the main objective of this paper is to develop an evidence-informed, context-responsive framework for repositioning Nigerian libraries as active, institutionally resilient, and professionally dynamic contributors to national renewal and the sustainable knowledge economy.

Research Objectives

The main objective of the paper is to determine an evidence-informed framework for repositioning Nigerian libraries as active, resilient, and professionally dynamic contributors to national development and the knowledge economy.

Methodology

This paper adopts a qualitative conceptual research design. Conceptual research is appropriate for this paper because the primary objective is not to generate new primary empirical data, but to synthesise, integrate, and critically interpret existing knowledge in order to develop a theoretical framework and policy-relevant conclusions (Jaakkola, 2020). The qualitative orientation allows for depth, context-sensitivity, and interpretive nuance that quantitative approaches are less equipped to provide in the analysis of complex institutional phenomena. The research design integrates three complementary methodological strands: systematic literature analysis, thematic policy review, and reflective practitioner synthesis. This multi-strand approach ensures that the analysis is anchored in the peer-reviewed knowledge base while remaining responsive to the specific institutional and policy contexts of Nigerian libraries. A systematic review of peer-reviewed literature published between 2016 and 2025 was conducted to identify the current state of knowledge on Nigerian library development, institutional capacity, professional identity, and digital transformation. Databases searched included Google Scholar, JSTOR, LISTA (Library, Information Science and Technology Abstracts), DOAJ, African Journals Online (AJOL), and the NLA Journal of Librarianship. Search terms included combinations of: Nigerian libraries; librarianship in Nigeria; library capacity; library policy in Nigeria; professional development librarians; digital libraries in Africa; library innovation in developing countries. References of retrieved articles were also manually scanned to identify additional relevant sources (backward citation searching). Articles were screened for relevance to the paper's objectives, methodological rigour, and recency of publication. In total, 49 peer-reviewed sources, 7 institutional reports, and 4 national policy documents were incorporated into the analysis. National and institutional policy documents relevant to library development and the knowledge economy in Nigeria were identified and reviewed. These included the National Policy on Education (revised edition), the National Digital Economy Policy for Nigeria 2020-2030, the NLA Strategic Plan (2025), relevant provisions of the Tertiary Education Trust Fund Act, and state library legislation in selected states. Policy documents were examined for consistency of intent, coherence with library development priorities, and evidence of implementation mechanisms. A thematic content analysis approach was applied, using pre-defined themes derived from the conceptual framework (institutional capacity, professional identity, policy alignment, digital transformation, community embeddedness). Insights from practising librarians in Nigerian academic, public, and special libraries were incorporated through three channels: (1) reflective accounts documented in recent NLA conference proceedings (2020–2025); (2) published practitioner commentary in professional association publications including the Nigerian Library Link and NLA Annual Reports; and (3) experience narratives shared in professional online platforms including the NLA WhatsApp Forum and the Nigerian Library and Information Science Educators (NALISE). These sources were treated as practitioner knowledge rather than primary empirical data, and were used to ground and contextualise the conceptual analysis in the lived realities of Nigerian library professionals. The synthesis of systematic literature analysis, policy review, and practitioner perspectives informed the development of the Integrated Library Renewal Framework (ILRF), proposed in Section 6 of this paper. The ILRF was constructed

iteratively through thematic coding of identified patterns and gaps, informed by the three theoretical lenses described in the paper. The framework was refined through intellectual dialogue with the IFLA Global Vision Framework (2021) and UNESCO's Library Development Roadmap (2022) to ensure international relevance while maintaining contextual specificity.

Literature Review

Libraries as Institutions of National Development: Global and African Perspectives

The case for libraries as engines of national development is deeply embedded in international policy frameworks. The IFLA–UNESCO Public Library Manifesto (2022) jointly updated and launched at the 87th World Library and Information Congress in Dublin and endorsed unanimously by UNESCO's Information for All Programme affirms the public library as "a living force for education, culture and information" and explicitly positions libraries as essential agents for advancing the Sustainable Development Goals and constructing more equitable and sustainable societies (IFLA & UNESCO, 2022). Devi, Gupta, and Arahova (2024), in a systematic review of IFLA's mobilisation of libraries toward the SDGs, demonstrate that public libraries, when adequately resourced and strategically aligned with community needs, serve as platforms for social integration, digital inclusion, and lifelong learning, functions that are critical in societies characterised by high inequality. The record year of 2023, in which over half of all UN Voluntary National Reviews referenced libraries' contributions to SDG implementation for the first time, further underscores the growing international recognition of libraries as cross-sectoral development assets (IFLA, 2023). In the African context, studies document the dual role of libraries as both mirrors and agents of development. Boakye-Achampong and Samb (2021), examining African libraries as development partners, found that libraries in Ghana contribute to SDG 3 (good health and well-being) and SDG 4 (quality education) through community outreach and information literacy programming, while being constrained by persistent perceptions among local government stakeholders as mere "lenders of books" rather than agents of innovation.

Bouaamri (2024), writing in Prospects, documents how public libraries across Africa, when properly resourced, serve as crucial social anchors for marginalised communities and engines of social inclusion and lifelong learning, while also cautioning that in many African countries, the role of libraries in strengthening the social contract remains largely unrecognised by policymakers. These findings underline the transformative potential of libraries in developing country contexts, a potential constrained, however, by institutional factors that are themselves products of broader political economy challenges. In Nigeria specifically, libraries have a long and significant institutional history. The establishment of the National Library of Nigeria in 1964, the development of public library systems in all 36 states, and the proliferation of academic and special libraries in universities, polytechnics, and research institutes reflect a historical recognition of libraries' national importance (Aguolu & Aguolu, 2002; Aina, 2014). The Tertiary Education Trust Fund (TETFund) has provided critical support to academic library development in federal institutions, and several landmark policy documents, including the National Policy on Education and various educational sector reform frameworks, have identified library development as a priority. Yet the gap between these policy commitments and operational realities has remained stubbornly persistent across decades (Sahabi & Otobo, 2022; Ojobor, Okafor & Ugwuanyi, 2025).

Institutional Capacity and Library Governance

Institutional capacity is a multi-dimensional concept that encompasses the human, financial, technological, and governance resources through which organisations pursue their mandates. DiMaggio and Powell's (1983) seminal work on institutional isomorphism helps explain why Nigerian libraries, despite operating in diverse contexts, tend to exhibit similar structural weaknesses: they are subject to the same regulatory frameworks, funding mechanisms, and professional norms, and have historically responded to similar external legitimacy pressures rather than to locally differentiated user needs. Scott's (2014) institutional framework further illuminates how regulatory, normative, and cultural-cognitive pillars shape organisational behaviour, a perspective that explains why superficial library reforms often fail to produce lasting change without concurrent shifts in governance culture. Recent scholarship has emphasised that genuine institutional capacity in libraries involves more than financial inputs; it requires coherent governance structures, transparent accountability mechanisms, strategic leadership, staff empowerment, and an organisational culture oriented towards continuous improvement and user responsiveness (Keller, 2023; Tariq et al., 2025). Yabanet et al. (2024), examining governance and service delivery in Nigerian university libraries, found that centralised, hierarchical governance structures with limited librarian autonomy were strongly associated with poor service responsiveness and low staff morale.

Similarly, Aghoghovwia and Ekereuche (2023) and Posigha and Idjai (2022) documented that institutional capacity constraints in Nigerian university libraries, including inadequate staffing, deteriorating physical infrastructure, and the absence of open-access policy frameworks, directly undermined operational effectiveness; notably, of the 19 institutional repositories from Nigeria identified in one review, only four were supported by any formal policy framework (Ejikeme & Ezema, 2024). The funding deficit is particularly acute. While no single authoritative national figure exists for library budget allocations across all Nigerian institutions, empirical evidence consistently indicates that most Nigerian universities allocate merely 2–5% of their recurrent budgets to libraries, far below the internationally recommended threshold of 10%, with severe adverse consequences for collections, staffing, and ICT infrastructure

(Sahabi & Otobo, 2022; Ojobor, Okafor & Ugwuanyi, 2025). The situation in public libraries is comparably dire, with state governments often treating library services as a low-priority recurrent expenditure subject to discretionary reduction during budget austerity periods. Nigeria's federal education budget allocation of only 7.9% of total government expenditure in 2024, well below UNESCO's recommended threshold of 15–20% for developing economies, compounds the crisis by restricting the overall envelope within which library subventions are determined (World Education News and Reviews, 2024). These funding realities severely constrain collection development, digital infrastructure investment, staff training, and community outreach, the very activities through which libraries demonstrate their value to stakeholders.

Professional Identity and the Evolving Role of the Librarian

The concept of professional identity in librarianship has undergone significant theoretical and practical evolution. Traditionally anchored in custodianship, the preservation and organisation of physical collections librarian identity has progressively expanded to encompass information literacy instruction, research data management, scholarly communication support, digital preservation, and community knowledge facilitation (Corrall, 2014; Cox & Pinfield, 2022). This expanded role reflects the broader transformation of information environments and the growing recognition that librarians possess specialised competencies in the organisation, retrieval, evaluation, and communication of information that are increasingly valuable in knowledge-intensive social and economic contexts. Igbinovia, Segun-Adeniran, and Okuonghae (2025), writing specifically on university libraries, argue that data literacy and technological infrastructure have become prerequisites for the successful implementation of research data management services, positioning the contemporary librarian as an active knowledge intermediary, research partner, and community advocate rather than a passive keeper of resources. The IFLA–UNESCO Public Library Manifesto (2022) has similarly repositioned the professional identity of librarians within the SDG framework, emphasising their roles as trusted information guides, advocates for information equity, and community empowerment agents operating at the nexus of education, civic participation, and digital inclusion.

In the Nigerian context, professional identity transformation has been uneven and frequently obstructed by structural barriers. A 2024 study on competency needs among Nigerian library and information service providers found significant gaps in emerging technologies and digital information management, particularly among professionals in academic, public, and school libraries, indicating a pressing need for targeted and sustained professional development interventions. Makinde and Oyekale (2026) found that while digital literacy skills among Nigerian university library personnel jointly predicted social media use and community engagement, awareness and practice remained constrained by infrastructural deficits and inadequate institutional support. The Nigerian Library Association has made important contributions through its annual conferences, workshops, and certification programmes; however, these interventions have not yet been sufficient to produce a sector-wide professional transformation (Sahabi & Otobo, 2022). Critically, professional identity in librarianship is also shaped by public perception and institutional recognition. Where librarians are perceived by university administrators, government officials, and communities as peripheral support staff rather than strategic knowledge professionals, their capacity to advocate for institutional resources and policy recognition is severely constrained. Building a more assertive, visible, and strategically engaged professional identity is therefore not merely a matter of individual professional development; it requires a collective, institutionally supported, and politically aware professional project (Boakye-Achampong & Samb, 2021; Devi et al., 2024).

Digital Transformation and Nigerian Libraries

Digital transformation has profoundly reshaped the information landscape in which Nigerian libraries operate. Nigeria's digital infrastructure has expanded rapidly in recent years: active internet subscriptions reached 134.78 million in October 2024, and data consumption hit a record 870,398 terabytes in that month, a 28.9% increase from the same period in 2023, driven by expanding 4G coverage, smartphone proliferation, and growing consumer demand for digital connectivity (NCC, 2024; BusinessDay, 2024). Broadband penetration rose to 42.24% by October 2024, and the ICT sector contributed 19.78% of Nigeria's real GDP in Q2 2024 (NCC, 2024; U.S. International Trade Administration, 2024). These developments have created both a challenge and an opportunity for libraries. The challenge is that users increasingly expect information access to be seamless, digital, and on-demand, a standard that many Nigerian libraries, with their limited digital infrastructure and collection backlogs, cannot yet meet. The opportunity is that digital tools, including open-access repositories, digital collections, online reference services, and mobile library applications, offer cost-effective pathways to dramatically expanded service reach if libraries can acquire the requisite infrastructure and skills.

Studies on digital service provision in Nigerian academic libraries present a mixed picture. Yabanet et al. (2024) found that digital transformation remained far from fully embraced in Nigerian university libraries, with no significant change in the use of digital technologies in service deployment pre- and post-COVID-19, the greatest barriers being paucity of funds and inadequate infrastructure. Ejikeme and Ezema (2024), examining institutional repositories in South-East Nigeria, noted that most implementations had proceeded without policy frameworks, significantly constraining repository sustainability and low submission rates. In contrast, a developing open-access ecology is emerging: the LIBSENSE initiative published a model open science policy for Nigeria in 2024, and Nigeria has grown its institutional

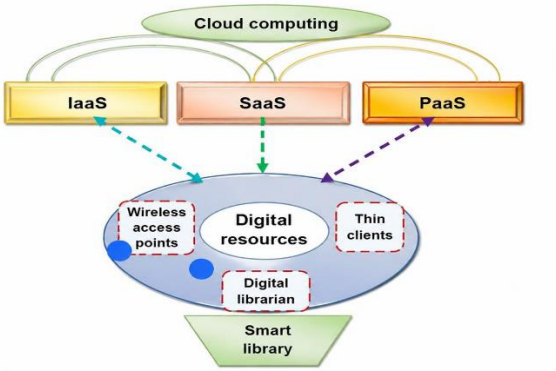
repository infrastructure incrementally, albeit unevenly, since the launch of the Covenant University Repository in 2008 (MDPI Blog, 2025). Idhalama, Oredo, and Makori (2025), in a comprehensive assessment of digital resources in Nigerian public university libraries, documented persistent challenges of inadequate digital acquisition, limited e-resource licensing, and low librarian digital literacy, while identifying strategic partnerships and open-access integration as viable pathways to expanded service capacity. The COVID-19 pandemic, despite its devastating consequences, served as an inadvertent catalyst for digital engagement in Nigerian libraries; institutions suspended from physical operations were compelled to develop virtual reference services and digital collection access, with some libraries leveraging social media platforms, particularly Telegram, WhatsApp, and Twitter/X to disseminate information resources to users (Sahabi & Otobo, 2022; Idhalama, Oredo & Makori, 2025).

Policy Environment and National Development Alignment

The policy environment governing Nigerian libraries is characterised by ambition without implementation capacity. The National Policy on Education (revised 2014) explicitly mandates the provision of adequate library services at all levels of education. The National Library Act, the Nigerian Library Association Act, and various state library laws establish the regulatory framework for library operations. The National Digital Economy Policy and Strategy 2020–2030 (Federal Ministry of Communications and Digital Economy, 2020), built on eight pillars including digital literacy and skills, solid infrastructure, and digital society and emerging technologies, creates an enabling legislative context for digital library development. Yet the gap between legislative intent and operational reality persists, with the 2024 federal budget allocating only 7.9% of government expenditure to education, well below UNESCO's recommended threshold (World Education News and Reviews, 2024). A fundamental problem is that library policy in Nigeria exists primarily within the education sector, without meaningful cross-sectoral integration into national development planning, poverty reduction strategies, digital economy implementation, or health literacy frameworks (Sahabi & Otobo, 2022; Ojobor, Okafor & Ugwuanyi, 2025). This silo effect deprives libraries of opportunities to position themselves as contributors to agricultural information dissemination, financial inclusion, entrepreneurship support, and civic education functions that international evidence shows libraries can perform effectively when appropriately resourced and strategically positioned (IFLA & UNESCO, 2022; Devi, Gupta & Arahova, 2024). Building the policy case for libraries as cross-sectoral national development assets, rather than education-sector appendages, is an urgent advocacy priority for the Nigerian Library Association and its institutional partners.

Emerging Models of Library Innovation in Africa and Nigeria

Despite persistent structural challenges, there is evidence of innovative library practice emerging across Africa and within Nigeria that offers instructive models for institutional renewal. The concept of the library-as-community-hub has gained traction across sub-Saharan Africa, with libraries being repurposed as multi-function community spaces hosting digital literacy training, entrepreneurship workshops, health information sessions, and civic engagement programmes (Boakye-Achampong & Samb, 2021; Bouaamri, 2024). In Kenya and Namibia, public library systems have been transformed into community access points for digital inclusion and e-government services, with capacity-building programmes reaching over 2,300 librarians across six African countries through 2024 under EIFL's Public Library Innovation Programme (EIFL, 2024). Academic libraries in South Africa have been documented as active contributors to SDG 4 through information literacy instruction extended beyond their institutional walls to surrounding communities (Bangani, 2024). Within Nigeria, isolated but instructive examples of innovation are emerging. The Kenneth Dike Library at the University of Ibadan has developed an institutional repository infrastructure for open-access scholarly communication; LIBSENSE published a Nigerian Open Science Roadmap in 2021 and a model open science policy in 2024, signalling growing national commitment to open access (MDPI Blog, 2025). Several academic libraries have established partnerships with academic departments to deliver embedded information literacy instruction within curricula. Some university libraries have leveraged social media platforms to extend reference and information services during disruptions (Sahabi & Otobo, 2022). These examples, though insufficient in scale to characterise systemic transformation, demonstrate that institutional renewal is achievable within Nigerian constraints and provide benchmarks for replication and scaling (Ojobor, Okafor & Ugwuanyi, 2025; Idhalama, Oredo & Makori, 2025).



The Institutional Realities of Nigerian Libraries

Funding inadequacy emerges consistently across the literature as the single most pervasive constraint on Nigerian library development. Empirical evidence indicates that most Nigerian universities allocate merely 2–5% of recurrent budgets to their libraries, far below the internationally recommended threshold of 10% set by the National Council of Higher Education, with severe consequences for collections, staffing, and ICT infrastructure (Sahabi & Otobo, 2022; Ojobor, Okafor & Ugwuanyi, 2025). In absolute terms, Nigeria's 2024 federal education budget of approximately N1.59 trillion representing just 7.9% of total federal expenditure, well below UNESCO's recommended 15–20% has been further skewed by the fact that over 65% of education spending is absorbed by personnel costs, leaving minimal capital investment for infrastructure, digital tools, and library development (BusinessDay, 2025; World Education News and Reviews, 2024). Public library systems face comparable and, in some states, worse funding environments, with several state library boards operating without approved budgets in recent fiscal years, a consequence of the sustained subordination of library provision to more politically visible expenditure lines. The consequences of chronic underfunding are multi-generational: collections have not kept pace with knowledge production, leaving many academic libraries holding outdated textbooks and reference works; digital infrastructure, including internet connectivity, e-resource subscriptions, and institutional repository platforms, remains underdeveloped; physical library buildings are often in states of significant disrepair; and staff training budgets are negligible (Idhalama, Oredo & Makori, 2025; Ejikeme & Ezema, 2024). TETFund interventions have provided critical support to federal university libraries with its ICT support intervention scaled from N15 million to N100 million per university from 2022 onwards, and 607 infrastructural projects completed between January and October 2022 alone, yet this impact is uneven and does not extend to state institutions or public libraries (Ogunode et al., 2024; Onyeneke & Ahaneku, 2021). The absence of a dedicated, sustained library development fund at the federal and state levels, independent of the fluctuating TETFund cycle, represents a critical structural gap.

The governance structures within which Nigerian libraries operate are characterised by centralisation, limited autonomy, and weak accountability. University library directors frequently lack decision-making authority over staffing, budgets, and strategic direction; these powers are concentrated in vice-chancellors' offices or bursary departments with a limited understanding of library operational requirements (Sahabi & Otobo, 2022). Public library boards, where they function at all, are typically politically appointed bodies without library professional representation, generating governance decisions disconnected from operational realities. At the policy level, a persistent implementation gap exists between the formal recognition of library importance in national policy documents and the actual allocation of resources and political will necessary to fulfil this recognition. Libraries are mentioned in the National Policy on Education but are largely absent from the National Digital Economy Policy and Strategy 2020–2030, poverty reduction frameworks, and national health literacy strategies, a policy silo that constrains their perceived relevance and limits opportunities for cross-sectoral resource mobilisation (Federal Ministry of Communications and Digital Economy, 2020; Ojobor, Okafor & Ugwuanyi, 2025). The Nigerian Library Association has made important advocacy advances through its professional development programmes and strategic engagements with government, but professional association advocacy requires sustained governmental uptake and institutional response to produce systemic change.

Physical library infrastructure across Nigerian institutions ranges from adequate in a small number of flagship universities to severely dilapidated in most polytechnics, colleges of education, and public library systems. Overcrowded reading rooms, inadequate power supply compounded by Nigeria's chronic electricity challenge, limited accessibility facilities, and deteriorating furniture create learning environments that actively deter physical library use, particularly among younger, digitally connected students who have alternative study options (Ogunode et al., 2024; Nakaziba & Ngulube, 2025). Digital infrastructure presents a similarly uneven picture. While all federal universities now have internet connectivity, supported in part by TETFund and the National Information Technology Development Agency (NITDA), bandwidth is frequently insufficient for reliable digital service delivery (Yabanet et al., 2024). E-resource subscriptions, the lifeblood of contemporary academic library services, are available in only a small subset of Nigerian universities through institutional licences. The Research4Life consortium (comprising HINARI, AGORA, OARE, GOALI, and ARDI), a public-private partnership coordinated by the World Health Organization, FAO, UNEP, and WIPO, provides qualifying Nigerian institutions with free or very low-cost access to tens of thousands of peer-reviewed journals and books from over 150 publishers across health, agriculture, environment, law, and the social sciences; however, awareness and systematic use of this resource among Nigerian researchers, librarians, and library users remains suboptimal, representing a significant missed opportunity for expanding access without additional expenditure (Research4Life, 2024; Idhalama, Oredo & Makori, 2025).

Despite these challenges, the literature documents pockets of institutional innovation that provide proof of concept for library renewal. Several Nigerian academic libraries have established functional institutional repositories, including the University of Ibadan's IR, Covenant University's library digital services (established in 2008 as one of Nigeria's first institutional repositories), and the LIBSENSE-supported open science infrastructure (MDPI Blog, 2025; Ejikeme & Ezema, 2024), demonstrating that open access infrastructure can be developed within Nigerian resource constraints.

Several polytechnic and university libraries have pioneered embedded librarianship models, in which library professionals are integrated into academic department teams to provide tailored research support. Community library initiatives, including the Lekki Public Library model in Lagos and mobile library outreach programmes in Edo and Ogun states, have demonstrated that public libraries can become vibrant community spaces when provided with adequate resources and community-responsive leadership (Ojobor, Okafor & Ugwuanyi, 2025). These innovations share common enabling factors: visionary institutional leadership, active professional development within the library team, external partnerships with NGOs, international organisations, or corporate sponsors, and a deliberate orientation towards community responsiveness rather than administrative compliance. They provide an instructive evidence base for the framework proposed in the following section.

Professional Identity and the Nigerian Librarian

The global redefinition of the librarian's professional role from passive custodian to active knowledge facilitator has created both an opportunity and an obligation for Nigerian library professionals. Contemporary librarianship demands competency across multiple domains: information literacy instruction, systematic research support, scholarly communication and open access advocacy, research data management, digital curation, community outreach, and institutional strategic leadership (Cox & Pinfield, 2022; IFLA & UNESCO, 2022; Igbinovia, Segun-Adeniran & Okuonghae, 2025). These expanded competencies reflect the recognition that libraries and, by extension, librarians are not peripheral to knowledge production and use but are central to it. In Nigeria, evidence of role transformation is growing but uneven. Librarians in well-resourced academic settings are increasingly engaging in information literacy instruction, bibliometric analysis support, and research data management (Igbinovia, Segun-Adeniran & Okuonghae, 2025). Library schools in Nigerian universities have progressively updated curricula to incorporate digital librarianship, data science, and knowledge management, and the LIBSENSE initiative's 2024 Nigerian Open Science Roadmap has created a framework for libraries to engage substantively in open access policy and scholarly communication (MDPI Blog, 2025). However, the majority of practising Nigerian librarians, particularly those in polytechnics, colleges of education, special libraries, and public library systems, continue to operate in environments where outdated role perceptions, inadequate staffing, and limited access to continuing professional development (CPD) constrain professional transformation (Nakaziba & Ngulube, 2025).

Four interlocking barriers to professional renewal emerge consistently from the literature. First, inadequate access to continuing professional development — a function of limited institutional CPD budgets, geographic barriers to professional events, and restricted internet access for online learning prevents many Nigerian librarians from acquiring the updated competencies their expanded roles require (Nakaziba & Ngulube, 2025; Osiesi et al., 2022). Second, weak institutional recognition of library professionals as strategic knowledge workers, manifested in low pay grades, limited career progression pathways, and exclusion from institutional decision-making, reduces motivation and capacity for professional investment (Appiah et al., 2024). Third, the absence of a strong mentorship culture within Nigerian librarianship creates professional isolation, particularly for early-career librarians in under-resourced institutions, a gap identified as especially acute in studies of CPD in sub-Saharan African academic libraries (Nakaziba & Ngulube, 2025). Fourth, the legacy perception of libraries as administrative rather than academic units in many institutions constrains how librarians are perceived by peers, administrators, and communities, a perception that professional advocacy and demonstrated impact must actively and persistently challenge (Boakye-Achampong & Samb, 2021)

Where professional renewal is occurring, it is driven by identifiable enablers. Participation in the Nigerian Library Association's activities, in regional networks such as the African Library and Information Associations and Institutions (AfLIA), which provides courses on open access, open educational resources, and early literacy through regular cohort programmes and in international professional communities, including IFLA and CILIP, provides access to global knowledge, peer networks, and professional development resources that partly compensate for limited institutional CPD investment (AfLIA, 2024; EIFL, 2024). The growing availability of free and low-cost online professional development resources, including IFLA's continuing professional development guidelines and training materials, AfLIA's Openness for African Librarians short courses, and Research4Life's information literacy training modules, is enabling a cohort of technologically motivated Nigerian librarians to self-develop competencies in digital services, data management, and open access (Research4Life, 2024; AfLIA, 2024). Mentorship relationships with internationally connected senior colleagues and participation in Commonwealth, Carnegie, and Mortenson Centre CPD programmes have also been identified as important catalysts for professional transformation in Nigerian and African librarianship contexts (Nakaziba & Ngulube, 2025; IFLA, 2016). These enablers suggest that professional renewal in Nigerian librarianship is not dependent solely on institutional funding; it can be fostered through deliberate professional community building, peer learning networks, and self-directed development strategies, provided that the enabling infrastructure (reliable internet access, professional association membership, exposure to innovation communities) is made broadly accessible.

Theoretical Framework

Institutional Theory (DiMaggio & Powell, 1983; Scott, 2014). A sociological framework explaining how organisations are shaped by their regulatory, normative, and cultural-cognitive environments. Applied to Nigerian libraries, it explains

why institutional weaknesses persist despite policy pronouncements, and how external legitimacy pressures can substitute for genuine performance improvement, Capacity Development Theory (Morgan, 2006). A development framework that identifies five core capabilities: the capability to commit and engage, execute, relate and attract resources, adapt and self-renew, and achieve coherence as the foundation of sustainable organisational performance. Applied to Nigerian libraries, it provides a multi-dimensional lens for assessing what genuine institutional renewal requires. Professional Identity Theory (Ibarra, 1999; Hallam et al., 2022). A theoretical perspective emphasising that professional identity is constructed through practice, narrative, and social recognition rather than being a fixed attribute. For Nigerian librarians, this implies that professional renewal requires not only training but also changes in institutional culture, public advocacy, and professional community. These three theoretical lenses, Institutional Theory, Capacity Development Theory, and Professional Identity Theory, provide the conceptual architecture through which this paper analyses the challenges and opportunities facing Nigerian libraries. They direct attention to the structural, organisational, and individual dimensions of library renewal simultaneously, preventing the analytical reductionism that occurs when any single dimension is treated as the primary or exclusive explanation for institutional performance.

The Integrated Library Renewal Framework (ILRF): Repositioning Nigerian Libraries

Drawing on the systematic literature analysis, policy review, theoretical framework, and institutional findings presented in the preceding sections, this paper proposes the Integrated Library Renewal Framework (ILRF) as a context-responsive, evidence-based model for repositioning Nigerian libraries as active contributors to national renewal. The ILRF is structured around four interlocking pillars, each addressing a critical dimension of library development identified in the analysis, and supported by specific enabling strategies.

Table 1: The Integrated Library Renewal Framework (ILRF)

NO	Pillar	Core Focus	Key Enabling Strategies	Expected Outcome
1.	Institutional Capacity	Strengthening the material, human, and governance foundations of library operations	Dedicated library development funding; governance reform; infrastructure upgrading; e-resource consortia; strategic planning mandates	Libraries with adequate resources, capable leadership, and accountable governance structures
2.	Professional Renaissance	Rebuilding the professional identity, competence, and strategic agency of Nigerian librarians	Structured CPD programmes; mentorship networks; revised LIS curricula; professional certification pathways; international partnerships	A confident, competent, and community-responsive library professional workforce
3.	Policy Coherence	Aligning library development with national education, digital economy, and social development priorities	Cross-sectoral library policy mainstreaming; NLA-led advocacy; legislative updates; SDG-library alignment frameworks	Libraries positioned as central to national development across multiple sectors, not only education
4.	Community Embeddedness	Repositioning libraries as inclusive, responsive, and trusted community knowledge partners	Community needs assessments; mobile and outreach library services; health, financial, and civic information programmes; digital inclusion initiatives.	Libraries that actively serve marginalised communities and are perceived as relevant, accessible, and trustworthy

Institutional Capacity: Strengthening the Foundation

No meaningful library renewal is possible without addressing the material and governance foundations of institutional capacity. This pillar calls for the establishment of a dedicated National Library Development Fund, jointly administered by the Federal Ministry of Education, TETFund, and the National Library of Nigeria, to provide sustained capital and recurrent grant support to all categories of libraries: academic, public, special, and school. Allocation criteria should be transparent, performance-linked, and calibrated to institution size and developmental need. Governance reform is equally essential. Academic library directors should be accorded institutional status equivalent to deans of academic faculties, with direct access to university management and inclusion in institutional strategic planning processes. Public library boards should be professionally constituted, with library scientists in leadership positions, and should operate under performance contracts that specify service delivery targets and accountability mechanisms. Every library, be it academic, public, or special, should be required to maintain and publish a three-year strategic plan, subject to periodic independent review.

1. Professional Renaissance: Rebuilding the Librarian

Professional renaissance requires a multi-pronged strategy targeting individual competency development, collective professional identity, and institutional recognition. The NLA, in partnership with library schools, should develop a mandatory Continuous Professional Development (CPD) framework that specifies minimum annual CPD hours for professional librarians across competency domains: digital services, research support, community engagement, leadership, and information ethics. CPD participation should be a condition of the Library and Registration Council of Nigeria (LRCN) licence renewal, creating a structural mechanism for sustained professional development. Library schools in Nigerian universities should urgently revise their curricula to align with the competency framework proposed by IFLA (2021) and Hallam et al. (2022), incorporating digital librarianship, data science for libraries, research data management, scholarly communication, and community information services as core curricular components. Mentorship programmes should be institutionalised within the NLA, pairing early-career librarians with experienced mentors in Nigeria and through international partnerships with practising professionals in Ghana, Kenya, South Africa, the United Kingdom, and the United States.

2. Policy Coherence: From Education Silo to National Asset

The repositioning of libraries as cross-sectoral national development assets requires deliberate and sustained policy advocacy. The NLA should develop and actively promote a Nigerian Libraries and National Development Policy Brief directed at the National Assembly, the Federal Executive Council, state governments, and development partners that articulates the evidence base for library investment across the SDGs, the digital economy agenda, and national health, agricultural, and financial inclusion programmes. This advocacy should be coordinated with sister organisations, including the Library Council of Nigeria, NALISE, and international bodies, including IFLA and AfLIA. At the legislative level, the National Library Act and state library laws require updating to reflect contemporary library service realities, digital infrastructure mandates, and professional standards. Legislative advocacy should prioritise the inclusion of library infrastructure targets in the national budget framework and the digital economy action plan, and should seek mandatory library services provisions in education sector compacts at all levels.

Community Embeddedness: Libraries for the People

The fourth pillar repositions libraries, particularly public libraries, as actively embedded partners in community life rather than passive repositories of resources waiting to be visited. This requires a fundamental reorientation of service models from "come to us" to "we come to you", implemented through mobile library services, outreach programmes in markets, health centres, and community meeting spaces, digital literacy workshops for community members of all ages, and co-designed library spaces that reflect community identity and priorities. Community embeddedness also means that libraries actively curate and disseminate locally relevant information, agricultural extension advice, public health information, voter education resources, small business regulatory guidance, and indigenous knowledge documentation in local languages and accessible formats. Partnerships with NGOs, civil society organisations, community-based organisations, state ministry extension services, and the private sector can provide resources, content expertise, and community networks that expand library reach and impact beyond what institutional budgets alone could support.

Conclusion

This paper has argued that repositioning Nigerian libraries for national renewal is simultaneously one of the most urgent and most achievable institutional development challenges facing Nigeria's knowledge sector. The analysis confirms that the challenges confronting Nigerian libraries, chronic underfunding, governance dysfunction, professional identity erosion, policy marginalisation, and digital infrastructure deficits, are deep and systemic, and cannot be addressed by piecemeal technological or programmatic interventions alone. But the analysis also confirms that the resources necessary for renewal professional commitment, institutional knowledge, international partnerships, proven innovation models, and a vibrant professional association already exist within the Nigerian library ecosystem, awaiting the institutional frameworks, policy support, and strategic leadership to deploy them at scale. The ILRF proposed in this paper provides a structured, theoretically grounded, and evidence-informed roadmap for this renewal. Its four pillars, Institutional Capacity, Professional Renaissance, Policy Coherence, and Community Embeddedness, are mutually reinforcing: progress on any one pillar creates enabling conditions for the others, and neglect of any pillar weakens the entire renewal project. Implementation of the ILRF requires engagement from multiple actors: federal and state governments, university administrations, the Nigerian Library Association, library schools, the LRCN, development partners, and individual library professionals. The future of libraries in Nigeria is not written. It will be shaped by the decisions, investments, and advocacy of this generation of library professionals. There is reason for cautious optimism: the professional awareness, global connectivity, and institutional knowledge of today's Nigerian librarians are greater than at any previous point in the profession's history. The question is whether this generation will harness these assets within the framework of a coherent, sustained, and politically engaged renewal strategy to build the libraries that Nigeria's future demands and deserves.

Recommendations

Based on the gap identified in the paper, the paper therefore recommended that;

1. The government should establish a dedicated National Library Development Fund, administered jointly by the Federal Ministry of Education, TETFund, and the National Library of Nigeria, to provide sustainable capital and recurrent grant support to academic, public, special, and school libraries across all states.
2. The NLA should develop and officially adopt the Integrated Library Renewal Framework (ILRF), or a comparable integrated policy platform, as the professional association's official strategic advocacy agenda for the 2026–2030 cycle, with clear implementation milestones, monitoring indicators, and annual progress reporting.
3. Library administrators should implement embedded librarianship models in academic institutions, integrating library professionals into research teams, academic departments, and student learning support systems to demonstrate and deliver expanded professional roles.
4. Library Educators should urgently revise undergraduate and postgraduate LIS curricula to incorporate digital librarianship, data science for libraries, scholarly communication and open access, research data management, community information services, and library advocacy as core, not elective, modules. As well as building stronger curriculum connections between library schools and practising library institutions, through internship programmes, practitioner guest lecture series, action-research partnerships, and co-designed continuing education programmes for working librarians.
5. Librarians should invest proactively in self-directed professional development through free and low-cost online platforms, including IFLA's training programmes, Coursera, edX, and YouTube tutorial channels, to acquire digital, research support, and community engagement competencies independently of institutional CPD budgets.

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Towards Successful Library Funding in Nigeria: Present and Future Sustainability Strategies for Air Force Institute of Technology (AFIT) Kaduna Library

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Abstract

This paper examines the contemporary funding challenges and future sustainability strategies for Nigerian academic libraries generally situating the Air Force Institute of Technology (AFIT) Kaduna Library, within the broader landscape of Nigerian library funding. This study is an empirical literature review of current publications not older than ten (10) years aimed at exploring the funding sources, challenges related to technology adoption, and current sustainability approaches in Nigerian Libraries, aiming to create a practical model for financial resilience and service continuity. Based on the review of relevant empirical literature, the study revealed that the Libraries in Nigeria, despite benefiting from institutional funding and TETFund interventions, faces systemic constraints such as bureaucratic allocation processes, limited budgetary prioritization, and infrastructural deficits that hinder technological advancement. The study further revealed the need for multidimensional strategies, including smart library applications, green library initiatives, strategic partnerships, and diversified funding streams to enhance sustainability and innovation. The study concluded by recommending the implementation of a phased sustainability framework that would include: the institutionalization of a Library Development Levy (LDL); Broaden the Funding Model Beyond Institutional Allocation; Leverage Consortia and Open Access to Cut Costs; to Integrate Library Funding Advocacy into Institutional Strategy and to provide actionable pathways for transforming the AFIT Library into a model of financial innovation and technological excellence within Nigeria's military academic institutions, while also contributing to broader discussions on sustainable library funding in resource-constrained environments.

Keywords: AFIT Kaduna, Library Funding Challenges, Military Academic Libraries, Nigeria, Resource Allocation, Specialized Libraries, Sustainable Funding Models.

Introduction

In Nigeria, funding for libraries has historically been a vital but frequently neglected aspect of educational progress. Although libraries are recognized as essential for teaching, learning, and research, numerous academic libraries in Nigeria function with significantly limited budgets, frequently receiving funding that is lower than the suggested percentage of institutional spending. This persistent lack of funding has led to a series of problems for academic libraries, such as insufficient physical collections, outdated information resources, inadequate infrastructure, and difficulty in retaining professional staff. As a result, these libraries face challenges in meeting their primary responsibility of delivering timely, relevant, and thorough information services to their users (Nwali, 2016).

Funding academic libraries in Nigeria has experienced some changes thanks to the Tertiary Education Trust Fund (TETFund), which allocates specific resources for library development, such as acquiring books, journals, and ICT facilities. (NUC (National Universities Commission, 2017 & Agboola, 2015).

In light of this context, the current study is clearly needed and justified. Although there is considerable research on the funding of traditional Nigerian university libraries, there are limited studies that have directly explored the funding dynamics, barriers to technology adoption, and sustainability strategies specific to military-related academic libraries such as AFIT. This research, consequently, aims to explore through empirical reviews the funding sources, challenges related to technology adoption, and current sustainability approaches of libraries in Nigeria that will in turn assist the Air Force Institute of Technology Library to create a practical model for financial resilience and service continuity.

Literature Review

Funding Patterns in Nigerian Academic Libraries

Research has consistently highlighted the unstable funding situation of Nigerian academic libraries over the last seven years. Aboh (2025) carried out a descriptive survey of seven federal university libraries in Nigeria's North Central area, which includes the Federal Capital Territory, and discovered that government grants, especially TETFund special needs assessment grants, were the primary source of funding for these institutions. The research, which utilized a complete enumeration of 88 library personnel through questionnaires, observation checklists, and structured interview schedules, indicated that library registration fees, service charges from tailored offerings, and penalties from lost books or user tickets surfaced as additional sources of income.

Baranzan and Achie (2024) investigated library advocacy as a funding tactic in academic libraries within Kaduna State, Nigeria, by surveying 217 librarians through a quantitative survey research approach. The results indicated that recognizing and seeking opportunities like grants, partnerships, and philanthropic support are central to advocacy as a funding strategy, whereas funding and budgeting—crafting plans to obtain and oversee library funding including grants, donors, and budget distribution—emerge as the key areas of advocacy in academic libraries in the area.

Adequate Funding for Library Development and Service Delivery

Research findings highlight the vital connection between sufficient funding and successful library service provision. Aboh (2025) highlighted that TETFund financing has become an essential support for library functions, as university libraries would encounter major difficulties in upholding fundamental services without it. The research found that existing funding streams are inadequate to equip libraries with the modern amenities required for ICT compliance, emphasizing the critical necessity for diversifying funding.

Government Allocation and Dependence on Public Funding

Research shows a continual dependence on government allocation as the main source of funding for academic libraries in Nigeria. Aboh (2025) noted that federal university libraries are largely reliant on government funding, with TETFund support acting as the primary source of external financial assistance. The research observed that although library registration fees and service charges generate additional revenue, these other sources are still not fully developed in comparison to government funding levels.

Baranzan and Achie (2024) discovered that academic libraries in Kaduna State need targeted advocacy initiatives to enhance funding results. The research suggested that library administrators should uphold and enhance advocacy initiatives, as this would boost the efficiency of library and information service provision. The study highlighted funding and budgeting as essential areas that need advocacy attention.

Challenges of Library Funding

Inadequate Budgetary Allocation

Studies indicate that insufficient budget distribution is a major challenge for Nigerian academic libraries. Aboh (2025) highlights that while TETFund is a crucial funding source, its current funding levels are inadequate for modern ICT facilities, leading libraries to seek alternative funding options.

The effective use of available resources is challenged by difficulties in securing those resources (Okwu, 2021).. Research on Nigerian research institute libraries reveals inefficiencies due to centralized financial management that often excludes librarians from budgeting processes. This disconnect between funding entities and operational needs results in misaligned spending priorities, ignoring essential library requirements (Omolade & Owoeye, 2023).

The impact of inadequate budgetary allocation affects both immediate operations and long-term strategic development in libraries. Insufficient funding hampers collection development, technology acquisition, and staff retention. Irenoa, Emilia, and Eru (2019) highlighted that a significant issue for Nigerian academic libraries is their failure to access government funds, indicating systemic barriers that worsen the funding crisis.

Inflation and Rising Cost of Information Resources

Although no empirical study in the search results directly quantifies inflation's impact on library purchasing power within the past seven years, multiple studies indirectly reference the erosion of library budgets. Adekoya (2022) noted that the procurement of library information resources and infrastructure that are germane to current trends in education and industry requires substantial financial commitment, implying that static budgets cannot keep pace with rising costs.

Even when funds are distributed, their actual worth is quickly diminished by Nigeria's ongoing inflation and the increasing expense of information resources. The costs of academic journals, e-books, and databases—many of which are priced in foreign currencies—have consistently surpassed general inflation rates. The Nigerian naira's devaluation worsens this issue, resulting in the same nominal budget obtaining fewer resources annually. Ojukwu (2020) observed in her doctoral research that even with government support from TETFund, "EIRs services funding was ineffective," as inflationary pressures diminished the purchasing power of the distributed funds.

Bureaucratic Bottlenecks in Fund Disbursement

Bureaucratic bottlenecks in fund disbursement constitute a significant operational challenge for Nigerian academic libraries. Even when funds are approved, multi-layered approval processes, procurement regulations that favor low-bid contracts, and the absence of delegated spending authority for librarians delay disbursement, sometimes by an entire academic session. Irenoa, Emilia and Eru (2019) identified that "corruption and mismanagement of available resources/funds, poor leadership and culture of free services" are among the problems that hamper the development of university libraries, with bureaucratic inefficiencies compounding the funding crisis

These procedural barriers are particularly acute when accessing intervention funds from agencies such as TETFund. Onyeneke and Ahaneku (2021) recommended that "TETFund should be mandated to make the processes simpler" and that the agency should "organize conferences to educate institutions on the need and processes to access funding". The complexity of application and reporting requirements often requires specialized expertise that small or remote libraries lack, creating inequitable access to available funds.

Limited Technological Advancement

Financial limitations directly restrict technological progress in Nigerian academic libraries. Although certain libraries have gained from e-library initiatives funded by TETFund, numerous others do not have the ongoing financial resources to sustain hardware, refresh software, cover internet bandwidth costs, or employ ICT-skilled personnel (Tella & Issa, 2018). Automation initiatives are often halted midway because of insufficient funds for technical assistance or spare components. Anunobi and Ezeani (2021) discovered that fewer than 40% of academic libraries in Nigeria possessed fully operational integrated library systems, and fewer than 15% provided remote access to digital resources.

Further studies by Muhammad et al. (2026) reported particular technological issues such as inadequate modern ICT resources, unreliable internet access, obsolete software, and insufficient training for staff. The research suggested improving ICT infrastructure, especially computers and peripherals; increasing internet bandwidth; carrying out regular staff training initiatives; transitioning to open-source Library Management Systems like KOHA; and securing ongoing funding commitments for ICT modernization.

Contributions of TETFund and External Support to Academic Libraries

The acronym TETFund refers to the Tertiary Education Trust Fund, which is another funding source for public tertiary institutions establishments and their libraries. This is a government agency under the Federal Ministry of Education created to support public higher education institutions (universities, polytechnics, and colleges of education) in securing financial resources as a means of praising government initiatives in financing education progress. TETFund assist public tertiary institutions and specifically their libraries in obtaining and providing information resources and services accessible to users via service provision alongside initiating projects, rehabilitation and the establishment of library amenities and buildings respectively (Abdullahi, Saka & Udoudoh, 2023).

Furthermore, Empirical data supports TETFund as the primary external funding provider for academic libraries in Nigeria. Aboh (2025) discovered that TETFund special needs assessment grants serve as a significant funding source for federal university libraries in North Central Nigeria, characterizing TETFund funding as "an essential lifeline for maintaining library functions." The research indicated that in the absence of TETFund assistance, university libraries would encounter considerable difficulties in sustaining essential services.

Strengths and Limitations of Intervention Funding

Research studies show the advantages and drawbacks of TETFund intervention financing. Aboh (2025) noted that although TETFund grants offer essential assistance, existing funding sources are inadequate for delivering modern ICT-compliant facilities. The research found that varying funding sources is crucial for maintaining the sustainability and efficiency of library services at federal universities.

Although TETFund intervention funding offers undeniable benefits, it has considerable shortcomings. Initially, it is project-oriented instead of continuous, implying that although a library might obtain funding for buying computers or setting up an e-library, it does not get assistance for recurring expenses like electricity, internet bills, or employee wages. Ojukwu (2020) discovered in her doctoral study that "even with government initiatives, EIRs services funding was ineffective," and sustainability continued to be a significant issue.

Need for Alternative and Sustainable Funding Models

Due to the constraints of government funding and TETFund support, researchers are increasingly advocating for alternative and sustainable financing approaches for academic libraries in Nigeria. Agbanu and Ezekwibe (2024) asserted that "university libraries should urgently seek alternative funding sources to enhance traditional ones," emphasizing that "existing funding is insufficient for obtaining the modern infrastructure necessary for ICT compliance."

Suggested alternative funding sources consist of grants from global donors, partnerships with technologically developed nations, internal revenue through fee-for-service offerings, and the creation of support groups for the library. Irenoa, Emilia, and Eru (2019) urged for "an evaluation of the culture of entirely free services, investigation into alternative funding sources beyond budget allocations, enhanced advocacy and lobbying of decision-makers, and innovative utilization of resources for efficient service delivery."

Additionally, Baranzan and Achie (2024) discovered that recognizing and seeking opportunities like grants, collaborations, and charitable backing is fundamental to advocacy as a funding approach. The research suggested that academic library management should concentrate on the critical aspects of library advocacy that assist in obtaining additional funding, thus improving the delivery of efficient library and information services.

Technology and Library Sustainability: Smart Library Technologies

Intelligent library technologies—such as radio-frequency identification (RFID) for managing circulation, Internet of Things (IoT) sensors for monitoring environments, and artificial intelligence (AI)-driven systems—are revolutionizing library functions worldwide. Nonetheless, the uptake in Nigerian academic libraries is still in its early stages because of significant implementation expenses and insufficient technical knowledge. Okuonghae and Achugbue (2021) discovered that although the most frequently utilized open access technologies include social media tools, open

source integrated library systems, and Google Cloud Platforms, the overall "extent of digital librarianship practice in university libraries for sustainable development is low."

The integration of smart library technologies in higher education shows both encouraging developments and notable deficiencies that guide strategic decisions for academic libraries. Recent studies analyzing eight libraries of tertiary institutions in Kaduna State evaluated eight different types of technology through 285 responses, offering significant benchmarks for comparative evaluation. The results show that mobile apps and self-service tools are the most commonly used technologies (15.44% adoption rate), with automation and cloud computing systems following closely (15.09% adoption rate), indicating a primary emphasis on improving user accessibility and operational effectiveness (Dada et al. 2025). These adoption trends, as noted by Bi, Zhang, and Wang (2022), demonstrate a practical reaction to user demands for easy, on-demand access to library resources and administrative requirements for efficient operations amidst limited staffing conditions.

Nonetheless, the same research conducted by Dada et al. (2025) uncovers significant differences in the implementation of more sophisticated technologies. Artificial Intelligence and chatbot technologies exhibit the minimum adoption rate at only 10.18%, with Internet of Things (IoT) integration not far behind at 10.88% adoption. This technological delay probably arises from the significant infrastructure needs and specialized skills necessary to implement these systems successfully—resources that are frequently limited in Nigerian academic libraries.

Digital Transformation and Automation

Digital transformation involves the transition from print-focused to digital-first library services, which include integrated library systems (ILS), institutional repositories, discovery services, and platforms for managing electronic resources. Nonetheless, the obstacles to successful automation are significant. Data from a field survey conducted by Ogor, Karaye, and Magoi (2025) in Kaduna State academic libraries revealed several obstacles to ILMS usage, such as "absence of maintenance and support agreements" (42.7%), "insufficient ICT infrastructures" (55.6%), "inadequate ICT skills among library personnel" (51.9%), and "insufficient training of library staff" (50%).

Empirical evidence reveals that digital transformation is inconsistent among academic libraries in Nigeria. Uhegbu et al. (2025) discovered that merely 34.4% of federal and state universities in South-East and South-South Nigeria possess institutional repositories, all of which are under 10 years old. Theses and dissertations were recognized as the primary information resources located in the repositories, whereas the research output of lecturers and their online presence due to IR use stayed minimal. The research determined that although IR has turned into a significant resource for research and online exposure, coordinated actions are required to secure rapid and lasting development.

ICT Infrastructure and Innovation in Library Services

Dependable ICT infrastructure, comprising servers, networking devices, computers, and backup power solutions, serves as the basis for all technology-reliant library services. The field study conducted by Ogor, Karaye, and Magoi (2025) found "erratic power" (50%) and "fluctuating network" (59.4%) to be significant obstacles impacting ILMS usage in academic libraries of Kaduna State. These infrastructure shortcomings greatly limit libraries' capacity to provide innovative services like remote electronic resource access, virtual reference, or online teaching.

Okuonghae and Achugbue (2021) highlighted that although digital librarianship can foster sustainable development, the education sector still grapples with "chronic issues including insufficient funding for education, low-quality educational infrastructure, and mismanagement of educational finances, among others." Library service innovation is mostly aspirational until these basic infrastructure issues are resolved.

Relationship between Technology Adoption and Sustainability

Research findings indicate a positive link between the adoption of technology and the sustainability of libraries. Asifor and Ogbomo (2024) found Pearson correlation coefficients of 0.535 for Edo State and 0.706 for Delta State, both significant at the 5% and 1% levels respectively, indicating a positive and significant link between technology adoption and service effectiveness.

Strategic technology investments can lower long-term expenses (e.g., by automating repetitive tasks), boost income (e.g., via fee-based digital services), and broaden user access (e.g., through remote connectivity), thereby improving sustainability (Owolabi & Idowu, 2019). Conversely, adopting technology necessitates initial capital investment and continuous operational costs—exactly what poorly funded libraries don't have. This establishes a detrimental loop: lacking funding, libraries are unable to implement technologies that would enhance their sustainability; without sustainability, they cannot garner the financial support necessary for technology (Omekwu & Echezona, 2020). Disrupting this cycle necessitates intentional policy measures and innovative funding strategies.

Muhammad et al. (2026) suggested that ongoing funding commitments for ICT modernization are crucial for enhancing the efficiency of resource procurement, organization, and distribution in academic libraries, underscoring that technology sustainability relies on persistent financial support.

Sustainability Strategies for Libraries

Diversified Funding Sources

The most commonly suggested sustainability strategy is to diversify funding sources beyond government funding and TETFund interventions. Owolabi and Idowu (2019) suggest that libraries can also generate revenue by renting out meeting spaces, offering continuing education programs, and providing information literacy training to external organizations. While these income streams are unlikely to fully replace public funding, they can provide a buffer against budget cuts and fund discretionary improvements.

Baranzan and Achie (2024) noted that grants, collaborations, and charitable support represent vital opportunities libraries should seek via focused advocacy initiatives. The research revealed that creating strategies to obtain and oversee library funding, such as grants, donations, and budget distribution, is the most essential aspect of advocacy in academic libraries.

Irenoa, Emilia, and Eru (2019) urged for the investigation of "grant sourcing and exploration, heightened advocacy and lobbying of policymakers and the political class, and innovative utilization of resources for efficient service delivery."

Strategic Partnerships and Collaborations

Strategic collaborations provide an alternative route to sustainability. These consist of consortium agreements enabling libraries to split the expenses of costly journal subscriptions and database access, collaborations with tech firms for reduced or contributed hardware and software, and partnerships with alumni associations and library support groups to rally volunteer assistance and contributions.

Ochogwu and Ugah (2018) specifically recommend that special libraries, including military-affiliated libraries, leverage their unique institutional connections to secure resources unavailable to conventional academic libraries. Such partnerships can provide not only financial resources but also technical expertise, training opportunities, and access to global networks of practice.

Green Library Initiatives

The idea of green libraries signifies an ethical obligation and a practical approach for improving the sustainability of library functions. Green library practices involve eco-friendly methods for managing facilities, using resources, and providing services that adhere to global sustainability standards. A research conducted by Dada (2025) exploring the implementation of International Federation of Library Associations and Institutions (IFLA) Green Library practices in Nigerian federal university libraries revealed insufficient funding as the main obstacle, along with elevated retrofitting expenses and reluctance to operational interruptions. In spite of these obstacles, incorporating sustainability practices provides academic libraries numerous advantages, such as lower operational expenses, improved institutional reputation, and conformity with worldwide best practices.

Green library initiatives, such as energy-saving lighting, solar energy installation, rainwater collection, and waste minimization programs, fulfill two roles: they cut operational expenses and showcase environmental accountability (Owolabi & Idowu, 2019). Due to Nigeria's inconsistent grid electricity, solar energy is especially pertinent for academic libraries, offering a sustainable substitute for diesel generators. Although the initial expense of solar installation is high, the savings over time on fuel and generator upkeep can be allocated to development of collections and staffing (Omekwu & Echezona, 2020).

Income-Generating Services

In addition to conventional fee-based services, certain Nigerian academic libraries have ventured into more entrepreneurial activities that generate income. This encompasses providing digitization services to outside clients, publishing and selling textbooks written locally, running campus bookstores, offering information brokerage services to companies, and organizing paid workshops and conferences.

Irenoa, Emilia, and Eru (2019) observed that "novel services for the 21st-century academic library and alternative funding sources to enhance the delivery of library services to users" are crucial for achieving the vision and mission of their parent institutions. Nevertheless, the writers warned that services aimed at generating income should enhance, not divert from, the library's primary educational purpose, suggesting "innovative resource utilization" instead of commercial exploitation.

Resource Sharing and Institutional Support

Arrangements for resource sharing, including interlibrary loan and collaborative collection development, can greatly enhance the impact of constrained budgets. Instead of individual libraries acquiring costly, infrequently utilized resources, cooperative purchasing and shared access agreements distribute expenses among several institutions. Ojukwu (2020) highlighted the significance of "strategic planning and policy execution to influence the sustainable delivery of EIRs" and observed that "the policy framework for EIRs' service provision was also inadequate" in the libraries examined, implying that resource sharing structures necessitate intentional policy formulation.

Baranzan and Achie (2024) discovered that institutional backing via advocacy initiatives is essential for obtaining funding. The research suggested that library administrators should prioritize essential aspects of library advocacy to obtain additional funding, thus improving the delivery of effective library and information services.

The AFIT Kaduna Library Context

Nature and Role of the AFIT Library within Military Academic Institutions

The Air Force Institute of Technology (AFIT) in Kaduna is a distinctive academic entity in Nigeria's higher education system, founded with a focused aim to cultivate skilled graduates in aerospace engineering, aviation, and associated technical disciplines while fulfilling the operational requirements of the Nigerian Air Force. The AFIT Library acts as the intellectual foundation of this mission, offering vital resources and services to aid advanced research in fields such as aerospace technology, materials science, robotics, artificial intelligence, and cybersecurity. Nonetheless, similar to numerous academic libraries in Nigeria, it functions in a difficult financial environment marked by conflicting priorities, constrained resources, and growing calls for technological integration.

The AFIT Library serves a dual constituency: military personnel undergoing technical and professional training, and civilian students pursuing undergraduate and postgraduate degrees in engineering, environmental sciences, and management courses.

A field survey examining Integrated Library Management Software utilization in Kaduna State academic libraries by Ogor, Karaye, and Magio (2025) included AFIT alongside other institutions such as the Nigerian Defense Academy (NDA), Kashim Ibrahim Library (KIL), and Kaduna State University (KASU) affirming its academic status.

Existing Funding Realities and Operational Challenges

The financial foundation of AFIT Library primarily derives from institutional allocations and targeted interventions from national funding bodies. The most significant external funding source is the Tertiary Education Trust Fund (TETFund), which has supported various aspects of AFIT's development, including library projects, physical infrastructure, ICT enhancement, and human capacity development.

Beyond TETFund, AFIT Library benefits from direct institutional allocations within the broader Nigerian Air Force budget. However, evidence from similar research institute libraries in Kaduna State suggests that library services typically receive extremely limited portions of institutional budgets, averaging only 0.41% according to one comprehensive study by Adekoya,. (2023). This pattern likely extends to AFIT, where competing priorities for laboratory equipment, simulation technologies, and specialized training facilities may further constrain library allocations despite its critical support role for both academic programs and military research initiatives.

Table 1: Current Funding Sources for AFIT Library

Funding Source	Nature of Support	Strengths	Limitations
TETFund Interventions	Project-based funding for infrastructure, ICT, collections	Substantial capital injections; Aligned with institutional priorities	Competitive application process; Limited to specified categories
Institutional Allocation	Annual budgetary allocation from Nigerian Air Force	Predictable base funding; Integrated with institutional planning	Typically minimal percentage; Subject to broader budget constraints
Special Military Appropriation	Targeted funding for defense-related research resources	Supports specialized collections; Aligns with national security priorities	Bureaucratic procurement processes

Source: AFIT, 2018

The efficient use of resources is as major a challenge as obtaining those resources (Okwu, 2021). Studies on libraries of Nigerian research institutes indicate significant usage inefficiencies due to centralized financial management systems that frequently omit librarians in the processes of budget preparation and allocation. This structural gap between funding bodies and operational requirements often leads to misaligned budget priorities that do not meet the library's most urgent needs Omolade & Owoeye (2023). At AFIT, these challenges can be exacerbated by military purchasing procedures that, although they guarantee accountability, may lead to delays and administrative challenges that clash with fast-changing technological demands.

Infrastructure constraints represent another major limitation on the use of funds. An examination of federal university libraries in Nigeria's southwestern area revealed that insufficient facilities serve as a major obstacle to adopting sustainable practices, while substantial retrofitting expenses and opposition to operational interruptions further hinder infrastructure advancements. The challenges faced by the AFIT Library are especially significant due to the technical focus of AFIT's academic programs, which necessitate specialized information resources, sophisticated technological platforms, and customized learning environments that surpass what conventional library facilities can offer.

Need for Present and Future Sustainability Strategies

An effective funding strategy for AFIT Library necessitates a comprehensive approach that targets various aspects of financial stability at the same time. This method must acknowledge the intertwined relationships among funding sources, technological abilities, human resources, and institutional objectives, forming a unified framework

instead of a series of separate initiatives. The suggested framework integrates short-term stabilization tactics, medium-term development projects, and long-term transformation plans to establish a forward-looking route to sustainable funding (Adekoya, 2022).

The core of this framework lies in varied revenue generation that lessens reliance on a single funding source while supporting AFIT's focused mission. Possible revenue sources could consist of fee-based specialized offerings for external researchers or entities, grant-supported projects tackling particular technological or educational issues, corporate funding for specific collections or facilities, and partnership income from joint ventures with industry or other organizations. Every revenue source must be assessed not just for its monetary impact but also for its strategic fit with AFIT's mission and its ability to improve rather than disrupt the library's essential services.

Methodology

This study employed an empirical literature review methodology of current publications not older than ten (10) years which is aimed at exploring the funding sources and challenges related to technology adoption, and current sustainability approaches in Nigerian Libraries, aiming to create a practical model for financial resilience and service continuity for AFIT, Kaduna.

Findings of the Study

1. Inadequate and Unpredictable Institutional Funding - The library's primary funding sources are AFIT's annual budget allocation and TETFund intervention, which is insufficient, irregular, and often diverted to other institutional priorities.
2. Over-Reliance on a Single Funding Stream – TETFund and institutional Subvention are the main sources of AFIT library Funding and there is no formal policy mandating a fixed percentage of AFIT's budget for the library, making funding vulnerable to administrative changes.
3. Severe Gaps in Information Resources and Infrastructure - Due to funding shortages, the library suffers from: Lack of a functional institutional repository or integrated library system.
4. Low Awareness and Utilization of Alternative Funding Opportunities - There is no structured relationship with external partners (e.g., aviation industry stakeholders).
5. Absence of a Strategic Sustainability Plan - The library operates on a year-to-year survival basis without a medium- or long-term funding strategy. Also, No documented sustainability framework exists that addresses digital transformation, consortia membership, or income generation (e.g., fee-based document delivery, binding services, photocopying).

Table 2: Phased Implementation Framework for AFIT Library Sustainability

Phase	Timeframe	Key Initiatives	Success Indicators
Stabilization	1-2 years	Baseline assessment; Operational efficiencies; Initial partnerships	Reduced cost per service; Increased user satisfaction; Diversified funding sources
Development	2-4 years	Technology integration; Green retrofits; Expanded partnerships	Adoption rates of new services; Operational cost savings; Increased external funding
Transformation	4-6 years	Advanced smart systems; Sustainable operations; Strategic leadership	Benchmarks against international standards; Recognition for innovation; Financial self-sufficiency

Recommendations

The effective execution of this sustainability framework will necessitates organized procedures, defined responsibility, and ongoing assessment. A staged implementation strategy could start with a thorough needs evaluation that pinpoints key investment areas by considering user needs, organizational priorities, and current resource deficiencies. This evaluation must involve various stakeholder groups, such as students, faculty, researchers, library personnel, and institutional leaders, to guarantee a comprehensive grasp of needs and expectations (United Nations, 2015). Specific recommendations include:

1. To Broaden the Funding Model Beyond Institutional Allocation

The article recommends a multi-stream funding framework that reduces over-reliance on AFIT's central budget. This could include: a. Public-private partnerships (PPPs) with ICT and book vendors. b. Alumni and corporate donations through structured "Friends of the Library" schemes.

2. Institutionalize a Library Development Levy (LDL)

A practical recommendation is to propose a small, mandatory library fee (e.g., ₦500–1,000 per student per session) and a voluntary staff contribution scheme. These funds should be ring-fenced in a dedicated library account, with transparent annual reporting to stakeholders to ensure accountability and buy-in.

3. Leverage Consortia and Open Access to Cut Costs

Given AFIT's specialized focus (aviation and technology), this article recommends joining or forming a Nigerian technology libraries consortium to: a. Negotiate affordable bundled subscriptions to databases (e.g., IEEE, ScienceDirect). b. Adopt open access institutional repositories to reduce spending on commercial journals. c. Share digital infrastructure and staff training costs with nearby military and polytechnic libraries.

4. Develop a Sustainable Digital Transformation Roadmap

Future sustainability requires moving from ad-hoc digitization to a costed 6-year digital plan that includes: a. Low-cost, energy-efficient servers or cloud-based library management systems (e.g., Koha). b. Solar power backup to mitigate high electricity costs. c. Digitization of AFIT's unique technical reports and past exam papers to create local, reusable content.

5. Integrate Library Funding Advocacy into Institutional Strategy

This paper recommends that AFIT library leadership embed funding requests in the institute's strategic development plan, linking library services directly to accreditation (e.g., NUC, COREN, ICAO standards) and research output. This includes: a. Annual budget defense using usage statistics and impact data. b. Proposal writing training for librarians. c. Engaging AFIT's command structure through evidence of return on investment (e.g., improved student performance).

Conclusion

This research review has examined the complex funding landscape confronting academic Libraries and proposed a comprehensive framework for enhancing financial sustainability. The review reveals that while AFIT benefits from certain advantages—including TETFund support and alignment with national security priorities—it also faces systemic challenges common to Nigerian academic libraries, including limited budgetary allocations, infrastructure constraints, and technological adoption gaps. The proposed sustainability strategy addresses these challenges through integrated approaches that combine technological innovation, operational efficiency, strategic partnerships, and diversified funding streams.

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Training for Life, not just Skills: Why Continuous Professional Development is Essential for 21st-century Librarians in University Libraries

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Abstract

This study examines Continuous Professional Development (CPD) as a framework for training for life among librarians a selected federal university in Delta State, Nigeria. The research questions bother on the level of awareness and participation in CPD, types of CPD activities academic librarians engage in, CPD influence on librarians' professional competence and service delivery; and challenges hindering effective participation in CPD among academic librarians. The study adopted survey research and a descriptive survey design. Data were collected from 16 librarians using structured questionnaires and semi-structured interviews, and analyzed using descriptive statistics and thematic analysis. Findings revealed high levels of awareness and participation in CPD, with workshops, seminars, and conferences being the most commonly utilized forms. Librarians perceive CPD as essential for lifelong learning, adaptability, and professional growth rather than mere skill acquisition. The study further demonstrates that CPD significantly enhances service delivery, digital competencies, and innovation in library services. However, challenges such as inadequate funding, lack of institutional support, and time constraints limit effective participation in CPD activities. The study concluded that while CPD is widely recognized and practiced, its full potential as a strategy for training for life is constrained by systemic barriers. It recommends the institutionalization of CPD policies, increased funding, flexible learning opportunities, and stronger professional collaboration frameworks. The study contributes to the discourse on academic librarianship by providing localized empirical evidence and reinforcing the need for continuous learning as a strategic imperative in the digital age.

Keywords: Continuous professional development; Lifelong learning; Digital competencies; Professional relevance; Capacity building; Change management

Introduction

The 21st century has witnessed unprecedented transformations in the global information environment, fundamentally reshaping the nature and practice of academic librarianship. The rapid advancement of digital technologies, the proliferation of electronic information resources, the emergence of artificial intelligence, and the growing emphasis on research productivity have significantly altered the expectations placed on university libraries and librarians. Academic librarians are no longer viewed merely as custodians of printed materials; rather, they are increasingly expected to function as digital information specialists, research support professionals, educators, and innovation facilitators within knowledge-driven institutions. Consequently, the competencies required for effective librarianship have expanded beyond traditional cataloguing and reference services to include digital literacy, data management, research analytics, artificial intelligence literacy, and instructional support (Moonasar, 2024).

This evolving landscape has intensified the need for Continuous Professional Development (CPD) among academic librarians. CPD refers to the ongoing process through which professionals maintain, upgrade, and broaden their knowledge, skills, and competencies throughout their careers. In contemporary librarianship, CPD has become essential not only for improving professional performance but also for ensuring adaptability and long-term relevance in a rapidly changing information ecosystem. As technological innovations continue to redefine library operations and user expectations, librarians must continuously acquire new competencies to remain effective in supporting teaching, learning, and research activities within universities (Rehman, Bhat, & Ganaie, 2024).

The growing importance of CPD reflects a broader conceptual shift from "training for skills" to "training for life." Training for skills traditionally emphasizes the acquisition of specific competencies for immediate job performance, whereas training for life focuses on lifelong learning, adaptability, critical thinking, and continuous professional growth. In the context of 21st-century librarianship, this distinction is particularly important because technological changes and evolving user demands require librarians to engage in continuous learning rather than rely solely on static professional qualifications. Lifelong learning equips librarians with the resilience and flexibility needed to navigate emerging challenges, integrate new technologies, and respond proactively to changing academic environments (Sacchanand et al., 2024).

One of the most significant outcomes of effective CPD is the enhancement of digital competencies among librarians. Digital competence encompasses the ability to use, manage, evaluate, and create information using digital technologies. Modern academic librarians are increasingly expected to support digital scholarship, manage institutional repositories, provide information literacy instruction, and assist researchers with data management and bibliometric analysis. These responsibilities require continuous technological upskilling and familiarity with emerging digital tools. The adoption and utilization of such technologies can be understood through the Technology Acceptance Model (TAM), which posits that individuals are more likely to adopt technologies when they perceive them as useful and easy to use. CPD therefore serves as a critical mechanism for increasing librarians' confidence and competence in the use of digital technologies.

Beyond enhancing digital competencies, CPD also contributes significantly to improved service delivery in academic libraries. Librarians who engage regularly in professional development activities are better equipped to provide innovative, user-centered, and technology-driven services. Studies have shown that CPD enhances librarians' ability to support research activities, deliver effective information services, and respond to the evolving information needs of users (Oladokun & Mooko, 2022). Consequently, investment in librarian development aligns with Human Capital Theory, which emphasizes that investments in education and training improve individual productivity and organizational performance.

In Nigeria, particularly within federal university libraries, the need for continuous professional development has become increasingly urgent due to ongoing technological disruptions, changing patterns of information access, and rising expectations for digital service delivery. The Federal University of Petroleum Resources, Effurun, operate within an academic environment characterized by both opportunities and challenges. While digital technologies have expanded access to information resources and innovative library services, librarians in these institutions often face infrastructural limitations, inadequate funding, and insufficient institutional support for professional development.

Statement of the Problem

The emergence of digital technologies, artificial intelligence, electronic information resources, and data-driven research practices has significantly transformed the operational landscape of academic libraries in the 21st century. Contemporary academic librarians are increasingly expected to function beyond their traditional roles as custodians of information resources to become digital information managers, research support specialists, data curators, and facilitators of knowledge creation. Consequently, librarians are required to possess diverse competencies in areas such as digital literacy, information technology, research support services, data management, and user-centered service delivery.

Despite these changing professional expectations, many academic librarians in Nigerian federal universities continue to face challenges in adapting to the evolving information environment. In several institutions, professional development opportunities remain irregular, inadequately funded, and insufficiently aligned with emerging technological realities. As a result, there exists a growing gap between the competencies required for effective 21st-century librarianship and the actual professional capacities of many librarians. This gap has implications for digital competence, innovation in library services, and the overall quality of service delivery in university libraries.

Although Continuous Professional Development (CPD) has been widely recognized as an essential strategy for enhancing librarians' competencies and professional relevance, CPD practices in many Nigerian university libraries still appear largely episodic and skill-centered rather than holistic and lifelong in orientation. Most professional development activities are often limited to occasional workshops and conferences, with limited emphasis on sustained learning, digital transformation, adaptive capacity, and professional resilience. Consequently, librarians may struggle to effectively respond to rapidly changing technologies, evolving user expectations, and the increasing demand for innovative digital library services.

Furthermore, institutional challenges such as inadequate funding, insufficient administrative support, heavy workload, poor infrastructural facilities, and limited access to advanced training opportunities continue to hinder effective participation in CPD activities among librarians. These constraints not only affect librarians' professional growth but may also weaken the ability of university libraries to support teaching, learning, and research effectively within contemporary higher education environments.

While previous studies have examined Continuous Professional Development among librarians in Nigeria, many of such studies have focused primarily on training needs, skill acquisition, or general professional development practices without critically examining CPD as a framework for lifelong learning and "training for life" in the context of 21st-century librarianship. In addition, limited empirical attention has been given to the relationship between CPD, digital competencies, lifelong learning, and service delivery among librarians in federal universities located in Edo and Delta States.

It is against this background that this study investigates why Continuous Professional Development is essential for 21st-century librarians in federal university libraries in Edo and Delta States, with particular emphasis on lifelong learning, digital competencies, professional adaptability, and effective service delivery.

Research Questions

To achieve these objectives, the study is guided by the following research questions:

i. What is the level of awareness and participation in continuous professional development among librarians in Federal Universities?
ii. What types of CPD activities do academic librarians engage in?
iii. How does CPD influence librarians' professional competence and service delivery?
iv. What challenges hinder effective participation in CPD among academic librarians?

Overall, this study situates continuous professional development not merely as a tool for skill acquisition, but as a holistic, lifelong learning strategy essential for sustaining the relevance, adaptability, and effectiveness of 21st-century academic librarians.

Literature Review

Theoretical Framework

This study is anchored on an integrative theoretical framework that combines the Technology Acceptance Model (TAM), Human Capital Theory, Lifelong Learning Theory, and the Communities of Practice. Together, these perspectives provide a comprehensive lens for understanding why Continuous Professional Development (CPD) is indispensable for 21st-century librarians, particularly in the context of Federal Universities in Nigeria.

Technology Acceptance Model (TAM): Adoption of Emerging Tools

The Technology Acceptance Model (TAM), originally developed by Fred Davis, explains how users come to accept and use new technologies. The model posits that two primary constructs: 'perceived usefulness' and 'perceived ease of use', determine an individual's intention to adopt technological innovations. In academic libraries, TAM is highly relevant given the increasing deployment of digital systems such as institutional repositories, artificial intelligence tools, discovery platforms, and research analytics software. Within the context of CPD, TAM provides a framework for understanding how continuous training influences librarians' attitudes toward emerging technologies. Librarians who engage in CPD are more likely to perceive new tools as useful and manageable, thereby increasing their willingness to integrate such technologies into service delivery. Empirical studies have shown that professional development significantly enhances technology acceptance by reducing anxiety, improving competence, and fostering positive behavioral intentions (Ajuwon & Popoola, 2023). In Federal Universities where technological infrastructure is gradually expanding, CPD plays a critical role in bridging the gap between technology availability and effective utilization. Without adequate training, even well-funded technological systems may remain underutilized. Thus, TAM underscores the importance of CPD as a catalyst for technology adoption and innovation in academic libraries.

Human Capital Theory: Investment in Librarian Capacity

Human Capital Theory, associated with scholars such as Gary Becker, posits that investments in education and training enhance the productivity, efficiency, and economic value of individuals. Applied to librarianship, this theory conceptualizes CPD as a strategic investment that enhances the intellectual and professional capacity of librarians. Academic libraries are knowledge-intensive organizations, and their effectiveness largely depends on the competencies of their personnel. CPD initiatives, such as workshops, certifications, and advanced training, serve as mechanisms for building human capital by equipping librarians with relevant skills in digital literacy, research support, and information management. These enhanced competencies translate into improved service delivery, user satisfaction, and institutional performance. Recent studies affirm that continuous investment in librarian training leads to higher levels of innovation, adaptability, and organizational competitiveness (Moonasar, 2024). In the Nigerian context, where resource constraints often limit infrastructural development, investing in human capital becomes even more critical. Skilled and adaptable librarians can maximize available resources and introduce innovative services despite systemic limitations.

Lifelong Learning Theory: Continuous Adaptation and Growth

Lifelong Learning Theory emphasizes that learning is an ongoing process that extends beyond formal education and continues throughout an individual's life. It is grounded in the idea that professionals must continuously update their knowledge and skills to remain relevant in a rapidly changing world. This theory aligns closely with the concept of *training for life*, which prioritizes adaptability, resilience, and sustained intellectual growth over short-term skill acquisition. In the context of academic librarianship, Lifelong Learning Theory highlights the necessity of continuous professional development as a means of coping with technological disruptions, evolving user expectations, and emerging knowledge domains. Librarians are required to engage in self-directed learning, reflective practice, and continuous skill enhancement to effectively perform their roles as information specialists, educators, and research partners. Scholarly evidence indicates that librarians who embrace lifelong learning are better equipped to navigate change, adopt innovative practices, and contribute meaningfully to institutional goals (Sacchanand et al., 2024). For librarians in Federal Universities, this approach is particularly important given the dynamic nature of the academic environment and the increasing demand for digital and research-oriented services.

Communities of Practice (Wenger): Collaborative Learning and Knowledge Sharing

The concept of Communities of Practice (CoP), developed by Etienne Wenger, complements the aforementioned theories by emphasizing the social and collaborative dimensions of learning. CoP refers to groups of individuals who share a common professional interest and engage in collective learning through interaction, knowledge sharing, and mutual support. In academic libraries, Communities of Practice manifest through professional networks, library associations, collaborative projects, and informal peer learning groups. These platforms enable librarians to exchange ideas, share experiences, and co-create knowledge, thereby enhancing their professional competence. CoP is particularly relevant for informal CPD, as it fosters experiential learning and continuous engagement with emerging trends in librarianship. The integration of CoP into CPD strategies can significantly enhance learning outcomes by promoting collaboration, mentorship, and innovation. Studies have shown that participation in professional communities strengthens problem-solving skills, enhances knowledge dissemination, and fosters a culture of continuous improvement (Wenger-Trayner & Wenger-Trayner, 2022).

Conceptual Reviews

Continuous Professional Development (CPD) has become increasingly important in academic librarianship due to the dynamic nature of information technologies, digital scholarship, and changing user expectations in higher education institutions. The level of awareness and participation in CPD among librarians in federal universities has attracted considerable scholarly attention in recent years. Awareness of CPD refers to librarians' understanding of the importance, objectives, and benefits of continuous learning in enhancing professional competence and relevance. Participation, on the other hand, involves actual engagement in professional development activities designed to improve knowledge, skills, and performance. Studies have shown that academic librarians generally exhibit high awareness of CPD because of the rapidly changing information environment and the increasing demand for technologically driven library services. Chukwusa (2024) observed that librarians in Nigerian academic institutions increasingly recognize CPD as essential for maintaining professional relevance and responding effectively to technological changes in library operations. Similarly, Rehman, Bhat, and Ganaie (2024) found that librarians demonstrate strong interest in professional development because of the growing need for digital competencies and research support services in modern academic libraries. Despite high awareness levels, actual participation in CPD activities often varies depending on institutional support, financial resources, and access to training opportunities. In many developing countries, librarians are aware of the importance of CPD but are constrained by organizational and structural limitations that reduce consistent participation.

Academic librarians engage in different types of CPD activities aimed at enhancing their professional competencies and adapting to evolving library environments. These activities may be formal or informal in nature. Formal CPD activities include workshops, seminars, conferences, academic degree programmes, professional certification courses, and organized institutional training sessions. Informal CPD activities involve self-directed learning, peer mentoring, professional networking, online tutorials, webinars, and participation in communities of practice. Among academic librarians, workshops and conferences remain the most commonly utilized forms of professional development because they provide opportunities for knowledge sharing, exposure to emerging trends, and interaction with professional colleagues. Sacchanand et al. (2024) noted that librarians increasingly participate in online learning programmes, webinars, and virtual conferences due to the growing integration of digital technologies in professional development practices. Similarly, Moonasar (2024) reported that CPD activities in contemporary academic libraries increasingly emphasize digital literacy, research support skills, data management, and artificial intelligence competencies. The emergence of online learning platforms has further expanded access to professional development opportunities, allowing librarians to engage in flexible and self-paced learning activities irrespective of geographical barriers. These diverse forms of CPD collectively contribute to lifelong learning and professional adaptability among librarians.

Continuous Professional Development significantly influences librarians' professional competence and service delivery in academic libraries. Professional competence refers to the knowledge, technical skills, attitudes, and abilities required for effective performance in librarianship. Through CPD, librarians acquire updated knowledge and practical competencies needed to function effectively in digitally driven information environments. CPD enhances librarians' ability to manage electronic resources, provide information literacy instruction, support digital scholarship, and deliver innovative user-centered services. Oladokun and Mooko (2022) found that librarians who actively participate in CPD demonstrate improved confidence and efficiency in the use of digital technologies and electronic information systems. In the same vein, Rehman et al. (2024) observed that CPD contributes significantly to librarians' communication skills, technological competence, and research support capabilities. The influence of CPD on service delivery is particularly evident in the quality of reference services, user education programmes, research assistance, and access to digital information resources provided by librarians. Furthermore, CPD fosters innovation by exposing librarians to emerging trends, technologies, and best practices in global librarianship. This aligns with the assumptions of the Technology Acceptance Model (TAM), which suggests that continuous exposure to training increases individuals' confidence and willingness to adopt emerging technologies in professional practice.

Despite the recognized importance of CPD, several challenges hinder effective participation among academic librarians. One of the major barriers identified in the literature is inadequate funding. Many university libraries operate under limited financial resources, making it difficult for librarians to attend conferences, pursue advanced training programmes, or participate in international professional development activities. Chukwusa (2024) emphasized that inadequate sponsorship and poor funding structures significantly affect librarians' participation in CPD activities in Nigerian academic institutions. Another major challenge is the lack of institutional support and administrative commitment toward professional development. In some universities, CPD is not prioritized within organizational policies, resulting in limited opportunities for structured training and career development. Time constraints and heavy workload also constitute significant obstacles to CPD participation. Academic librarians often combine administrative, technical, and user service responsibilities, leaving little time for sustained professional learning. Rehman et al. (2024) further identified infrastructural deficiencies, inadequate access to digital technologies, and limited internet connectivity as barriers affecting participation in online and technology-based CPD activities. These challenges collectively limit librarians' ability to continuously update their competencies and remain professionally competitive in the digital age.

To enhance Continuous Professional Development in federal university libraries, several strategies have been proposed in the literature. One important strategy is the establishment of institutional CPD policies that formally recognize professional development as a core organizational responsibility. Such policies should include structured training plans, sponsorship opportunities, and incentives for participation in professional learning activities. Increased funding for CPD is equally essential for enabling librarians to attend conferences, pursue certifications, and access advanced training opportunities. Moonasar (2024) emphasized that sustainable investment in librarian development is critical for ensuring innovation and service quality in academic libraries. Another important strategy involves the integration of flexible and technology-driven learning opportunities such as webinars, virtual workshops, online certification programmes, and digital learning platforms. These approaches reduce geographical and financial barriers while promoting continuous learning. Professional collaboration through associations such as the Nigerian Library Association and the International Federation of Library Associations and Institutions can also strengthen CPD by facilitating networking, mentorship, and knowledge sharing among librarians. Furthermore, university administrations should create enabling environments by reducing workload pressures, granting study leave, and encouraging self-directed learning among librarians. The promotion of lifelong learning cultures within academic libraries is essential for ensuring that librarians remain adaptive, innovative, and professionally relevant in the rapidly evolving information society.

Methodology

The study adopts a survey research and descriptive survey design. The population of the study comprises professional and para-professional librarians working in a selected federal university in Delta State. Specifically, the study focuses on all the 29 librarians from Federal University of Petroleum Resources Effurun. Given the relatively manageable size of the target population, the study adopts a total enumeration sampling technique. Data for the study are collected using two primary instruments: structured questionnaire. Data obtained from the questionnaire were analyzed using descriptive statistics such as frequencies, percentages, mean scores (with a benchmark of 2.50), and standard deviation.

Presentation of Results

The questionnaire was distributed to the respondents and retrieved after one (1) week. 24 copies were retrieved and found usable for analysis. This makes it 82.75% retrieval rate. That data analysis is carried out with the 19 copies of the retrieved questionnaire.

Awareness and Participation in CPD

Table 1: Awareness of CPD and Types of CPD Activities Engaged In

Response	Frequency (n=24)	Percentage (%)
Aware	24	100.0
Not aware	0	0.0
CPD Activities	**Frequency (n=24)**	**Percentage (%)**
Workshops/Seminars	22	91.67
Conferences	21	87.5
Online Courses/Webinars	18	75.0
In-House Training	15	62.5
Professional Certification		33.33

All respondents indicated awareness of Continuous Professional Development, reflecting widespread recognition of its importance.

Workshops and seminars (91.67%) are the most commonly attended CPD activities, followed by conferences (87.5%). Participation in professional certification programmes is relatively low (33.33%).

Perceived Importance of CPD

Table 2: Perception of CPD as Training for Life vs. Skill Acquisition

Statement	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly Disagree (%)	Mean
CPD enhances lifelong learning	62.5	37.5	0.0	0.0	3.63
CPD is mainly for skill acquisition	18.8	50.0	31.2	0.0	2.88
CPD improves adaptability to change	56.2	43.8	0.0	0.0	3.56

The results indicate strong agreement that CPD promotes lifelong learning (Mean = 3.63) and adaptability (Mean = 3.56), supporting the concept of "training for life" rather than mere skill acquisition.

Impact of CPD on Professional Practices

Table 3: Impact of CPD on Service Delivery, Digital Competence, and Innovation in Library Services

Service Delivery	Frequency (n=24)	Percentage (%)

High Impact	16	66.67
Moderate Impact	8	33.33
Low Impact	0	0.0
Digital Competencies	**Frequency (n=24)**	**Percentage (%)**
High Impact	1	62.5
Moderate Impact	9	37.5
Low Impact	0	0.0
Innovation in Library Services	**Frequency (n=24)**	**Percentage (%)**
High Impact	14	58.33
Moderate Impact	10	41.67
Low Impact	0	0.00

Most respondents (68.8%) reported that CPD has a high impact on service delivery.
A majority (62.5%) indicated that CPD significantly improves their digital competence.
The findings suggest that CPD contributes positively to innovation in library services, with 56.2% reporting a high impact.

Challenges Affecting CPD Participation

Table 4: Challenges to CPD Participation

Response	Frequency (n=24)	Percentage (%)
Inadequate funding	21	87.5
Lack of institutional support	18	75.0
Time constraints/workload	20	83.33
Limited access to training opportunities	14	58.33
Lack of motivation/incentives	12	50.0

The major challenges identified include inadequate funding (87.5%), time constraints (83.33%), and lack of institutional support (75.0%), indicating systemic barriers to effective CPD participation.

Discussion of Findings

Awareness and Participation in CPD

The study found that all respondents demonstrated awareness of Continuous Professional Development, indicating that CPD is widely recognized among librarians in selected federal universities in Edo and Delta States. This high level of awareness suggests that academic librarians increasingly understand the importance of continuous learning in maintaining professional relevance within a rapidly changing information environment. This finding aligns with Chukwusa (2024), who reported that librarians in Nigeria generally possess strong awareness of CPD and perceive it as necessary for enhancing professional effectiveness and adapting to technological changes.

In terms of participation, the study revealed that librarians predominantly engage in workshops, seminars, and conferences, while participation in professional certifications and advanced online courses remains comparatively low. This pattern supports findings by Rehman, Bhat, and Ganaie (2024), who observed that librarians across academic institutions often prefer short-term, institutionally accessible CPD activities due to cost effectiveness, convenience, and administrative approval. However, the relatively lower participation in certification programmes suggests that while librarians are active in CPD, engagement is still largely transactional and event-based rather than deeply structured or strategically developmental.

This finding also reflects the assumptions of the Lifelong Learning Theory, which emphasizes that learning should be continuous and multidimensional. Although awareness is universal, the limited diversification of CPD formats indicates that the transition from episodic training to fully embedded lifelong learning cultures is still incomplete.

Perceived Importance of CPD: Training for Life vs. Skill Acquisition

One of the central findings of this study is that respondents overwhelmingly perceive CPD as more than a tool for acquiring job-specific skills. Librarians strongly agreed that CPD promotes lifelong learning, adaptability, and continuous growth, reinforcing the study's conceptual framing of "training for life."

This finding is significant because it demonstrates an evolution in professional mindset among librarians. Rather than viewing professional development as an isolated intervention for immediate job performance, respondents recognize CPD as a broader process of intellectual renewal and career sustainability. This result corroborates Sacchanand et al. (2024), who found that contemporary librarians increasingly associate CPD with resilience, innovation, and long-term professional relevance in digitally disrupted environments.

The findings are equally consistent with the principles of Human Capital Theory, which posits that investments in education and training enhance the productivity and value of workers over time. In this context, librarians view CPD as an investment not only in current competence but also in future adaptability. This suggests a progressive understanding of professional growth, particularly important in academic libraries where technological and pedagogical changes are continuous.

Impact of CPD on Professional Practice

The study found that CPD significantly enhances librarians' professional practice, particularly in service delivery, digital competence, and innovation in library services. Most respondents reported that participation in CPD has positively influenced their ability to support users, manage digital resources, and implement new service models.

This finding aligns with Moonasar (2024), who argues that CPD is fundamental to the transformation of academic libraries from traditional information repositories to dynamic, technology-driven service environments. Similarly, Oladokun and Mooko (2022) found that librarians who engage regularly in CPD demonstrate stronger confidence in digital service delivery, information literacy instruction, and electronic resource management.

The improvement in digital competence reported by respondents is particularly relevant to the Technology Acceptance Model. TAM suggests that users are more likely to adopt new technologies when they perceive them as useful and easy to use. Through CPD, librarians acquire the knowledge and confidence necessary to engage with emerging technologies such as institutional repositories, digital databases, AI-assisted search tools, and research analytics platforms. Consequently, CPD reduces technological anxiety and increases both perceived usefulness and ease of use, thereby facilitating technology adoption.

Additionally, the finding that CPD fosters innovation in library services suggests that professional development extends beyond competence acquisition to creative transformation. Librarians who are continuously exposed to new ideas, practices, and technologies are better positioned to introduce innovative services that respond to changing user expectations.

Challenges Affecting Participation in CPD

Despite the positive outcomes associated with CPD, the study identified several barriers limiting effective participation, including inadequate funding, time constraints, heavy workload, and insufficient institutional support. Inadequate funding emerged as the most significant challenge, indicating that many librarians face financial barriers in accessing advanced training, conferences, and certification opportunities.

This finding is consistent with prior Nigerian and African studies. Chukwusa (2024) identified financial limitations as a recurring challenge affecting librarians' participation in CPD, particularly in institutions where professional development is not adequately budgeted for. Likewise, Rehman et al. (2024) found that institutional barriers, including lack of sponsorship and administrative encouragement, significantly constrain librarians' ability to participate in meaningful CPD activities.

Time limitations and workload pressures were also identified as major barriers. This suggests that even when librarians are motivated to engage in professional development, organizational structures may not provide sufficient flexibility for learning. This finding highlights a practical contradiction: institutions expect librarians to remain professionally current while simultaneously imposing work conditions that hinder sustained learning.

From a theoretical perspective, these barriers weaken the realization of both Human Capital Theory and Lifelong Learning Theory. If institutions fail to invest adequately in librarians' professional growth, the organizational benefits associated with CPD, improved productivity, innovation, and service quality, may remain suboptimal.

Implication for 21st-Century Academic Librarianship

The findings of this study have important implications for contemporary academic librarianship. First, they reinforce the argument that librarianship is no longer a static profession anchored solely in traditional information management. Instead, librarians must function as digital facilitators, research partners, educators, and innovation agents.

Second, the findings suggest that CPD should be institutionalized as a strategic organizational priority rather than treated as an optional or peripheral activity. Universities that fail to invest in librarian development risk weakening their libraries' ability to support teaching, research, and knowledge dissemination effectively.

Third, the emphasis on lifelong learning underscores the need to reframe librarians' professional identity. Librarians must increasingly see themselves as adaptive lifelong learners whose relevance depends on continuous renewal of competencies and perspectives.

Overall, the study confirms that CPD is not merely a pathway to acquiring isolated skills but a comprehensive strategy for professional sustainability. In the context of Federal Universities in Edo and Delta States, CPD represents an essential mechanism for ensuring that librarians remain responsive, innovative, and effective within the evolving demands of 21st-century higher education.

Conclusion

This study examined Continuous Professional Development (CPD) as a framework for training for life among librarians in selected federal universities in Edo and Delta States, Nigeria. Drawing on empirical findings, the study concludes that CPD is widely recognized and actively practiced among academic librarians, with high levels of awareness and participation in conventional professional development activities such as workshops, seminars, and conferences. Librarians perceive CPD not merely as a mechanism for acquiring discrete skills but as a continuous process that enhances adaptability, professional relevance, and lifelong learning.

The findings further demonstrate that CPD has a significant positive impact on librarians' professional practice. Specifically, it improves service delivery, strengthens digital competencies, and fosters innovation in library services. These outcomes affirm the strategic value of CPD as a driver of institutional effectiveness and user satisfaction in contemporary academic libraries. The results also reinforce the applicability of key theoretical perspectives, particularly the Technology Acceptance Model, Human Capital Theory, and Lifelong Learning Theory, in explaining how professional development enhances technological adoption, capacity building, and continuous learning among librarians.

However, despite these positive outcomes, the study identifies persistent challenges that limit the effectiveness of CPD. These include inadequate funding, lack of institutional support, and time constraints arising from heavy workloads. Such barriers restrict librarians' ability to engage in more advanced and sustained forms of professional development, thereby constraining the full realization of CPD as a holistic, lifelong learning strategy.

In essence, the study concludes that while CPD is well-established in principle and practice, its transformative potential as *training for life* remains partially unrealized due to systemic and institutional limitations. Addressing these constraints is essential for positioning librarians as adaptive, innovative, and future-ready professionals in the 21st-century knowledge economy.

Recommendations

In line with the research questions and findings, the following recommendations are proposed:

Awareness and Participation in CPD: University library management should organize regular orientation programmes, sensitization workshops, and institutional campaigns to sustain and improve librarians' awareness and active participation in Continuous Professional Development activities.

Types of CPD Activities Engaged In: Federal university libraries should diversify CPD opportunities by integrating online courses, webinars, mentorship programmes, professional certifications, and technology-driven learning platforms alongside traditional workshops and conferences.

Influence of CPD on Professional Competence and Service Delivery: University administrations should provide sustained support for CPD initiatives that enhance digital competencies, research support skills, and innovative service delivery, particularly in areas such as artificial intelligence, data management, and digital librarianship.

Challenges Hindering Effective Participation in CPD: Institutions should address barriers to CPD participation by increasing funding allocation, reducing workload pressures, granting study leave, and establishing supportive institutional policies for professional development.

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Transitioning Academic Libraries to Renewable Energy for Climate Mitigation and Research Support
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Abstract
The global climate crisis necessitates a rapid transition from carbon-intensive practices to sustainable alternatives, with higher education institutions serving as critical agents of change. Academic libraries, the "engine rooms" of research, face unique challenges as they manage energy-intensive digital infrastructures and physical preservation requirements amidst chronic grid instability and diesel dependence in Sub-Saharan Africa. This study conducts a scoping review, following the PRISMA-ScR framework, to examine the transition of academic libraries in Nigeria toward renewable energy (RE) to support climate mitigation and enhance research support. A comprehensive search of databases, including Scopus, Web of Science, and DOAJ, reveals that while Global North libraries focus on carbon neutrality, those in Sub-Saharan Africa prioritise energy autonomy and reliability. Legislative reforms in Nigeria, such as the Electricity Act 2023 and Tax Act 2025, have fundamentally altered the landscape, allowing libraries to function as "prosumers" through microgrids and Power Purchase Agreements (PPAs). Technical audits suggest that adopting high-specification LiFePO4 storage and DC-inverter cooling is essential to achieve a 99.9% uptime for digital repositories. The findings indicate that the transition to RE is no longer an "environmental luxury" but a survival strategy for protecting digital assets and supporting high-performance computing. The review recommends a Recommended Standard Specification (RSS) to guide future procurement, emphasising that sustainable infrastructure is a prerequisite for resilient research. Conclusively, integrating renewable energy allows libraries to drastically reduce Scope 2 emissions, aligning with UN SDGs 7 and 13 while modelling sustainable leadership for their local communities.
Keywords: *Academic libraries; Renewable energy; Climate change mitigation; Sustainable infrastructure; Research support services*.

Introduction

The natural processes associated with climate change are rapidly accelerating due to the excessive use of fossil fuels, which generate greenhouse gas emissions and increase the temperature of the Earth. Climate change causes more frequent droughts, wildfires, floods, heatwaves and extreme storms. Melting permafrost layers, rising sea levels, and irreversible damage to ecosystems are further consequences of climate change (United Nations, 2021).

Growing concerns about climate change and the urgent need to reduce greenhouse gas emissions have led to an increased interest in renewable energy sources on the part of higher education institutions (HEI) (Araújo et al, 2024). The global climate crisis has reached a critical juncture, with the Intergovernmental Panel on Climate Change (IPCC, 2023) warning that immediate and deep emissions reductions across all sectors are necessary to limit global warming to 1.5°C. As the world seeks to decouple economic and institutional growth from carbon-intensive practices, the transition from fossil fuels to renewable energy (RE) has become a primary objective. Within the higher education landscape, universities are increasingly recognised not just as centres of learning, but as significant energy consumers and influential agents of societal change (Leal Filho et al., 2021).

Academic libraries naturally look to their parent institutions and sector policymakers for strategic leadership and direction regarding external political, economic, and social drivers, and it could be argued that they have done the same in seeking leadership on environmental concerns. At the local institutional level, a focus on sustainability and climate action has been measuring and reducing carbon emissions. Academic libraries have rightly been able to contribute to this through the development of more sustainable physical spaces and operations (Appleton and Woolley, 2023).

Academic libraries serve as the intellectual "engine rooms" of these institutions. However, their traditional and modern operations are inherently energy-intensive. To preserve physical collections, libraries must maintain precise Heating, Ventilation, and Air Conditioning (HVAC) standards 24/7. Simultaneously, the digital transformation of academia has shifted the library's burden toward massive data centres, server farms, and high-density computing hubs required for digital repositories and online resource access (Chowdhury, 2022).

Historically, these operations have relied heavily on national grids powered by coal, gas, and oil. Jankowska (2017) argues that while libraries have championed "green" initiatives—such as reducing paper waste and utilising natural light—the fundamental issue of energy sourcing remains largely unaddressed. The carbon footprint of a modern library's digital infrastructure is now a significant contributor to the institutional greenhouse gas (GHG) inventory.

The shift toward renewable energy, solar photovoltaics (PV), wind, and geothermal systems offers a dual pathway for academic libraries: climate mitigation and operational resilience. Fossil fuel dependence exposes libraries to volatile energy prices and potential outages, jeopardising sensitive digital archives and research data.

According to research by Antonelli (2008) and later expanded by Sahavirta (2020), the concept of the "Green Library" must evolve beyond sustainable architecture to include energy autonomy. Transitioning to RE allows libraries to model sustainable behaviour for their parent institutions and local communities. By integrating renewable energy sources, libraries can drastically reduce their Scope 2 emissions, aligning with the United Nations Sustainable Development Goals (SDGs) 7 (Affordable and Clean Energy) and 13 (Climate Action).

Beyond environmental benefits, the transition to renewable energy is intrinsically linked to the library's mission of research support. Reliable, sustainable energy is the bedrock of contemporary research infrastructure. Modern research increasingly relies on:

i. Big Data Analytics: Requiring constant server uptime and cooling.
ii. Digital Preservation: Ensuring the long-term survival of digitised cultural heritage.
iii. Open Access Repositories: Providing global access to scholarly output without interruption.

As academic institutions face increasing pressure to demonstrate commitment to Environmental, Social, and Governance (ESG) criteria, the library's energy profile becomes a focal point. A library powered by renewable energy not only preserves the past but also secures the future of research by ensuring that the infrastructure supporting scientific inquiry is sustainable and carbon-neutral (Brodie, 2012).

Problem Statement

Despite the growing body of literature on sustainable campus management, there is a distinct lack of empirical research focusing specifically on the technical, financial, and institutional frameworks required to transition library-specific energy loads to renewable sources. Most existing studies are localised or limited to building design (e.g., LEED certification) rather than to the systemic energy transition and its direct correlation with the reliability of research support services. This study seeks to bridge this gap by investigating the barriers and drivers for adopting renewable energy in academic libraries, ultimately proposing a robust model for a fossil-fuel-free library infrastructure that supports the evolving needs of the global research community.

Objective of the Study

The primary objective of this study is to do a scoping review that synthesises international and regional data to examine the transition of academic libraries in Sub-Saharan Africa (SSA), particularly Nigeria and South Africa, from fossil fuel-based energy systems to renewable energy sources, evaluating its impact on climate change mitigation and the enhancement of sustainable research support services.

Methodology and Search Strategy

The study adopted a scoping review (ScR) of literature to comprehensively examine the transition of academic libraries from fossil fuel-based energy systems to renewable energy sources, evaluating its impact on climate change mitigation and the enhancement of sustainable research support services. This approach was informed by the dearth in the literature on the subject matter and the emerging nature of AI research. Scoping review of literature is a preferable approach in investigating phenomena that have not yet been widely researched (Hanneke et al., 2017) or in examining emerging evidence and trends (Munn et al., 2018). Therefore, the scoping review is expected to bring together studies that met specified criteria on the subject matter to proffer answers to questions that are asked as a framework for the study. This review was conducted in accordance with the guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist, as established by Tricco et al. (2018). PRISMA provides an evidence-based framework that sets minimum criteria for systematically reporting scoping reviews and meta-analyses. While originally developed for evaluating randomised trials, PRISMA has become a widely accepted standard for structuring and reporting scoping reviews.

Following the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) framework, a comprehensive search was conducted across five major databases:

- Scopus & Web of Science: For high-impact, peer-reviewed energy and library science literature.
- SCImago (SJR): To identify top-tier journals in the African context.

- Crossref & DOAJ: To capture open-access research and grey literature specific to African institutional repositories.

The Energy Footprint of Academic Libraries

International data from the International Energy Agency (IEA, 2022) and the International Renewable Energy Agency (IRENA,2024) highlights a global surge in "Green Libraries." While European and North American libraries focus on LEED-certified architecture and energy efficiency, the SSA context focuses on Energy Autonomy.

Table 1: Energy Footprint of Academic Libraries in the Global North and Sub-Saharan Africa

Feature	Global North Libraries	Sub-Saharan Africa Libraries
Primary Goal	Carbon Neutrality / LEED	Reliability / Access / Research Continuity
Grid Status	Stable, Feed-in Tariffs	Unstable, Off-grid/Hybrid priority
Storage Need	Peak Shaving	24/7 Autonomy for Digital Assets
Finance	Public Grants / Green Bonds	PAYG / Private Partnerships / Donor Funding

Source: International Energy Agency (2022) and International Renewable Energy Agency (2024)

The Transition to Renewable Energy

Nigeria's decentralised energy framework, backed by the Electricity Act 2023, empowers academic libraries to bypass failing grids. By securing captive power permits, institutions can deploy independent solar-hybrid solutions to achieve 24/7 power, transforming libraries into energy "prosumers" that cut carbon emissions and guarantee uninterrupted digital operations (Mondaq, 2026).

The Shift to Institutional Energy Autonomy

The transition from relying heavily on the national grid and carbon-intensive diesel generators to localised renewable power is reshaping how Nigerian academic institutions operate:

- The Legal Framework**:** The Electricity Act 2023 radically decentralises the power sector. It formally allows institutions to legally generate and manage their own intrastate electricity without restrictive federal bureaucracy.
- Captive Power Generation**:** Universities and large commercial entities are increasingly securing captive power permits. These licenses permit institutions to exclusively generate and consume their own power (such as megawatt-scale solar installations) to ensure non-stop operations (ESI Africa,2025; Mondaq, 2026; and Rural Electrification Agency, 2023)

Real-World Progress in Nigerian Universities

- **NERC Approvals:** The Nigerian Electricity Regulatory Commission has actively granted multi-megawatt captive power generation permits to several major federal universities. Recent beneficiaries of these regulatory licenses include the University of Abuja (3MW), University of Maiduguri (12MW), and the University of Calabar (7MW).
- **Energy-as-a-Service:** Flagship programs like the World Bank-backed Energising Education Programme (EEP) have seen successful campus installations, such as the EM-ONE-built solar-hybrid plant at UniAbuja. These initiatives directly provide stable, reliable power to university library servers, digital repositories, and high-speed internet hubs. (ESI Africa, 2025, Dataphyte, 2026; University World News, 2025)

Why the Transition is Essential

- **Library Operations:** With the shift toward digital scholarly resources, open-access repositories, and e-learning, academic libraries in Sub-Saharan Africa require guaranteed, uninterrupted power to support teaching and research without downtime.
- **Cost and Carbon Reduction:** Shifting away from costly, volatile diesel generators towards decentralised renewable options helps institutions drastically reduce their carbon footprints while mitigating the long-term operational costs of emergency power generation (PricewaterhouseCoopers (PcW), 2024; Axxela Group, 2023; Mondaq, 2026).

The Narrative of Policy Reform: Nigeria's Path to Green Libraries

The narrative begins in 2015 with the National Renewable Energy and Energy Efficiency Policy (NREEEP). At this stage, the government first formally acknowledged that the centralised grid was insufficient for the nation's developmental goals. For academic institutions, NREEEP was the first document to suggest that "educational and research institutions should lead by example" in adopting renewable energy (RE).

However, early implementation was hampered by a lack of legal teeth; while the policy encouraged solar adoption, libraries remained tethered to the Nigerian Electricity Regulatory Commission's (NERC) rigid centralised pricing and distribution rules. This era was characterised by "pilot projects"—often donor-funded—that frequently failed due to a lack of integrated maintenance policies (National Renewable Energy and Energy Efficiency Policy, 2015).

A pivotal turning point occurred with the signing of the Electricity Act 2023. Before this, power generation and distribution were exclusively federal concerns. The 2023 Act effectively "de-federalised" the power sector, granting states and, crucially, private and educational entities the right to generate and distribute their own electricity.

For the Nigerian academic library, this was a legislative liberation. It provided the legal basis for microgrids. Libraries were no longer just rooms within a building; they could now be the "Anchor Tenants" of a campus-wide solar system. Under this Act, a library could legally enter into a Power Purchase Agreement (PPA) with a private provider, allowing for the installation of large-scale solar arrays on campus grounds without the bureaucratic bottleneck of federal grid approval (PLAC, 2023).

Fiscal Realism: The Tax Act 2025 and the "Diesel Penalty"

By late 2025, the narrative shifted from legal permission to economic necessity. The Nigeria Tax Act 2025 introduced a decisive fiscal "shove" toward renewables. By removing VAT from renewable energy equipment—including the high-specification LiFePO4 batteries required for server room stability—the government lowered the capital entry barrier.

Simultaneously, the Act imposed a carbon-mitigation surcharge on industrial-scale diesel consumption. For academic libraries already struggling with the removal of fuel subsidies, the cost of running a diesel generator for 12 hours a day became mathematically unsustainable. This fiscal pressure catalysed the adoption of the Pay-As-You-Go (PAYG) financial model. In this narrative, the library's energy transition is no longer seen as an "environmental luxury" but as a survival strategy to protect digital assets and research continuity (Binder Dijker Otte (BDO) Global, 2026).

Current State (2026): The Era of Institutional Autonomy

Today, the focus has moved to Technical Standardisation. Following the lessons of the previous decade, the Standards Organisation of Nigeria (SON) and NERC have introduced specific codes for "Institutional Green Buildings." These codes mandate that new library infrastructures must include integrated solar-ready roofs and dedicated, climate-controlled battery bays.

This policy evolution has transformed the Nigerian libraries' environment. The reliability concerns that once plagued digital repositories are being mitigated by policies that prioritise "Critical Load Autonomy", ensuring that even if the rest of the campus goes dark, the library server room (the heart of the institution's research support) remains powered by stabilised LiFePO4 storage systems (AfDB, 2026).

Barriers to Transition

Despite progress, the "Nigeria in Focus" analysis reveals critical bottlenecks:

- **Import Duties:** While VAT is zero-rated, import duties on solar batteries and inverters remain high (estimated at 20%). The Centre for the Promotion of Private Enterprise (CPPE) has formally urged the Federal Government to slash these to 5% to accelerate adoption (Nairametrics, 2026).
- **Quality Control:** The Standards Organisation of Nigeria (SON) continues to struggle with the influx of sub-standard solar panels, which can degrade by 30% in efficiency within the first two years (Centre for International Governance Innovation, 2026).

The Road Ahead: Standardising the "Nigerian Green Library"

Standardising the concept of the "Nigerian Green Library" requires a systematic harmonisation of architectural, technological, and legislative frameworks. As public utility and information infrastructures, academic and national libraries in Sub-Saharan Africa are uniquely positioned to spearhead environmental sustainability and decouple from carbon-intensive grids (Ebhota, 2024). Standardising this framework involves transition milestones that bridge technical deployment with institutional policy.

The Core Dimensions of the Nigerian Green Library Standard

To shift from isolated, reactive adoptions to a nationally recognised institutional standard, the "Nigerian Green Library" archetype must integrate three foundational pillars:

1. The Legislative & Regulatory Catalyst

Historically, decentralised green energy deployments across Nigerian universities were hindered by restrictive microgrid policies and complex federal energy monopolies.

i. **The Power Shift:** The enactment of the Electricity Act 2023 serves as a foundational legal driver. By de-federalising and decentralising electricity generation, transmission, and distribution, it empowers state governments and individual institutions to generate their own power.

ii. **Anchor Tenants:** This legislative breakthrough provides the exact statutory framework required for academic libraries to act as "anchor tenants" of campus-wide solar microgrids, trading excess power across university faculties.

iii. **Fiscal Realism:** Simultaneously, macroeconomic policies like the Nigeria Tax Act 2025 act as financial catalysts. Raising the cost burdens on import-dependent fossil fuel operations, it transforms traditional diesel

generation into an immediate fiscal penalty. This shifts institutional focus toward alternative operational financing, such as Power Purchase Agreements (PPAs) and Pay-As-You-Go (PAYG) solar options.

2. Technical Infrastructure & Architectural Design

A standardised green library transcends basic energy conservation; it dictates eco-friendly structural parameters alongside climate-resilient engineering (Kolawole & Oladokun, 2025).

i. **Energy Optimisation:** Standardised layouts require heavy implementation of low-voltage DC-powered cooling systems and high-efficiency LED configurations. This is structurally optimised using architectural shading protections from direct solar heat loads (Okpidi-Urhibo, 2024).
ii. **Resilient Storage:** Transitioning to Lithium Iron Phosphate ($LiFePO_4$) battery banks coupled with Hybrid Renewable Energy Systems (HRES) ensures the structural mitigation of toxic waste common to older lead-acid storage setups (Adetoro et al., 2023).
iii. **Sustainable Materials:** Standard construction and renovation guidelines emphasise localised, sustainable materials, including precast concrete slabs, bamboo, and reclaimed timber, to significantly lower embodied carbon values (Kolawole & Oladokun, 2025).

3. Safeguarding the Scholarly Mission

Ultimately, standardising the green library framework directly supports modern academic workflows. Unreliable municipal grids in developing territories severely restrict administrative functions and information access (Shittu, 2026). Decoupling from volatile fossil fuel dependencies guarantees the 99.9% power uptime necessary to secure digital repositories, sustain big data analytics, and preserve continuous global access to the nation's scholarly output (Okpidi-Urhibo, 2024).

Discussion

The primary goal of the RE transition is the reduction of the library's carbon footprint while maintaining 100% uptime for research repositories. In Sub-Saharan Africa, mitigation should not be just about gases; the concern should revolve around the resilience of knowledge.

Academic libraries in Sub-Saharan Africa (SSA), especially Nigeria are currently at a crossroads. As centres of knowledge and research, their operations are increasingly digital, requiring 24/7 power for server rooms, digital repositories, and high-speed internet. However, the region's energy landscape is characterised by chronic grid instability and a heavy reliance on carbon-intensive diesel generators.

The narrative of energy policy reform in Nigeria is one of a slow-burning evolution that has recently accelerated into a radical decentralisation. For academic libraries, this shift represents a move from being passive consumers of a failing national grid to becoming active "prosumers" within a legalised framework of institutional energy autonomy

A transition to RE should directly impact research productivity and carbon footprint reduction in the following ways:

i. Digital Preservation and Repository Uptime Percentage**:** Stable power should make Institutional Repositories (IRs) accessible 24/7 to the global research community. The percentage of time the Institutional Repository (IR) remains accessible to global researchers. The metric for 2026 "Green Libraries" in Nigeria should be above 90% uptime, a benchmark that was previously unattainable under diesel-grid hybrid models.
ii. Data Science: High-performance computing (HPC) required for modern African research (genomics, climate modelling) requires the "clean" power provided by RE to prevent hardware damage from grid surges.
iii. Climate Leadership and Literacy Index**:** By adopting RE, academic libraries will serve as "Living Labs," providing data for local climate mitigation studies and demonstrating the feasibility of the Green Economy to students and policymakers. This should be measured via annual surveys of library users to track the library's success in using its own RE transition as a "living lab" and teaching tool.

Conclusion

The transition of Sub-Saharan African academic libraries from fossil-fuel dependence to renewable energy represents a critical shift toward institutional autonomy and research resilience. While the technical roadmap is well-defined via Lithium Iron Phosphate (LiFePO4) storage and DC-powered cooling integration, successful implementation hinges on aligned policy and financial innovation. In Nigeria, legislative evolution from the NREEEP 2015 to the Electricity Act 2023 has decentralised power, legally enabling libraries to act as anchor tenants for campus-wide solar microgrids. Concurrently, fiscal realism catalysed by the Nigeria Tax Act 2025 has penalised reliance on diesel, accelerating the adoption of Pay-As-You-Go (PAYG) and Power Purchase Agreement (PPA) models. Ultimately, these transitions extend beyond carbon mitigation to safeguard the 99.9% uptime essential for digital preservation, big data analytics, and uninterrupted global access to scholarly output.

However, critical bottlenecks such as high import duties and variable equipment quality remain significant hurdles. Ultimately, moving academic libraries beyond fossil fuels is not merely a technical upgrade but a prerequisite for a resilient, research-intensive future that safeguards African scholarship in a climate-constrained world.

Recommendation

Based on the findings from the literature, the following recommendations are made:

1. Awareness campaign about the importance of adopting renewable energy systems among academic librarians, information professionals and higher education policy makers should be intensified, to disorient the old idea of dependence on fossil fuels.
2. Critical bottlenecks, such as high import duties and variable equipment quality, should be done away with by way of removing the tax burden on renewable energy products and services.
3. To ensure long-term sustainability of renewable energy transition, institutions must adopt Standard Specifications (RSS) and rigorous Measurement, Reporting, and Verification (MRV) protocols based on current market standards and the Electricity Act 2023 mandates, to prevent the "procurement of obsolescence. "
4. It is necessary to develop more financial mechanisms as a buffer for funding for all forms of sustainable energy within the higher education sector.
5. Research should be prioritised, and advocacy is needed on how to plan pocket-friendly, climate-friendly, renewable energy-powered academic libraries.

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The Status of Libraries and Librarians in Academic Institutions across Jigawa State

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Abstract

This study investigated the status of libraries and librarians in academic institutions across Jigawa State Nigeria. The research assessed the availability and adequacy of library resources, examined the roles, responsibilities and working conditions of librarians, and identified the major challenges affecting library services in the state. A descriptive survey design was adopted, involving students and librarians from five tertiary institutions in the state: Su Sule Lamido State University Kafin Hausa, Federal University Dutse (FUD), Jigawa State Polytechnic Dutse, College of Education Gumel, and Bilyaminu Usman Polytechnic Hadejia. Data were collected through a structured questionnaire administered via Google Forms, yielding 187 valid responses. The data were analyzed using descriptive statistics and mean scores. The findings revealed that the availability and adequacy of library resources were generally low (mean 2.2).it further highlight infrastructural deficits: Over 55% of academic libraries in Jigawa suffer from insufficient space, unreliable power, and poor ventilation, reducing user satisfaction and access hours. Low resource allocation (< 10%) of institutional budgets (72.7%), leading to outdated collections and limited electronic resources. The study further indicates gap in librarian competencies as 77% (mean 3.0) hold basic qualifications but their professional roles, responsibilities, and working conditions were rated below expectation (mean 2.19), with limited training in digital librarianship, impairing information retrieval and research support services. In addition, respondents strongly agreed that libraries and librarians face significant challenges including technological constraints, outdated resources (3.1). the study concludes that academic libraries in Jigawa State face substantial resource, infrastructural and professional challenges that hinder effective service delivery. It recommends increased funding, improved technological and physical infrastructure, and enhanced professional development to strengthen library services and support academic excellence in the state.
Keywords: Academic Libraries, Librarian, Library resource, Professional status, Challenges.

INTRODUCTION

Libraries are recognized as the intellectual hub of academic institutions, providing access to information resources that support teaching, learning, research, and community service. Academic libraries play a crucial role in facilitating knowledge creation and dissemination by acquiring, organizing, preserving, and providing access to scholarly information resources (Haridasan, 2014). In contemporary higher education, libraries have evolved from traditional repositories of books to dynamic information centers that utilize digital technologies to meet the changing information needs of users (Adams, 2019). Consequently, librarians have also expanded their roles beyond information custodianship to include information literacy instruction, research support, digital resource management, and scholarly communication services (Furfuri, 2025).

The effectiveness of academic libraries depends largely on the availability of adequate resources, qualified personnel, modern technologies, and institutional support. However, many academic libraries in Nigeria continue to face challenges such as inadequate funding, poor technological infrastructure, insufficient information resources, and limited opportunities for staff development (Rosenberg, 2006). These challenges have affected the quality of library services and the ability of librarians to contribute effectively to institutional goals (Adedeji et al., 2020; Saka et al., 2023).

In addition, concerns have been raised regarding the professional status and recognition of librarians within academic institutions. Although librarians are expected to contribute to teaching, research, and knowledge dissemination, their roles are often undervalued in institutional governance and decision-making processes. Studies have shown that the status of librarians in Nigerian universities has gradually diminished, thereby affecting their participation in academic and administrative activities (Ola and Oyelude, 2021)

Jigawa State host several tertiary institutions including Sule Lamido State University Kafin Hausa, Federal University Dutse (FUD), Jigawa State Polytechnics College of Education Gumel, Bilyaminu Usman Polytechnic Hadejia. The growth of these tertiary institutions has increased the demand for efficient library and information services. Nevertheless, available evidence suggests that academic libraries in the state face challenges related to technological adoption, infrastructure, funding, and staff capacity development. For instance, the integration of emerging technologies such as artificial intelligence in tertiary institution libraries in Jigawa State remains slow due to inadequate infrastructure, funding constraints, and shortages of digital competencies among library personnel (Kazaure and Ahmad, 2026).

Despite the importance of libraries and librarians in promoting academic excellence, there is limited empirical information on their current status across academic institutions in Jigawa State. Understanding the condition of library facilities, information resources, technological infrastructure, staffing, and the professional standing of librarians is essential for developing strategies that will enhance service delivery and support educational development. Therefore, this study seeks to examine the status of libraries and librarians in academic institutions across Jigawa State with a view to identifying existing strengths, challenges, and opportunities for improvement.

Problem Statement

Libraries and librarians play a critical role in supporting teaching, learning, and research activities in academic institutions. Despite their importance, many academic libraries in Nigeria continue to face challenges such as inadequate funding, insufficient information resources, poor technological infrastructure, and limited professional recognition of librarians, which hinder effective service delivery (Aina, 2013; Issa, Omopupa & Salman, 2014). In Jigawa State, there is limited empirical evidence on the current status of libraries and librarians across academic institutions, creating a gap in understanding their capacity to support academic excellence and research productivity. Therefore, this study seeks to assess the status of libraries and librarians in academic institutions across Jigawa State in order to identify existing challenges and provide recommendations for improving library services and the professional standing of librarians.

Objectives of the Study

1. To assess the availability and adequacy of library resources in academic institutions across Jigawa State.
2. To examine the roles, qualifications, and working conditions of librarians in academic institutions in Jigawa State.
3. To identify the major challenges affecting library services and librarianship in various academic institutions in Jigawa State.

Research Questions.

1. Are there available library resources are in your academic institutions, and how adequate are they?
2. What are the roles, qualifications and working conditions of librarians in your institutions?
3. What challenges do libraries and librarians faced in your academic institutions?

LITERATURE REVIEW

Availability and Adequacy of Library Resources

The availability and adequacy of library resources remain critical indicators of the effectiveness of academic libraries in Nigeria. Academic libraries are expected to provide relevant print and electronic resources that support teaching, learning, and research activities. However, studies have shown significant disparities in resource availability across institutions due to differences in funding, infrastructure, and management practices.

Recent research indicates that while many Nigerian academic libraries have expanded their collections through electronic databases, institutional repositories, and digital services, the adequacy of these resources remains a challenge. A study conducted across academic libraries in North-Central Nigeria found that digital literacy programmes, library orientation services, and access to electronic resources were available in many institutions, but implementation and access were inconsistent due to infrastructural limitations and inadequate digital facilities (Olawale and Kehinde, 2024). Similarly, research on the preservation and availability of information resources in academic libraries in the South-South region of Nigeria revealed that although libraries maintain substantial collections of print and electronic materials, issues related to preservation, accessibility, and collection management affect the adequacy of available resources. The study emphasized that resource availability alone does not guarantee effective utilization unless materials are properly organized, preserved, and made accessible to users (Obi, 2024).

The increasing adoption of electronic resources has improved information access in many institutions. However, studies show that utilization is often constrained by inadequate subscriptions, unstable internet connectivity, limited computer facilities, and low awareness among users. For instance, an evaluation of e-resource use in Nigerian academic libraries reported that despite the availability of electronic databases and online resources, many students and researchers experienced difficulties accessing and effectively utilizing them (Simeon et al., 2023).

Overall, the literature suggests that Nigerian academic libraries have made progress in expanding information resources, particularly digital collections, but challenges relating to adequacy, accessibility, preservation, and sustainable funding continue to affect their effectiveness.

Roles, Professional Status and Workplace of Librarians in Nigerian Academic Libraries

Academic librarians play essential roles in supporting education, research, and knowledge dissemination within higher institutions. Librarians are expected to perform beyond traditional custodial functions (collection development, cataloguing, classification, and reference services), as technological advancements have expanded their professional responsibilities significantly, engaging them in activities such as advocacy, information literacy instruction, and research support. However, recent literature highlights the emergence of new roles for academic librarians in Nigeria, particularly in the digital environment. Librarians now serve as information literacy instructors, digital content managers, research support specialists, institutional repository managers, and technology facilitators. They assist students and researchers in navigating electronic databases, evaluating information sources, managing research data, and enhancing digital literacy skills (Furfuri, 2025). Likely, Onyema and Aguolu (2017) also argue that academic librarians need to be not just information managers but also instructional partners, facilitators of research, and strategic contributors to institutional goals.

The professional status of librarians in Nigerian universities has evolved over time. In many universities, librarians enjoy academic status comparable to teaching staff, enabling them to participate in research, publication, promotion exercises,

and institutional governance. Nevertheless, variations still exist among institutions regarding recognition, career progression, and involvement in decision-making processes. The evolving digital landscape has further strengthened the professional identity of librarians as knowledge managers and information specialists rather than custodians of books alone (Adewojo and Tella, 2026).

Regarding workplace responsibilities, academic librarians operate in various units, including reference services, technical services, circulation departments, digital libraries, institutional repositories, archives, and information technology sections. The integration of emerging technologies has also increased collaboration between librarians, ICT professionals, faculty members, and researchers. Consequently, modern academic librarians are increasingly expected to possess competencies in information technology, digital resource management, data analytics, and artificial intelligence applications (Agboke and Oladokun, 2024).

The literature therefore portrays librarians as multifaceted professionals whose roles continue to expand in response to technological innovation and changing user expectations.

Challenges Facing Academic Libraries and Librarians in Nigeria

Despite their strategic importance in higher education, academic libraries and librarians in Nigeria face numerous challenges that limit their effectiveness and service delivery.

One of the most frequently reported challenges is inadequate funding (Abubakar, 2015). Limited financial allocation affects collection development, subscription to electronic databases, acquisition of ICT facilities, staff development, and maintenance of library infrastructure. Funding constraints often result in outdated collections and inadequate technological resources (Esse and Haliso, 2024). Another major challenge is poor technological infrastructure. Many academic libraries struggle with unreliable internet connectivity, unstable electricity supply, insufficient computer systems, and inadequate digital platforms. These deficiencies hinder access to electronic resources and reduce the effectiveness of digital library services. Studies on institutional repositories and emerging technologies consistently identify infrastructure deficits as significant barriers to service delivery (Ogunbote and Abimbola 2025). Human resource challenges also affect library performance. Academic librarians are increasingly required to possess advanced ICT competencies, yet opportunities for continuous professional development remain limited in some institutions. A studies by Adewojo and Tella (2026) shows that rapid emergence of technologies such as artificial intelligence, digital repositories, and automated library systems has created additional training needs. Knowledge management and information-sharing challenges have also been documented. These include inadequate organizational support, resistance to change, poor collaboration among staff, and insufficient investment in modern information systems. Such factors hinder innovation and the effective management of institutional knowledge resources (Aniebo, 2024). Furthermore, studies have identified challenges related to user awareness and utilization of library services. Many students remain unaware of available electronic resources or lack the skills necessary to utilize them effectively, resulting in underutilization of valuable information resources (Nworie et al., 2023). In summary, the major challenges confronting Nigerian academic libraries and librarians include inadequate funding, poor ICT infrastructure, unstable electricity supply, limited professional development opportunities, insufficient staffing, low user awareness, and difficulties associated with technology adoption and knowledge management.

METHODOLOGY

The study is aimed at exploring the status of libraries and librarians in academic institutions for effective services across Jigawa State academic institutions The survey encompasses 200 students and 80 Librarians from five academic institutions including Sule Lamido State University Kafin Hausa, Federal University Dutse (FUD), Jigawa State Polytechnics Dutse, College of Education Gumel, Bilyaminu Usman Polytechnic Hadejia. Google form questionnaire were used for data collection yielding a total of 187 responses which were analyze using Statistical Package for Social Sciences (SPSS) and descriptive statistics. The total enumeration sampling technique was adopted to select the entire population of the study for accuracy and to eliminate sampling errors. Analysis values were assigned to the four response categories and the mean was interpreted using the 4-point scale ranging from highest (4) to lowest (1). A standard mean of 2.5 was used in decision making and any factor above the criterion mean is considered a determinant.

RESULT

Research Question 1: Are there available library resources in your academic institution and how adequate are they?

Table 1: Availability and adequacy of Library resources in your academic institution

S/N	ITEM	SA (%)	A (%)	D (%)	SD (%)	MEAN
1.	We have available resources in the library (books, journals, e-books, databases, audiovisual materials)	22 (11.7)	38 (20.3)	77 (41.2)	50 (26.7)	2.2
2.	The available resources are sufficient to meet students' and staff's academic needs	11 (5.9)	37 (19.8)	92 (49.2)	47 (25.1)	2.1

3.	The library resources are up-to-date in terms of publication date and relevance	14 (7.5)	52 (27.8)	85 (45.5)	36 (19.3)	2.2
4.	The available resources are specific to each department and/or faculty	20 (10.7)	42 (22.5)	76 (40.6)	49 (26.2)	2.2
5.	The library resources are easily accessible to students (both physical and online access)	37 (19.8)	48 (25.7)	43 (23.0)	59 (31.5)	2.3
6.	The library provide resources in digital formats for remote access	13 (6.9)	35 (18.7)	89 (47.6)	50 (26.7)	2.1
7.	specialized resources are available for research purposes (theses, dissertations, reference books)	53 (28.3)	82 (43.9)	31 (16.6)	21 (11.2)	2.9
8.	Library in your institution is having a standard power supply to boost libraries capabilities and promote efficient services delivery.	03 (1.6)	14 (7.5)	28 (14.9)	142 (75.9)	1.3
	Aggregate mean					**2.2**
	Criterion mean					**2.5**

Key: SA = strongly agree, A= Agree, D = Disagree, SA = strongly disagree

The availability and adequacy of library resources of institution in Jigawa State are presented in table 1. The findings revealed an overall mean score of 2.2 slightly less than the criterion mean (2.5). The highest respondent value was found in "specialized resources is available for research purposes (theses, dissertations, reference books)" with a mean of 2.9, We have available resources in the library (books, journals, e-books, databases, audiovisual materials) = 2.2, the library resources are easily accessible to students (both physical and online access) =2.3, the library resources are up-to-date in terms of publication date and relevance, The available resources are specific to each department and/or faculty (2.2), the library provide resources in digital formats for remote access (2.1) and a least mean of 1.3 for "provision of constant power supply to boost libraries capabilities and promote efficient services delivery". The findings therefore disagreed with the 4-point likert scale which state that mean score above 2.5 mark is positive and hence indicating shortage of library resources in Jigawa state academic libraries.

Research question 2. What are the roles, qualifications, and working conditions of libraries in your institution?
Table 2: Roles, qualifications and working conditions of librarians in your institutions

	S/N	**ITEM**	**SA (%)**	**A (%)**	**D (%)**	**SD (%)**	**MEAN**
Roles & Responsibilities	**1.**	Staff and students supports the main functions of the library in teaching, learning, and research	72 (38.5)	98 (52.4)	11 (5.9)	6 (3.2)	3.3
	2.	Librarians in your institution perform their roles effectively	8 (4.3)	21 (11.2)	89 (47.6)	69 (36.9)	1.8
	3.	Librarians provide adequate support to students and faculty in accessing resources	31 (16.6)	71 (37.9)	53 (28.3)	32 (17.2)	2.5
	4.	Librarians are involved in organizing and managing learning programs or work	15 (8.0)	22 (11.8)	63 (33.7)	87 (46.5)	1.8
	5.	Librarians in your institution are involved in curriculum development or research guidance	9 (4.9)	28 (14.9)	81 (43.3)	69 (36.9)	1.9
		Mean					2.26
Qualifications & Professional Background	**6.**	Librarians in your institution possess the necessary academic qualifications for their effective roles	76 (40.6)	59 (31.6)	35 (18.7)	17 (9.1)	3.0
	7.	Besides academic qualification, Librarians possesses relevant	20 (10.7)	23 (12.3)	80 (42.8)	64 (34.2)	1.9

		professional training and certification					
		Mean					2.45
Working Conditions	**8.**	The physical workspace and facilities for librarians are adequate	5 (2.7)	23 (12.3)	94 (50.3)	65 (34.6)	1.8
	9.	The workspace for Librarians are well ventilated and fully equipped	8 (4.3)	29 (15.5)	83 (44.4)	67 (35.8)	1.9
	10.	Librarians have equal representation in all college or university governance.	14 (7.5)	19 (10.2)	87 (46.5)	67 (35.8)	1.9
		Mean					1.9
Aggregate mean							**2.19**
Criterion mean							**2.5**

Key: SA = strongly agree, A= Agree, D = Disagree, SA = strongly disagree

Table 2 depicts the result for roles, qualifications, and working conditions of libraries in your institution. It is shown from the table that the roles and responsibilities of these librarians was poor with an average mean of 2.26 on a 4 point Likert scale. Qualifications and professional background had a mean of 2.45 with Librarians possess the necessary academic qualifications for their effective roles (3.0) and possesses relevant professional training and certification (1.9), and working conditions have an aggregate mean of 1.9 below the margin mean (2.5) which was showing poor working conditions.

Research question 3. What are the challenges faced by libraries and librarians in your academic institution?

Table 3: Challenges faced by libraries and librarians in your academic institution

S/N	ITEM	SA (%)	A (%)	D (%)	SD (%)	MEAN
1	Financial or budgetary constraints is the major challenge affecting the library	82 (43.9)	57 (30.6)	20 (10.7)	25 (13.5)	3.0
2.	There are challenges related to outdated or insufficient library resources	77 (41.2)	59 (31.5)	40 (21.4)	11 (5.9)	3.0
3.	Inadequate staffing affect library services in your institutions	62 (33.2)	90 (48.1)	17 (9.1)	18 (9.6)	3.0
4.	Technological challenges are affecting library management and digital resources	75 (40.1)	86 (45.10)	15 (8.0)	11 (5.9)	3.2
5.	User behaviors or low library usage affect operations	91 (48.7)	54 (28.9)	15 (8.0)	27 (14.4)	3.1
6.	Infrastructural issues, such as inadequate space, unreliable power, and poor ventilation affects your library	83 (44.5)	62 (33.1)	10 (5.3)	32 (17.1)	3.0
7.	Professional development or training are not easily accessible in your institutions	69 (36.9)	84 (44.9)	14 (7.5)	20 (10.7)	3.1
8.	Difficulties in maintaining and preserving library resources are a setback to your institution library	76 (40.6)	64 (34.2)	37 (19.8)	10 (5.3)	3.1
9.	Library received low funding (< 10%) of institutional budgets	71 (37.9)	65 (34.8)	23 (12.3)	28 (14.9)	3.0
	Aggregate mean					**3.1**
	Criterion mean					**2.5**

Key: SA = strongly agree, A= Agree, D = Disagree, SA = strongly disagree

Responses in table 3 outlines the notable challenges faced by libraries and librarians with a strong agreement by respondents (mean 3.1). The most critical items are technological challenges are affecting library management and digital resources (3.2), difficulties in maintaining and preserving library resources are a setback to your institution library(3.1), professional development or training are not easily accessible in your institutions (3.1) and Infrastructural issues, such as inadequate space, unreliable power, and poor ventilation affects your library (3.1), infrastructural issues, such as inadequate space, unreliable power, and poor ventilation affects your library; inadequate staffing affect library services in your institutions; there are challenges related to outdated or insufficient library resources; financial or

budgetary constraints is the major challenge affecting the library (3.0) and Libraries receiving low funding (< 10%) of institutional budgets.

Discussion

1. Availability and Adequacy of Library Resources in Academic Institutions in Jigawa State.

The findings revealed that the availability and adequacy of library resources in academic institutions across Jigawa State were generally inadequate, as indicated by the aggregate mean score of 2.2, which falls below the criterion mean of 2.5. Respondents particularly disagreed that libraries possessed sufficient and up-to-date resources, department-specific collections, digital resources for remote access, and reliable power supply. This finding is consistent with studies conducted by Aina (2021), who reported that many Nigerian academic libraries continue to experience shortages of current information resources due to inadequate funding and poor collection development practices. Similarly, Nwalo and Oyedum (2020) found that most academic libraries in northern Nigeria lacked sufficient electronic databases and current scholarly materials needed to support teaching, learning, and research activities.

The finding also agrees with the report of the National Universities Commission that many tertiary institution libraries face challenges in maintaining adequate collections because budget allocations to libraries are often insufficient. Furthermore, the poor rating of digital resources and remote access facilities supports the findings of Omeluzor et al. (2022), who observed that limited ICT infrastructure and unstable electricity supply hinder effective digital library services in Nigerian institutions. The issue of inadequate power supply (mean = 1.3) aligns with findings by Ezeani and Ugwu (2021), who identified erratic electricity as a major barrier to efficient library operations and access to electronic resources in Nigerian academic libraries.

2. Roles, Qualifications, and Working Conditions of Librarians

The study revealed that librarians' roles and responsibilities were perceived as being performed below expectation (mean = 2.26), while working conditions were rated poor (mean = 1.9). This is in contrast with the studies by Olorunsola (2012) reported a high level of job performance and working conditions by administrative staff in government-owned universities in South-West, Nigeria Although respondents agreed that librarians possessed the necessary academic qualifications (mean = 3.0), they disagreed that librarians had adequate professional training, effective involvement in curriculum development, or favorable working environments. The finding regarding academic qualifications agrees with the study of Afolabi and Abdulsalami (2022), who found that most librarians in Nigerian tertiary institutions possess relevant academic qualifications such as Bachelor's, Master's, and PhD degrees in Library and Information Science.

However, the inadequate professional development opportunities reported in this study corroborate the findings of Okiy (2020), who noted that many librarians in Nigerian academic institutions have limited access to continuing professional education, workshops, and certifications necessary for coping with emerging technologies. The poor working conditions identified in the study are also consistent with findings by Adetoro and Bello (2021), who reported inadequate office facilities, poor ventilation, lack of equipment, and exclusion of librarians from institutional decision-making processes. Similar observations were made by Nigerian Library Association, which has repeatedly advocated for improved welfare packages and professional recognition for librarians in higher institutions. The finding that librarians are rarely involved in curriculum development and research guidance also agrees with the work of Popoola (2021), who argued that librarians in many Nigerian institutions remain underutilized despite their potential contributions to teaching, information literacy, and research support services.

3. Challenges Facing Libraries and Librarians in Jigawa State.

The study identified several significant challenges affecting libraries and librarians, with an aggregate mean score of 3.1 indicating strong agreement among respondents. The major challenges included technological constraints, inadequate funding, insufficient staffing, outdated resources, poor infrastructure, lack of professional development opportunities, and difficulties in preserving library materials. These findings strongly align with numerous studies conducted in Nigerian academic libraries. For example, Aina (2021) identified inadequate funding as the root cause of many library challenges, including poor collection development, insufficient ICT facilities, and inadequate staffing. Similarly, Obiozor-Ekeze (2022) found that technological challenges significantly affect the implementation of digital library services, particularly in institutions located in developing regions.

The finding on inadequate staffing agrees with the study of Ocholla (2020), who reported that many African academic libraries operate with insufficient professional librarians, thereby reducing service effectiveness and user satisfaction. Furthermore, the finding regarding poor infrastructure and unreliable power supply corroborates the findings of Ezeani and Ugwu (2021), who observed that infrastructural deficiencies remain one of the most persistent obstacles to library development in Nigeria. The challenge of limited professional development opportunities also agrees with the findings of Okiy (2020), who emphasized that continuous training is essential for librarians to remain relevant in the digital information environment.

Overall, the findings demonstrate that academic libraries in Jigawa State face challenges similar to those reported in many other Nigerian states. The recurring issues of inadequate funding, poor infrastructure, insufficient digital

resources, and limited professional development suggest a need for increased government and institutional support to improve library services and enhance librarians' effectiveness.

Conclusion

Based on the findings of this study, the study revealed that libraries and librarians in Jigawa State academic institutions are faced by inadequacy and availability of library resources, satisfied qualifications yet majority lacks training and certification in modern library technologies and poor working conditions. there is a dire need to look in the direction of work conditions in other to influence librarians 'job performance in Jigawa State academic libraries. The researcher also found out that there are many challenges affecting the libraries and librarians including inadequate space, unreliable power, and poor ventilation, work tools and information and communication technology (ICT) facilities which in turn affect libraries performance in Federal Universities in North Central Nigeria. These may be part of the factors responsible for the low job commitment of librarians reported in the country (Ajibare et al., 2023).

Recommendations

To improve the status of libraries and librarians in Jigawa State's academic institutions, there is a need for increased funding, improved infrastructure, and professional development opportunities for librarians. Libraries need to adopt innovative technologies and services skills in areas such as digital literacy, information literacy, and technology management to meet the global standards and user expectations. Libraries need to market and promote their services to users, to increase awareness and usage). Furthermore, there is a need for collaboration and partnership between libraries, academic institutions, and other stakeholders to improve the status of libraries and librarians This can include partnerships to provide access to resources, training and development opportunities for librarians, and support for library development, and the librarian needs to have members of his staff on committees for planning, curriculum, development, and so on, in order to discover, amend, and operate effectively within the new policies of the institution.

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User Experience Design, Accessibility, and Website Visibility in Higher Education Institutions in Low- and Middle-Income Settings

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Abstract

User Experience Design, accessibility, and website visibility in higher education institution in low-and middle-income setting is a matter of concern. HEI websites are essential for institutional representation and knowledge sharing; however, user experience and accessibility challenges often hinder their visibility and effectiveness in low- and middle-income settings. This study examines how user experience (UX) design influences the accessibility and visibility of HEI websites, using low- and middle -Income settings. Five UX dimensions, which are user centricity, user interface, user requirements, website security, and website usability, were investigated to determine their effects on website visibility and users' ability to access institutional web resources. A quantitative research method was adopted, involving non-probability sampling of respondents from Nigerian universities with over 10 years of existence and functional websites. Data were collected using semi-structured questionnaires and analyzed with Statistical Package for the Social Sciences (SPSS) and Analysis of Moment Structures (AMOS) version 26 through multilevel statistical analysis. Key findings indicate significant correlations between UX features and website visibility. Specifically, user-centricity increases visibility by 1.277 users, user interface by 0.855 users, user requirements by 1.267 users, website security by 1.778 users, and usability by 1.473 users. These results highlight the importance of optimizing UX features to enhance visibility. In conclusion, the study recommends adopting a visibility decision model focused on UX improvements to optimize higher education institution websites in Nigeria. This approach ensures better accessibility, functionality, and engagement, leading to more effective utilization and visibility of academic websites

Keywords: User experience design; Website accessibility; Website visibility; Higher education institutions; Low- and middle-income settings.

Introduction

What if a university's website exists but remains invisible to its audience? Globally, there are about 1.5 billion websites, yet only around 17–18% (190–200 million) are active, accessible, and capable of attracting meaningful traffic (Masamba, 2024). Although 71% of organizations worldwide reported owning a website in 2023, and a significant proportion still struggles with poor visibility, usability, and engagement (Masamba, 2024).

In Nigeria, web hosting, domain renewal, and content management cost tens to hundreds of thousands of naira annually (Amadiume, 2024). These challenges are particularly pronounced among institutions operating under resource constraints. The establishment of the National Information Technology Development Agency (NITDA**)** in 2001 marked Nigeria's commitment to integrating ICT into all sectors. NITDA's mandate requires every organization to maintain a functional and sustainable website (Ochala, 2024). In Nigeria, national ICT initiatives such as those promoted by the National Information Technology Development Agency (NITDA) emphasize the importance of functional and sustainable institutional websites. Despite these efforts, many HEI websites remain difficult to navigate and insufficiently optimized for user needs. This study, therefore, examines the role of UX design in influencing website accessibility and visibility of higher education institutions in low- and middle-income settings, with Nigeria serving as an empirical case.

Against this background, this study focuses on bridging the digital divide by developing an optimum user experience feature model for higher education institution websites in low- and middle-income settings, with Nigeria as a case study. By linking UX design to visibility and accessibility, the research contributes to ongoing conversations on digital inclusion and equality in access to academic information, key pillars for achieving sustainable knowledge dissemination in the information society.

Statement of the Problem

Websites have become indispensable tools for information dissemination, research visibility, and institutional reputation in the 21st century. However, in many low- and middle-income countries (LMICs), particularly Nigeria, Higher Education Institutions (HEIs) websites continue to suffer from poor visibility, low traffic, and limited accessibility. The effort by NITDA to promote ICT integration and inclusive website development in HEI websites remains inactive, poorly designed, and non-responsive (NITDA, 2024).

Studies reveal that poor user experience (UX) significantly affects website engagement. For example, 90% of users abandon websites within three seconds of loading delays, 88% exit slow-loading pages, 73% reject non-responsive designs, and 75% judge credibility based on aesthetics. These global statistics mirror the Nigerian context, where

challenges such as poor navigation, weak content optimization, and low search engine ranking hinder visibility. Consequently, websites meant to foster open knowledge, innovation, and collaboration often fail to engage users by widening digital inequality.

While existing studies have established links between user experience and website performance in developed contexts, empirical evidence from low- and middle-income settings remains limited. There is therefore a need to examine how specific UX design features influence accessibility and visibility of higher education institution websites within resource-constrained environments. Addressing this gap provides insights into improving institutional web performance through context-sensitive UX design strategies.

Research Hypotheses

The following hypotheses were tested:

- **H_1:** User-centric design features significantly influence the visibility and perceived accessibility of higher education institution websites.
- **H_2:** Quality user interface design positively influences the visibility and accessibility of higher education institution websites.
- **H_3:** User requirements and needs have a significant effect on the visibility and perceived accessibility of higher education institution websites.

Literature Review

User Experience Design in Higher Education Websites

User experience (UX) refers to users' overall perceptions and responses resulting from interaction with a website, including ease of use, satisfaction, and effectiveness. In higher education contexts, effective UX design supports information discovery, task completion, and sustained engagement. UX design encompasses multiple dimensions, including user centricity, interface design, usability, security, and responsiveness, all of which influence how users interact with institutional websites (Tewari, 2025).

User Centricity and Website Performance

User centricity emphasizes designing websites around users' needs, preferences, and expectations. When effectively implemented, user-centric features enhance navigation, personalization, and engagement (Lemola, 2024). However, overly complex personalization or poorly structured user-centered elements may increase cognitive load, particularly for users with limited digital skills, thereby reducing accessibility and engagement.

User Interface Design and Accessibility

User interface (UI) design shapes how users interact visually and functionally with websites. Clear layouts, intuitive navigation, consistent design elements, and responsive interfaces improve accessibility and encourage sustained interaction. In higher education websites, effective UI design has been shown to enhance traffic, reduce abandonment, and improve institutional visibility (Masamba, 2024).

User Requirements, Content, and Visibility

User requirements relate to the relevance, organization, and clarity of website content. Content that aligns with users' expectations enhances accessibility by enabling efficient information retrieval. When institutional websites meet user content needs, they are more likely to attract repeat visits and sustained traffic, thereby improving visibility (Fagbemi et al., 2024).

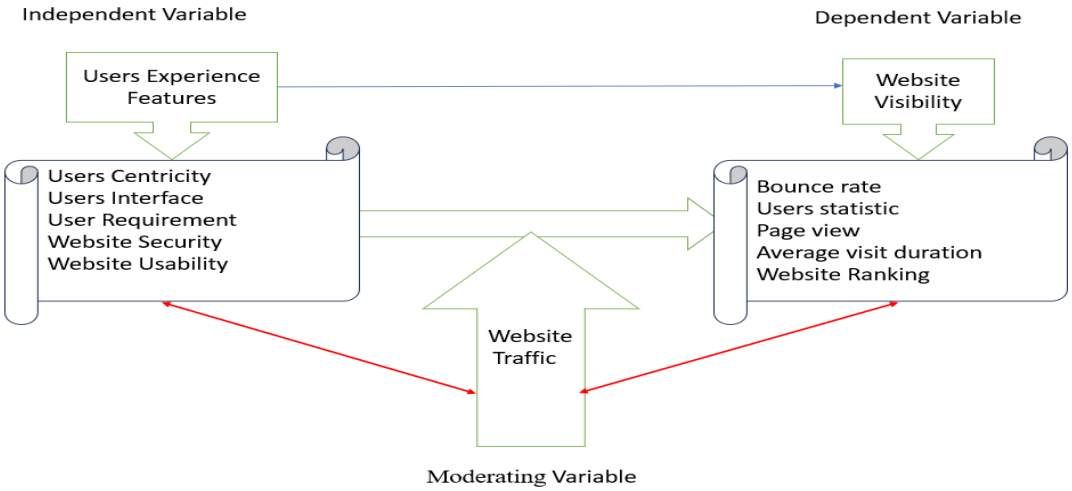
Website Security and Usability

Website security and usability contribute to user trust and confidence. Secure and usable websites encourage users to engage with institutional platforms without fear of data. Usability, defined by ease of navigation and task completion, directly affects accessibility and plays a crucial role in shaping user satisfaction and visibility outcomes (Onatuyeh et al., 2025).

Conceptual Framework

The study conceptualizes user experience design as the independent construct comprising user centricity, user interface, user requirements, website security, and website usability. Accessibility is reflected through users' perceived ease of access, navigation, and interaction with institutional websites. Website visibility represents the dependent outcome, influenced by accessibility and user engagement. Website traffic functions as a supporting mechanism linking UX design and visibility.

Figure 1: Conceptual framework



Researcher's idea

Methodology

Research design, population, and sample

A quantitative research methodology was adopted using deductive reasoning (Liang et al., 2025). Using a cross-section survey sampled 10 out of 48 higher education institutions in Kaduna State, Nigeria. Kaduna was selected because it hosts the highest number of tertiary institutions in the country (Yusuf, 2016), attracting diverse learners from across Nigeria. The target population of 412 including learners, administrators, and other individuals associated with higher education institutions in the northern, central, and southern senatorial districts as shown on table 1.

S/N	Institution	Abbreviation	Website
KADUNA NORTH SENATORIAL DISTRICT			
1	Ahmadu Bello University, Zaria	ABU	abu.edu.ng
2	Nuhu Bamalli Polytechnic, Zaria	NBP	nubapoly.edu.ng
3	Shehu Idris College of Health Sciences and Technology, Makarfi	SHCHST	courseseye.com
KADUNA CENTRAL SENATORIAL DISTRICT			
4	Good Shepherd Major Seminary, Kaduna	GSMSK	guardian.ng
5	Nigerian Defense Academy, Kaduna	NDA	nda.edu.ng
6	Kaduna State University, Kaduna	KASU	kasu.edu.ng
7	Kaduna Polytechnic, Kaduna	KADPOLY	kadunapoly.edu.ng
KADUNA SOUTH SENATORIAL DISTRICT			
8	NOK University, Kachia	NUK	nuk.edu.ng
9	Federal School of Statistics, Manchok	FSSM	fssmanchock.com
10	Kaduna State College of Education, Kafanchan	KDCOE	slsomzonkwa.org

Participants were aged 21 years and above and categorized by demographic variables such as age, gender, educational level, institution, internet access, and ownership of technological devices (phones, laptops, or computers).

Table 2

Distribution of Questionnaire Responses Across Selected Institutions in Kaduna State

Institution	n	%
ABU	89	21.0
GSMSK	68	16.5
KADPOLY	43	10.4
KASU	116	28.2
NBP	74	18.0
NDA	22	5.3
Total	**412**	**100.0**

Note. *n = frequency; % = percentage.*

This population was considered appropriate for addressing the study's objectives, questions, and hypotheses. However, insecurity in Kaduna, marked by kidnapping, banditry, and armed attacks, restricted access to some respondents. Consequently, questionnaires were administered in six institutions, and data were aggregated accordingly. A total of 412 responses were obtained, distributed as follows: ABU (89; 21%), GSMSK (68; 16.5%), KADPOLY (43; 10.4%), KASU (116; 28.2%), NBP (74; 18%), and NDA (22; 5.3%). The response rate was sufficient to support valid data analysis, as reflected in Table 1

Table 3: Institution of Affiliation

Institution	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
ABU	89	21.6	21.6	21.6
GSMSK	68	16.5	16.5	38.1
KADPOLY	43	10.4	10.4	48.5
KASU	116	28.2	28.2	76.7
NBP	74	18.0	18.0	94.7
NDA	22	5.3	5.3	100.0
Total	**412**	**100.0**	**100.0**	—

Table 3: Distribution of Respondents by Institutional Affiliation (N = 412)
Interpretation: The majority of respondents were affiliated with **KASU (28.2%)**, followed by **ABU (21.6%)** and **NBP (18.0%)**. Respondents from **GSMSK** accounted for **16.5%**, while **KADPOLY** and **NDA** represented **10.4%** and **5.3%**, respectively. This distribution indicates broad representation across the selected higher education.

Measurement of variables
The researchers measured the influence of users' experience in terms of user-centricity (Laborde et al., 2020), user interface (Agarina et al., 2019), users requirement (Franzini et al., 2019), website security (Tian et al., 2020) and website usability (Sauro, 2015) on visibility (Strzelecki, 2020) of the HEI's website as shown in Table 2 below:

Table 4: Operationalization of Research Variables

Dependent Construct	Latent Dependent Indicators	Sources
Visibility	Search engine/web browser	Tsuei et al., 2020)
	Rich and clear content (media format, and images)	Zhang et al., 2022
	Information sharing	Cho et al., 2023
	Tagging of pages/ Easy Link	Mardani et al., 2020
	Social media	Kay & Kamalovna, 2019
	High Internet/fast loading	Dahiya et al., 2021
	Search skills	Fadeyi et. al 2020

Operationalization of Independent Research Constructs

Independent Construct	Latent Variables	Primary Indicators	Sources
User Experience Features	Users-centricity	Communication level	Ammar et al., 2021
		Response level	Dong et al., 2020
		Commitment level	Dong et al., 2020
		Proactive level	Wang et al., 2020
		Progression level	Albladi & Weir, 2018
	User Interface	Familiar/Consistent/ Clear and Simple	Chen et al., 2020)
		Trustworthy/confidence to navigate	Guizani, 2022
		Productive/input and download	Lister et al., 2020
		Engagement/ideas/Communication and Information Sharing	West, 2022
		Accessibility	Cybulski & Horbiński, 2020
	User Requirement	Total Inclusion	Islam et al., 2020
		Mobile Compatibility	Grahn & Kujala, 2020)
		Content creation	Vo & Sharp, 2019
		Intuitiveness and correct assumption	Chen et al., 2020
		Translatable Opportunities	Dufour et al., 2021
		Users Involvement/ Conflicting ideas	Young et al., 2022
	Website Security	Fake information	Awan et al., 2021
		Malicious websites	Estrella, 2021

		Hacking of information	Kim, Alfouzan, & Kim, 2021
		Encrypted Information	Hameed et al., 2019
		Use of Password	Pearman et al., 2019
		Threats, Malwares and Phishing sites	Iqbal et al., 2020
	Website Usability	Availability	Meel & Vishwakarma, 2020
		Clarity	Mushtaq et al., 2020
		Recognition	Goodman & Paolacci, 2017
		Credible	Zhang & Ghorbani, 2020
		Relevance	Järvinen & Taiminen, 2016
	Website Traffic	Organic Traffic	Böhm, 2023
		Bounce Rate	Pratheepan, 2021
		Usability and relevant	Kanigoro, et al., 2022
		Emailing and social media service	Jaas, 2022
		Digital advertisement	Das, 2021
		Referral Traffic	Widiastuti, 2021

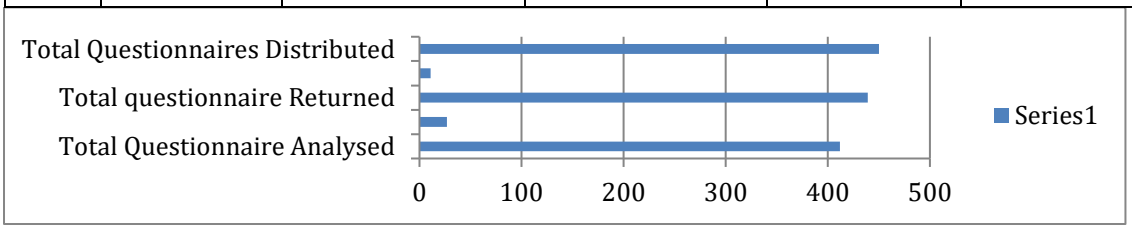
Source: Author's Compilation, 2023

Data collection procedures

The study focused on learners, administrators, and associates of higher education institutions in Nigeria. The survey questionnaire was shared through a purposive and snowball sampling of the higher education institutions. A total of four hundred [450] questionnaires were distributed, 11 were not returned, 439 were returned, 27 were not completed, and four hundred and twelve [412] responses were analyzed. This implies that after cleaning and filtering, 412 responses were considered valid for analysis, as shown in Table 3.

Table 3: Questionnaire Response Rate

	Total Questionnaire Analysed	Total Questionnaire Not Completed	Total questionnaire returned	Total Questionnaire Not Returned	Total Questionnaires Distributed
Series 1	412	27	439	11	450



Source: Field data

The high response rate of 91% is attributed to familiarity and the adoption of a self-administered technique in questionnaire distribution. To ensure a high response rate, competent research assistants capable of reaching the respondents were recruited. Because of the high response rate, the sample size was deemed adequate for the investigation.

Demographic and descriptive profile of the sample

From the findings of this study, The following parameters were used for the study: Gender = [Male & Female], institution = [ABU, KADPOLY, KASU, GSMSK, NBP, NDA], Age range = [21-25, 26-30, 31-35, 36 and above], affiliation = [learner, administrator, associate], Faculty = [Social science, Medical Science], Administrator = [Teaching and non-Teaching], associate = [parent and non-parent] and how long have been using your institution's website = [less than 5 years, 5 to 10 years, 10 years and above]. This specification was used by the sample frame to eliminate bias and invalid samples, indicating that the demographic profile is suitable for analysis as detailed in Table 4 below:

Table 4: Demographic profile

Statistics					
	N		Median	Mode	Sum
	Valid	Missing			

What is your gender?	412	0	2.00	2	650	
What is your age range?	412	0	2.00	1	842	
Which institution are you affiliated with?	412	0	4.00	4	1320	
What category is your affiliation?	412	0	3.00	3	1006	
For the learner, choose your faculty	412	0	2.00	2	742	
For the administrator, choose one	412	0	2.00	3	864	
For the associate, choose one	412	0	2.00	3	888	
For how long have you been using your institution's website?	412	0	2.00	2	760	

Source: Field Data

The findings revealed that Gender is made up of 174 [42.2%] females and 238 [57.8%] males, for a total of 412 [100%], age range is 21-25 (41.3%), 26-30 (29.6%), 31 -35 (12.6%) and 36 and above (16.5%), The sample representation for each higher education institution was as follows: ABU 89 [21%], GSMSK 68 [16.5%], KADPOLY 43 [10.4], KASU 116 [28.2%], NBP 74 [18.0%], and NDA 22 [5.3], The participants were associated with each of the higher education institutions in various ways, including 88 [21.4%] as administrators, 54 [13.1%] as Associates, and 270 [65.5%] as Learners. This study's faculty was measured utilizing three [3] medical sciences, 218 (52.9%], social science, 138 (33.5%], and others 56 [13.6%], The capacity to determine the level of engagement of administrators is significant in this study. 144 [35%] are non-teaching, 84 [20.4%] are teaching, and 184 [44.7%] choose not to say. The study's association sequence is non-parents 137 [33.3%], parents 74 [18.0%], and refer not to mention 201 [48.8%]. Lastly, the participants spent varying amounts of time on the website, with 288 [69.9%] spending less than 5 years, 94 [22.8%] spending 5 to 10 years, and 30 [7.3%] spending more than 10 years.

Correlation Matrix and Descriptives

In order to understand whether multicollinearity occurs between the independent variables showing significant association Baird & Bieber, 2016), the data were then evaluated to ensure that there was no multicollinearity in the hypothesized model. In this study, multicollinearity was assessed using the tolerance value (TV) and the variance inflation factor (VIF). The common cutoff value is a tolerance value of 0.10 and a VIF of 10 (Morrissey & Ruxton, 2018). The table below shows that multicollinearity did not exist among the independent latent constructs, as VIF was all < 10 and Tolerance > 0.1. Therefore, as suggested by Hair et al. (2011), there is no evidence of multicollinearity as shown in Table 5 below for all five specific latent dependent constructs measuring website visibility.

Table 5: Existence of Multicollinearity

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	1.590	.104		15.332	<.001		
Users Centricity	.205	.021	.188	9.539	<.001	.932	1.073
Users Interface	-.004	.026	-.003	-.159	.874	.942	1.062
Users Requirement	-.012	.022	-.011	-.566	.572	.933	1.072
Website Security	-.054	.018	-.058	-3.038	.002	.981	1.020
Website Usability	.278	.019	.274	14.326	<.001	.987	1.013

a. Dependent Variable: Website Visibility

Structural Equation Modelling and specification parameters

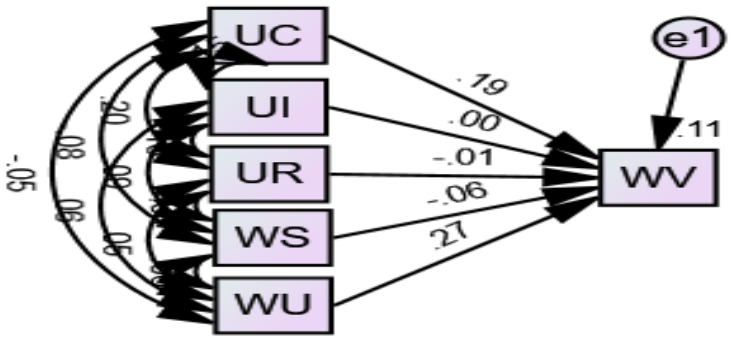
The Levene test was utilized in this investigation to evaluate equal variance dispersion. Srinivasan et al. (2017) suggested that if the Levene statistic is non-significant [p>.05], the data are homogeneous. As such, the results suggested a non-significant Levene statistic [p>.05], with all variables supporting the statistical assumption of homogeneity of variance, as shown below. According to Hair et al. (2010), important model fit tests include baseline indices like the Goodness of Fit Index (GFI) (>.95), the Standardized Root Mean Square Residual (SRMR) (>.95), Chi-square statistic (>.05), Comparative Fit Index (CFI) (> .95), Increment Fit Index (IFI) (>.95), and the Root Mean Square Error Approximation (RMSEA). The structural model developed was examined using the regression weights relating to each variable and path coefficients explained by the standardized estimates (β coefficients) to determine the extent to which the independent variables affect user experience features on website visibility. That is, Users Centricity [UC], User Interface

[UI], Users' Requirements [UR], Website Security [WS], and Website Usability [WU] affect website visibility [WV]. The following hypotheses were tested;

- H_1: User-centric design features significantly enhance the visibility and digital inclusiveness of higher education institution websites in Nigeria.
- H_2: Quality user interface (UI) design positively influences the visibility and accessibility of higher education institution websites in Nigeria.
- H_3: User requirements and needs have a significant positive effect on the visibility and digital inclusiveness of higher education institution websites in Nigeria.

Figure 2 and Table 6 reveal the Structural Equation Modelling and Specification Parameters and Regression Weights (Group number 1 - Default model)

Figure 2: Structural Equation Modelling and Specification Parameters



CMIN = 149.284, DF = 6, P = .000, CMIN/DF =24.881, GFI =.890, IFI = .496, TLI = -.301, CFI = .480, RMSEA = .248

Table 6: Regression Weights: **(Group number 1 - Default model)**

Dependent variable	Effects	Latent Constructs	Estimate	S.E.	C.R.	P	Label
WV	<-----	UC	1.277	0.036	35.15	***	
WV	<-----	UI	0.855	0.024	35.15	***	
WV	<-----	UR	1.267	0.036	35.15	***	
WV	<-----	WS	1.778	0.051	35.15	***	
WV	<-----	WU	1.473	0.042	35.15	***	
WV	<-----	EL	1.35	0.038	35.15	***	

Based on the analysis of the combined effects of all predictors involved in the model, Users Centricity [UC], User Interface [UI], Users' Requirements [UR], Website Security [WS], and Website Usability [WU] explain 11.2% of the variation in website visibility [WV]. The harmonized test of the hypothesis result is presented in Table 7 below.

The harmonized test of hypotheses result is presented in Table 7.

Hypothesis	Decision Rule	Conclusion
H_o: There is no relationship between user centricity and website visibility. H_1: There is a relationship between user centricity and website visibility	Reject H_o if p-value < 0.05, otherwise do not reject H_o	Since the p-value = < 0.05, we therefore reject H_o. There is a relationship between user centricity and website visibility to the extent that an increase in user centricity will lead to a 1.277 units increase in website visibility and vice versa
H_o: There is no relationship between user interface and website visibility. H_1: There is a relationship between the user interface and website visibility	Reject H_o if p-value < 0.05, otherwise do not reject H_o	Since the p-value = < 0.05, we therefore reject H_o. There is a relationship between user interface and website visibility to the extent that an increase in user interface will lead to a 0.855 unit increase in website visibility and vice versa

H_o: There is no relationship between users' requirements and website visibility. H_1: There is a relationship between users' requirements and website visibility	Reject H_o if p-value < 0.05, otherwise do not reject H_o	Since the p-value = < 0.05, we therefore reject H_o. There is a relationship between users' requirements and website visibility to the extent that an increase in user requirements will lead to a 1.267 unit increase in website visibility and vice versa

Discussion

The findings indicate that user centricity (UC) has a statistically significant relationship with the visibility of higher education institution (HEI) websites in Nigeria. While the coefficient suggests a negative effect, this result does not diminish the importance of user-centered design principles. Rather, it highlights the complexities associated with balancing user preferences, institutional objectives, and technical optimization strategies. User-centric websites are generally designed to meet the information needs, expectations, and behaviors of diverse stakeholders, thereby promoting engagement, satisfaction, and inclusiveness. Recent studies have emphasized that institutions that prioritize user-centered digital environments achieve better accessibility outcomes, stronger stakeholder trust, and improved online engagement metrics (Abbas et al., 2025; Zhang & Li, 2025). Consequently, HEIs should continue to invest in user-centered design while ensuring alignment with search engine optimization (SEO) and visibility-enhancing strategies.

The study further demonstrates that user interface (UI) significantly influences website visibility. A well-structured interface improves navigation, reduces cognitive load, and enhances the overall user experience, leading to increased user retention and website traffic. Conversely, poorly designed interfaces discourage interaction and negatively affect discoverability. This finding aligns with recent evidence showing that intuitive navigation structures, responsive layouts, and visually appealing interfaces contribute significantly to user engagement and search engine rankings (Kumar & Singh, 2025).

Similarly, user requirements (UR) emerged as an important determinant of website visibility. When website content, functionality, and services are developed based on the actual needs of users, institutions create more relevant and useful digital environments. User participation during the design and evaluation stages ensures that websites remain responsive to changing information needs, thereby improving both usability and visibility. Recent research has shown that incorporating user feedback into website development significantly enhances website effectiveness and stakeholder satisfaction (Rahman et al., 2025).

Furthermore, website security (WS**)** contributes positively to website visibility by fostering trust and confidence among users. Secure websites protect users from cyber threats, data breaches, and unauthorized access, encouraging continued usage and engagement. Search engines increasingly prioritize secure websites, making security an essential factor for online visibility (Alotaibi & Hassan, 2025). Finally, website usability promotes accessibility, efficiency, and user satisfaction, enabling visitors to accomplish tasks with minimal effort. Usable websites attract repeat visits, increase engagement, and strengthen institutional online presence, thereby enhancing overall website visibility.

Conclusion

In conclusion, this study provides empirical evidence that user experience features are critical determinants of the visibility of higher education institution websites in Nigeria. Specifically, user centricity, user interface design, user requirements, website security, and website usability collectively shape the effectiveness with which institutional websites attract, engage, and retain users. Although user centricity exhibited a significant negative relationship with visibility, the finding underscores the need for institutions to strategically balance user-focused design considerations with technical visibility requirements such as search engine optimization, content architecture, and performance optimization.

The positive contributions of user interface quality, user requirements, website security, and usability demonstrate that website visibility extends beyond technological infrastructure to encompass the overall quality of user experience. Websites that are intuitive, secure, accessible, and responsive to stakeholder needs are more likely to achieve higher levels f engagement, trust, and discoverability. These findings reinforce the growing recognition of institutional websites as strategic communication and service delivery platforms that support teaching, learning, research, community engagement, and global visibility.

Therefore, university administrators, web developers, librarians, and ICT professionals should adopt a holistic user experience framework that integrates accessibility standards, participatory design approaches, robust cybersecurity measures, and continuous usability evaluation. Such efforts will not only enhance website visibility but also promote digital inclusion, institutional competitiveness, and sustainable access to information in Nigeria's higher education sector. Ultimately, improving user experience features represents a strategic pathway toward strengthening the global online presence and impact of Nigerian higher education institutions.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

H_1: User-Centric Design Features and Website Visibility/Accessibility

1. Higher education institutions should adopt user-centered design approaches that actively involve students, staff, researchers, alumni, and other stakeholders in the planning, development, and evaluation of institutional websites.
2. Institutions should regularly assess user needs and expectations through surveys, feedback mechanisms, and usability testing to ensure that website services remain relevant, inclusive, and responsive to diverse user groups.
3. Website administrators should provide personalized and responsive digital services that enhance user engagement, satisfaction, and accessibility.
4. End users should actively report instances of poor usability, inaccessible content, or outdated information to facilitate continuous website improvement.

H_2: User Interface Design and Website Visibility/Accessibility

5. Institutions should prioritize the development of intuitive, visually appealing, and easily navigable user interfaces that minimize user effort and improve information retrieval.
6. Website designers should ensure compliance with international accessibility standards, such as the Web Content Accessibility Guidelines (WCAG), to accommodate users with diverse abilities and technological capabilities.
7. Higher education institutions should optimize website responsiveness across multiple devices, including smartphones, tablets, and desktop computers, to enhance user experience and visibility.
8. Interactive features, clear navigation structures, and fast-loading web pages should be incorporated to improve user engagement, retention, and website discoverability.

H_3: User Requirements and Needs, and Website Visibility/Accessibility

9. Institutions should establish formal mechanisms for gathering and integrating user requirements into website design, content development, and service delivery processes.
10. Website content should be regularly updated to reflect the evolving information needs of users and to ensure accuracy, relevance, and credibility.
11. Website developers should employ data-driven approaches, including user analytics and feedback systems, to identify emerging user needs and improve website functionality.
12. Users should be encouraged to engage actively with institutional websites and provide constructive feedback that supports continuous enhancement of website services.

General Recommendation on Security and Usability

13. Institutions should implement robust website security measures, including secure authentication protocols, regular vulnerability assessments, and data protection practices, to strengthen user trust and confidence.
14. End users should adopt good cybersecurity practices, such as the use of strong passwords and secure browsing habits, to support a safe online environment.
15. Continuous monitoring and evaluation of website usability, accessibility, security, and visibility should be institutionalized as part of digital governance and quality assurance frameworks in higher education institutions.

These recommendations will assist higher education institutions in improving website visibility, accessibility, inclusiveness, and overall user experience, thereby strengthening their digital presence and global competitiveness.

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Using Artificial Intelligence to Improve Information Services in Nigerian Libraries: Challenges and prospects

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Abstract

Libraries remain essential institutions for knowledge preservation, information dissemination, education, and community development. However, Nigerian libraries continue to face several challenges, including inadequate funding, poor ICT infrastructure, shortage of skilled personnel, outdated information resources, and resistance to technological change. These challenges have limited the effectiveness of library and information service delivery and hindered the transition from traditional to modern digital library systems. The paper explored the concept of information services, the current state of AI adoption in Nigerian libraries, the applications of AI in library operations, and the barriers affecting its implementation. The paper adapted the Toulmin method of argumentation, whereby literature drawn from past recent and relevant studies obtained from the internet were reviewed and relevant facts extracted to support claims or arguments. Findings revealed that AI technologies such as chatbots, machine learning, natural language processing, recommendation systems, robotics, and automated cataloguing tools can significantly improve library services by enhancing information retrieval, automating routine tasks, supporting personalized services, improving digital repositories, and increasing user engagement. findings further shows that although awareness of AI is gradually increasing among librarians in Nigeria, actual implementation remains limited compared to global practices due to infrastructural and financial constraints. The paper stressed the need for planned investment in ICT infrastructure, routine training and capacity building for librarians, supportive government policies, and institutional commitment toward innovation. It concluded that the integration of AI into library and information services is essential for the modernization, sustainability, and global competitiveness of Nigerian libraries. With proper implementation and support, AI can reposition libraries in Nigeria as intelligent, efficient, and user-centered knowledge hubs capable of meeting contemporary information demands.

Keywords: Artificial Intelligence, libraries, library operations, information services, digital technologies.

Introduction

The services of libraries have remained vital to human civilization, serving as storage of knowledge, culture and intellectual growth. A library is a well-organized, carefully chosen collection of media, books, and digital resources that are available to a specific community for study, reference, or borrowing. According to Ebehart (2010) a library can be viewed as a collection of resources in a variety of formats that is organized by information professionals or other experts who provide convenient physical, digital, bibliographic or intellectual access and offer targeted services and programmes aimed at educating, informing or entertaining different audience, with the objective of stimulating individual learning and advancing society as a whole. A library can also be defined as a collection of books and non-books material, which have been carefully selected and organized for patrons or community of users (Habibu et al., 2024). Libraries exist in different forms which are categorized according to their purpose. They include public, private, academic, special, school, community, and national libraries. Adeniran (2017) added that libraries could be physical or virtual.

Libraries are known for playing important functions in society. They bridge the gap between people and knowledge by serving as important hubs for education, cultural preservation, and free information access. Lomanchinskiy et al. (2025) opined that library are becoming crucial in promoting open access to information, conforming to sustainable development goals.

However, the core functions of libraries are preservation, organization and community support. Adeniran (2017) summarized the functions of a library as acquisition and organization, information access and retrieval, education and support, knowledge preservation, community engagement and promotion of reading.

Information services are synonymous with libraries. They are structured, user-focused activities that supply, evaluate and distribute information, going beyond merely offering materials to include proactive user support. They encompass reference services, current awareness, selective dissemination of information and digital access tools to connect users with knowledge, frequently covered in library and information science (Ranjan, 2023). Information services are vital in contemporary societies, serving as pillars for knowledge dissemination, decision-making and economic growth. They transform traditional libraries into knowledge hubs, using ICTs to facilitate global communication, enabling online businesses or banking and empowering educated societies by ensuring access to accurate information, education, health and research.

The roles of libraries are continuously changing. It has been observed that information is no longer limited by physical collections, time, or location, and that the information environment of the twenty-first century is dynamic and fluid, connective and interactive, diverse, ambiguous, and unpredictable and one is no longer limited by physical

collections, time, place and national borders (Oriogu et al., 2015). Furthermore, traditional libraries are characterized by certain drawbacks which reduce the effectiveness of libraries in the provision of information services. Such challenges include the lack of space and operational limitations, staffing and professional burnout and funding and resource constraints (Reji, 2025). For these reasons, libraries need to undergo transformations to improve the quality of information services they provide.

Digital technologies are complex, multidimensional information systems that transcend basic objects like bitstring. They involve artifact delineation and coalescence, which provide unique interfaces and integrate multiple IT architectural layers to enhance user experience (Saeed & Sidorova, 2023). These technologies include a broad range of tools and systems that support digital transformation and innovation rather than just basic digital representations. They play vital roles in modern business operations, socioeconomic development, and the digitalization of industries. These technologies encompass basic electronic tools and sophisticated computing environments, which support various functions such as application development and network administration (Russell, 2019).

Digital technologies have significantly improved efficiency, accessibility, and user involvement in the delivery of library and information services across numerous industries. They have equally advanced libraries from traditional repositories into dynamic centres for learning, cultural preservation and community engagement. This evolution is driven by the integration of various digital tools that promote access to information, improve service delivery and foster innovative educational practices. Akhtar et al. (2025) observed that digital technologies facilitate improved access to information, allowing users to engage with resources remotely and efficiently. Akhtar et al. (2025) further noted that digitalization promotes the preservation of cultural heritage, making it accessible to a global audience and addressing issues of physical decay. Highlighting the significant roles of digital technologies in library and information services across sectors, the Central Scientific Agricultural Library for instance has developed databases such as 'AGROS; to provide comprehensive information, facilitating independent user engagement with digital resources (Prinmova, 2022).

Recently playing notable roles in advancing library and information services is Artificial Intelligence. Their integration in these services has remodeled the way these libraries operate, which has promoted efficiency, personalization and overall service quality. Libraries currently adopt AI technologies to meet the emerging needs of users. Amalia et al. (2024) noted that AI enables libraries to tailor services to individual user preferences, improving user satisfaction. Automation of routine tasks with AI technologies allows librarians to perform complex inquiries, enhancing service quality. Also, AI tools help in organizing and managing library collections, facilitating better resource discovery (Amalia et al., 2025).

Library and information services in Nigeria are faced with numerous challenges which retard its operations and quality of services. Okafor (2020) and Amanze et al. (2024) pointed out inadequate funding and poor infrastructure as major drawbacks to the provision of library and information services in Nigeria. Outdated or insufficient collections and limited skill gaps/digital resources are another major setback to the evolution of library and information services in Nigeria. Onuoha et al. (2021) observed that most libraries in Nigeria face such challenges as poor preservation, inadequate resources and very limited internet facilities. They observed further that most rural libraries in Nigeria function mainly as study rooms for user' own books, with little use of collections. Although, the increasing integration of ICTs/digital technologies in library and information services in Nigeria has been reported (Oyedokun et al., 2023; Sadiku et al, 2024), adoption remains uneven. Many libraries in Nigeria are yet to be fully automated (Abdulssalam et al., 2021). ICT proficiency and policy somersaults are other issues that have stagnated the full-scale integration of ICTs and digital technologies into library and information services in Nigeria. Library and Information Science personnel in Nigerian libraries possess digital skills;however, they lack broad up-skillingand professional development (Olusanya et al., 2024).

While libraries in developed societies have increasingly benefited from the integration of AI and other technologies in library and information services for service optimization, those in Nigeria are still struggling to fully harness these technologies in their operations. Improving library and information services in Nigeria through the integration of AI technologies is expected to revolutionize the quality of services they provide, optimizing their operations. The integration of AI into library and information services can enhance the automation of routine tasks such as cataloging, indexing and circulation, leading to faster and more accurate user access to information. AI tools such as chatbots and AI-enabled search interfaces allow libraries to provide uninterrupted responses to user queries, enhancing information retrieval and reference. AI tools can assist in the creation of accurate metadata, cataloguing materials and managing collections more efficiently, thereby reducing manual workload. This will enhance automated cataloguing and technical processing. The implementation of smart operations like Radio Frequency Identification (RFID) and robotics for shelving, book tracking and circulation can ensure better organization. However, the successful integration of AI tools in library and information services in Nigeria will require the dismantling of certain drawbacks such as infrastructure issues, lack of digital skills and funding constraints.

This paper therefore focuses on how artificial intelligence can be used to revitalize library and information services in Nigeria. It specifically addresses the concept of AI, the current state of information and library services in Nigerian libraries, potential applications of AI in library services and the challenges to AI adoption in Nigerian libraries.

Literature Review

Literature review covers such issues as concept of information services, challenges of library and information service in Nigeria, application of AI in information and library services, current state of AI adoption in Nigeria libraries and strategies of improving AI integration in Nigerian libraries.

Concept of information service

Information services encompass a range of systems and processes, designed to provide users with access to relevant information suitable for their needs. Satija (2017) described information services as a service intended to provide information for a client or user, or help a client or user in finding information. Hence, it may include any service provided by a library or information centre such as reference service and document lending service. In the context of specialist users, information service means documentation service. Information service therefore aims at disseminating information to users. According to the American Library Association, information service has the goal of providing the information sought by the user. It should therefore anticipate and meet users' needs. It should encourage users' awareness of potential information resources to fulfill individual information needs (Stojanovski Papic, 2012). The basic functions of information services in libraries include provide, locate and disseminate information to users, which range from basic reference assistance to advanced, specialized documentation services. They close the gap users and resources through physical and digital means. The basic types of information services include – reference services, current awareness services (CAS), selective dissemination of information (SDI), document delivery services and information literacy/user education. The key components of information services are information personnel, information resources and information technology.

Information services have significantly changed over-time. The major aspects of modern information services include – user-centric design, responsive and anticipatory services, specialized services and digital transformation.

Challenges of library and information services in Nigeria

Key challenges undermining library and information services in Nigeria include:

I. **Inadequate funding:** Many libraries in Nigeria, particularly public one's struggle with numerous financial constraints like low budgetary allocation, non-release of funds and poor financial support from the government. This has led to severe deficits in services, marked by outdated materials, poor infrastructure and low staff motivation. It has also hindered the adoption of modern technologies and has reduced operational capacity. Patrick (2021) argued that over-reliance on inadequate government subventions causes reduced operational hours and lack of modern technological infrastructure, thereby preventing libraries from fulfilling their educational roles, leading to the provision of poor, irrelevant and outdated information to users.

II. **Infrastructure and Technology Deficits**: Many libraries in Nigeria face lack of modern facilities such as reliable internet connectivity, steady power supply, and adequate space for users. Many find it difficult to upgrade from physical to digital services. These have hindered information delivery, forcing dependence on analog methods. These limitations lead to low user satisfaction, restricted access to digital repositories, reduced research quality and increased librarian turnover as result of frustration with old manual processes (Omeluzor et al., 2017).

III. **Lack of Skilled ICT Staff**: Lack of modern ICT skills among librarians has remained a significant challenge to library and information services in Nigeria. These have prevented the adoption of automated systems and digital/online resources in libraries. It had also led to inefficient information retrieval, and inability to meet users' needs. This deficiency limits the transition from traditional to modern library services. According to Oyovwe-Tinuoye et al. (2021) the lack of digital skills among library staff has hindered the adoption of essential tools like online databases, IRs, and OPACs. It has equal job performance and efficiency for library staff.

IV. **Poor Maintenance and Management:** Poor maintenance of existing infrastructure and lack of proactive management strategies are dominant features of libraries in Nigeria, particularly public libraries. These have led to broken, dilapidated, or inaccessible physical infrastructure, failed technology adoption due to poor IT maintenance, and limited access to current information, significantly crippling effective service delivery (Okafor, 2020).

V. **Outdated Information Resources:** The lack of current books, journals, and electronic databases is a common sight among public libraries in Nigeria. Thus, has rendered many libraries ineffective. These deficiencies hinder research, reduce user patronage, and promote reliance on unreliable, non-academic sources.

Applications of AI in information and library services

Artificial intelligence is transforming library and information services in a variety of ways. AI tools make library services faster, smarter, more personalized and more accessible. Instead of replacing librarians, AI automates repetitive tasks and augments human expertise, allowing staff to concentrate on complex user needs, community engagement and strategic planning. The various applications of AI in library and information services include:

Reference and user support services: AI tools support these services by providing 24/7 virtual reference support (chatbots) by handling repetitive lookups. They also manage multiple user inquiries; enhanced information retrieval and semantic search, personalized recommendations and discovery, automated cataloging and metadata generation, academic support and content creation and accessibility and inclusivity. These services increase productivity, improve user services and role definition. However, the challenges associated with this service include data privacy and ethics, accuracy concerns and infrastructure and skills gap (Agrawal, 2026).

1. **Cataloguing and metadata generation** – AI support this by automating the extraction of data (authors, ISBNs and summaries) from materials, generating descriptive tags and suggesting subject headings using machine learning and large language models. Specialized AI tools like DataHub or specialized bibliographic AI speed up workflows by creating drafts in seconds, enabling humans to shift from manual creation to verification. AI can also facilitate cataloguing and metadata generation through intelligent subject analysis, semantic data classification, entity resolution reduplication, legacy data enhancement and human-in-the-loop' workflow. However, the risks in using AI cataloguing are hallucination, model training and standard adherence.
2. **Information Retrieval and discovery systems**: AI tools achieve these through enhanced query understanding (Natural Language Processing, semantic search and query expansion and reformulation), intelligent ranking and matching (semantic vector encoding, learned sparse retrieval and reranking), personalized discovery recommendation (recommendation systems and content curation), advanced data processing and management (automated indexing and metadata generation, multimodal retrieval and document structuring) and conversational and interactive tools (AI chatbots/virtual **assistants, interactive learning).**
3. **Collection development and management** – AI does this by analyzing user behavior and circulation data to make data-driven acquisition recommendations, predicting future demand and automating routine tasks such as cataloguing and metadata creation. It enhances collection management via predictive analytics for inventory, identifying collection gaps and optimizing budget.
4. **User behavior analysis and personalized services**: AI supports this by changing traditional passive spaces into active, personalized and data-driven centres. AI promotes user behavior analysis through bibliomining and facilitates personalized services using machine learning and natural language processing. This allows libraries to understand users' needs, reading habits and search behaviors which improves collection development and resource allocation. Like steaming platforms, AI recommendation engines can suggest books, articles or resources that align with individual user profile. Smart search engines understand user intent, promoting intuitive queries instead of rigid keyword matching, providing more relevant search results. Through customized content creation, AI tools can generate summaries, abstracts or metadata for users, enabling them to understand key information faster. Ai also enhances services for disabled users, by providing text-to-speech tools, real-time translation and image description.
5. **Digital libraries and institutional repositories**: AI improve digital libraries and institutional repositories by automating metadata generation, enhancing searchability and offering individualized user experiences. These technologies facilitate the discovery of research results in institutional repositories by simplifying content management, improving accessibility for a variety of users and enhancing semantic search. Souza (2025) reported that the integration of AI in digital libraries enhances the preservation of digital resources and enhanced search.
6.

Current state of AI adoption in Nigeria libraries

The adoption of artificial intelligence in Nigerian libraries is still at its infant stage and is mostly being driven by academic institutions rather than public ones. Generally, the adoption is low, with most universities still at the awareness stage. Although some universities have started using chatbots, RFID and AI-enabled chat engines, extensive adoption is hindered by several challenges like infrastructure deficits, limited funding and a shortage of technical skills. Yusuf et al. (2022) found that the adoption of AI in Nigerian universities is still low. Ogbogbaidi et al. (2025) reported that there is still a low awareness of AI, with limited understanding of applications and minimal exposure to training in Nigeria. Suleiman et al. (2024) reported that the integration of AI in libraries in Nigeria is still limited compared to global trends. They observed that many universities are exploring AI potentials but

progress is limited by financial and infrastructural constraints. Okeke et al. (2022) reported that while many Nigerian universities have started experimenting with AIs in such areas as automated cataloguing and virtual reference services, there exist gaps in their full deployment. Afolabi and Olayinka (2021) noted that inadequate infrastructure and lack of skilled personnel are major drawbacks to the full-scale deployment of these systems. Ogbogbaidi et al. (2025) found that perceptions of AI in Nigeria are positive, as librarians studied acknowledged AIs potential to improve service delivery, efficiency, accessibility and cost-effectiveness. A high level of willingness to adopt AI was also observed in Nigeria, with librarians expressing willingness to participate in pilot projects and attend training.

Comparing AI use in Nigerian libraries against global trends, studies indicate that while awareness is growing slowly, actual application remains low and selective compared to what obtains at the global level. The adoption is basically limited to basic tools instead of fully integrated AI systems. However, global practices focus on advanced AI integration like predictive analytics, sophisticated robotics and personalized learning algorithms, within a fully developed digital infrastructure. In terms of adoption level, Nigerian libraries are mostly at the awareness and implementation stages using AI for basic tasks like chat bots and plagiarism check, global libraries have advanced toward mature strategic integration of AI to create intelligent, autonomous and personalized user environments (Iwu-James & Abah, 2025).

Benefits of Artificial intelligence in library services in Nigeria

The integration of AI tools in library and information services in Nigeria offers the following potential benefits:

i. **Improved information retrieval and access:** AI-enabled search engines can help patrons sift out the relevant information from large amounts of information faster and with much ease. Contrary to traditional **search engines, AI systems** can understand context and user intent, offering more precise and personalized search results (Jang & Zhang, 2021). This can save time and increase the effectiveness of academic research (Suleiman et al., 2024). Mansoor and Rahman (2022) noted that AI also permits advanced filtering options, enabling users to search across multiple databases and resources concurrently.

ii. **Personalized learning and research support**: AI systems do this by analyzing user behavior and preferences to provide tailored content. Relying on this, AI systems can recommend books, Articles and research materials that correspond to a specific user's need (Kaur & Singh, 2022). By leveraging machine learning, natural language processing (NLP), and generative AI, libraries can offer tailored experiences, 24/7 support, and advanced research tools that adapt to individual user needs.

iii. **Automating Library Processes: Cataloguing, Indexing, and Archiving:** Inlibrary management, AI could automate labor intensive tasks such as cataloging, indexing, and archiving, making these processes more efficient and accurate.AI- powered tools can automatically categorize and tag resources with minimal human intervention, ensuring consistency and accuracy (Smith,2021).

iv. **Improving User Engagement with AI-Powered Interface:** AI enabled interfaces, such as chatbots and virtual assistants, enhance user engagement by providing quick responses to user queries, guiding them through library's services. Libraries can discover deficiencies and launch specialized programming. This encourages lifelong learning, boosts patronage and loyalty, ignites innovation through co-creation, and transforms the library's image into a cutting-edge, dynamic center.

Challenges of Implementing AI in Nigerian Libraries

Integrating AI technologies into library services in Nigeria is very urgent and essential particularly in this cotemporary era. However, its successful integration can be hindered by the following barriers:

Inadequate funding: Ajani et al. (2022) pointed out inadequate funding as among the challenges that could hinder successful implementation of AI in Nigerian libraries. Libraries in Nigeria are mostly funded by their parent institutions. In the case of public university libraries, they are funded by either the state or federal government. These libraries are meant to receive 10% of the annual university budget. However, this is rarely fully implemented, resulting in significant underfunding. Dada and Atte (2025) argued that poor funding can limit investment in AT technologies.

Poor ICT infrastructure: Infrastructural deficit seriously hampers successful implementation of AI in Nigeria libraries. Insufficient and outdated infrastructure is not compatible with AI and hence cannot support AI integration in libraries. This has kept many libraries on the exploratory stage. Epileptic power supply, weak internet connectivity, and obsolete computer hardware have characterized most public libraries in Nigeria. This poor state of infrastructure is not robust enough to drive AI implementation in the libraries (Ajani et al., 2022), thus limiting adoption of such tools among librarians.

Lack of skilled personnel: This shortage of expertise—spanning AI, machine learning, and data analytics—limits the adoption of advanced services like chatbots, automated cataloging, and predictive analytics. The lack of skilled personnel creates skills gap, where awareness of AI potential exists, but practical application is limited. This shortage slows AI adoption of AI by librarians and consequently their effective integration into library services, leading to low utilization.

Resistance to change: Some library staff are resistant to adopting innovations, usually, manifesting as anxiety, fear of job displacement or reluctance to adopt new digital workflows. Most universities are reluctant to integrate AI tools in their services because they fear this will render traditional librarians obsolete. This makes staff resist as against embracing the innovation. Even when they are installed, resistant staff will not fully utilize AI tools, thereby making investment in technology wasteful. Furthermore, resistance to adopting AI technology can lead to skill gaps among the hesitant staff, hindering libraries from developing digital capacities.

Strategies for promoting the integration of AI in Nigerian libraries

Successfully integrating AI into library and information services in Nigeria requires a multifaceted approach. They include:

i. **Infrastructure development**: Investing in power, high-speed internet and modern computing hardware are very essential for effective integration of AI into library services in Nigeria. Establishing local data centres or high-speed access to cloud computing services allows libraries to host AI-driven discovery tools and large-scale digital repositories. Installing more reliable and renewable energy sources like solar can help overcome the power challenge that is common in Nigeria.

ii. **Capacity building and training of librarians**: In this context of Fifth Industrial Revolution (5IR) when Nigerian libraries are transiting from traditional repositories to 'intelligent hubs' capacity building and training becomes a bridge between the advanced technological possibilities and practical service delivery. Enhancing the capacities of Nigerian librarians in such areas as prompt engineering and data literacy (generative AI) and Algorithm awareness can promote integration of AIs in libraries. Hence, routine professional training is important.

iii. **Fostering the culture of innovation and adaptability:** Training is not sufficient. However, changing the institutional mindset is also important. This can be achieved by overcoming resistance by making librarians understand that AI is not coming to replace or displace them from their jobs but serving as collaborative partners. Similarly, ongoing professional development prepares librarians as the 5IR technologies emerge, ensuring that library facilities are relevant. Introduction of chatbots and virtual assistants can help customize and provide uninterrupted library services. This can assist students and other patrons in remote areas with limited physical access to physical libraries, thereby improving user services and engagement.

iv. **Government and institutional support**: This is crucial as it provides the necessary funding, infrastructure, training and policy frameworks needed to overcome high adoption costs and skills gaps. Support initiatives aimed at improving library services can be put in place. Governments can formulate policies and regulatory frameworks that address data privacy, algorithm bias and intellectual property. Building collaborations between libraries and tech partners to share knowledge and facilitate technology transfer can encourage the integration of AI technologies in library services.

Conclusion and Suggestions

Artificial intelligence has emerged as a transformative technology with the capacity to improve the quality, efficiency, and accessibility of information services in libraries. This paper has shown that Nigerian libraries continue to face numerous challenges such as inadequate funding, poor ICT infrastructure, shortage of skilled personnel, outdated resources, and resistance to technological change. These challenges have limited the ability of libraries to fully meet the evolving information needs of users in the digital age. The paper further revealed that AI technologies such as machine learning, natural language processing, chatbots, robotics, recommendation systems, and automated cataloguing tools can significantly enhance library operations and service delivery. Through AI integration, libraries can improve information retrieval, automate repetitive tasks, provide personalized user services, strengthen digital repositories, and support research and learning more effectively. Although AI adoption in Nigerian libraries is still at a developing stage compared to global practices, there is growing awareness and willingness among librarians and institutions to embrace these technologies.

For Nigerian libraries to benefit fully from AI-driven services, deliberate efforts must be made by government, institutions, and stakeholders to address infrastructural deficits, increase funding, and promote continuous training and capacity building for librarians. Equally important is the development of supportive policies and a culture of innovation that encourages adaptability to emerging technologies. The integration of artificial intelligence into Nigerian libraries is no longer optional but essential for the modernization and sustainability of library and information services. With adequate support and strategic implementation, AI can reposition Nigerian libraries as dynamic, intelligent, and user-centered knowledge hubs capable of meeting the information demands of the twenty-first century.

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Using Artificial Intelligence to Provide Libraries with 21st-Century Information Services

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Abstract

The increasing volume of digital information and the growing demand for fast, personalized, and efficient information services have created new challenges for libraries in the 21st century. Traditional library systems, which largely rely on manual processes, often struggle to meet the expectations of contemporary users in an increasingly digital environment. Consequently, artificial intelligence (AI) has emerged as a promising technology for improving library operations and enhancing service delivery. This study was carried out to examine the role of artificial intelligence in transforming library and information services, with particular emphasis on its applications, benefits, challenges, and implications for the future of librarianship. The study adopted a qualitative narrative literature review design. Relevant scholarly publications were sourced from databases including Google Scholar, Scopus, Web of Science, ScienceDirect, Emerald Insight, and Library and Information Science Abstracts (LISA). The selected literature was critically reviewed and analyzed thematically to identify major trends and developments in the application of AI within library environments. The findings reveal that AI technologies, particularly machine learning, natural language processing, predictive analytics, and chatbots, are significantly enhancing information retrieval, cataloguing, metadata generation, user support services, and library decision-making processes. The review also shows that AI contributes to improved operational efficiency, personalized user experiences, and more effective resource management. However, challenges such as algorithmic bias, data privacy concerns, inadequate technological infrastructure, limited funding, and shortages of skilled personnel continue to hinder widespread adoption, especially in developing countries. The study concludes that artificial intelligence has considerable potential to improve the quality and effectiveness of library and information services. However, its successful and sustainable integration requires strategic investment, ethical governance frameworks, and continuous professional development for library personnel.

Keywords: *Artificial intelligence, library services, information retrieval, machine learning, digital transformation, librarianship.*

Introduction

The rapid advancement of digital technologies has significantly transformed the global information landscape, reshaping how information is created, organised, stored, accessed, and disseminated. As key institutions facilitating access to knowledge, libraries have undergone substantial changes in their operations and service delivery models. Traditionally regarded as repositories of printed materials, libraries are increasingly evolving into dynamic, technology-driven information centres that provide a range of digital services to meet users' changing needs in the information age (Cox et al., 2023). The exponential growth of digital information and the increasing expectations of users for fast, personalized, and seamless access to information have created new challenges for libraries. Traditional library systems, which largely depend on manual processes and conventional information management techniques, often struggle to cope with the volume, complexity, and speed of contemporary information demands. Consequently, libraries are adopting innovative technologies to improve operational efficiency, enhance user experiences, and deliver more responsive information services.

Among these emerging technologies, Artificial Intelligence (AI) has become one of the most transformative innovations influencing library and information services. AI refers to the ability of computer systems to perform tasks that typically require human intelligence, including learning, reasoning, pattern recognition, language processing, and decision-making (Brynjolfsson and McAfee, 2022). Through technologies such as machine learning, natural language processing, predictive analytics, and intelligent automation, AI enables libraries to manage information resources more effectively and deliver services that are increasingly user-centred.

The application of AI in libraries has enhanced several core library functions. Machine learning algorithms improve information retrieval by increasing the relevance and accuracy of search results (Jiang and Liu, 2023). Natural language processing facilitates more intuitive interactions between users and library systems, enabling conversational search and intelligent query handling (Shiri, 2023). Similarly, AI-powered automation supports metadata generation, document classification, and cataloguing processes, reducing the time and effort required for routine tasks (Zhou and Zhang, 2022). Furthermore, chatbots and virtual assistants provide continuous user support, improving accessibility to library services while reducing the workload of library personnel (Kim & Abbas, 2023). Beyond operational improvements, AI also supports data-driven decision-making by enabling libraries to analyse user behaviour, predict information needs, and optimize resource allocation (Maurantonio and Ganis, 2023).

Despite these benefits, the integration of AI into library services is accompanied by significant challenges. Ethical concerns such as algorithmic bias, data privacy, transparency, and accountability have emerged as critical issues that require careful consideration (Floridi et al., 2022). In addition, inadequate technological infrastructure, limited financial resources, and insufficient digital competencies among library professionals continue to hinder the successful implementation of AI technologies, particularly in developing countries (Akinola, 2024). These challenges highlight the need for strategic planning and appropriate governance frameworks to ensure responsible and sustainable AI adoption.

Importantly, the growing use of AI should not be viewed as a replacement for librarians. Rather, AI serves as a complementary tool that enhances professional practice by automating repetitive and routine tasks, thereby enabling librarians to focus on higher-level responsibilities such as research support, information literacy instruction, knowledge organization, and user engagement (Liu and Luo, 2021). The successful integration of AI, therefore depends on balancing technological innovation with the professional expertise and ethical responsibilities that remain central to librarianship. Although existing studies have examined various applications of AI in libraries, there remains a need for a comprehensive understanding of its broader implications for library services, professional practice, and user experiences. This study therefore examines the role of artificial intelligence in contemporary library and information services, with particular emphasis on its applications, benefits, challenges, and the strategies required for its ethical and sustainable integration in modern library environments.

Statement of the Problem

Artificial intelligence (AI) is quickly changing the creation, access and sharing of information, putting libraries in a position to develop into cutting-edge service hubs. Even though AI technologies have a lot of potential to improve library operations, use engagement and decision-making, their usage in library services is still restricted and inconsistent among institutions. Inadequate technology infrastructure, especially in poor nations, is a major obstacle that limits the application of AI systems. Effective adoption and administration of these technologies are further hampered by a lack of technical skills among library staff. AI integration is made more difficult by ethical issues including data privacy, security and algorithm bias, particularly when there are unclear governance structures.

Furthermore, a lot of libraries lack strategic guidance and complete policies for the use of AI, which leads to dispersed and unsustainable implementation initiatives. The purchase and upkeep of AI technology are likewise restricted by financial limitations. Even though AI has the ability to supplement rather than replace human expertise, professional resistance motivated by concerns about losing their jobs adds to the complication. As a result, there is a big disconnect between AI's acknowledged promise and its actual use in libraries. Therefore, this study aims to investigate the prospects and difficulties of integrating AI and to pinpoint methods for its ethical and successful implementation in contemporary library services.

Objectives of the Study

The main objective of this paper is to examine how artificial intelligence can enhance library services in the 21st century. Specifically, the study seeks to:

1. Examine the emerging role of AI in modern library environments.
2. Identify key AI technologies currently used in library services.
3. Analyze the benefits of AI-driven information services for libraries and users.
4. Explore the challenges and ethical concerns associated with AI adoption in libraries.
5. Propose strategic recommendations for sustainable AI integration in library systems.

Theoretical Framework.

This study is anchored on two theories. Technological Acceptance Model (TAM) and Diffusion of Innovative Theory (DIT). The Technology Acceptance Model (TAM) contends that people are more inclined to adopt new technologies when they believe they are practical and simple to use. The effectiveness of AI systems in library settings is mostly dependent on how users and librarians view these technologies' advantages and usefulness. While the Diffusion of innovation theory, describe how new technology gradually permeate societies and organizations. The theory state that the rate at which innovations are adopted is influenced by elements such as organizational preparedness, leadership support, technology infrastructure and user awareness (Rogers, 2003). For the context of this study, if librarians in university libraries perceive AI Applications as useful to their service delivery to users it would influence their decision to favorably adopt and use them to a great extent. If librarians find the use of AI easy, they may likely adopt it for use to boost their service delivery drive. And also, while AI will be compared to innovation in university libraries, the diffusion of innovation theory or model aims to explain the factors that influence librarian's willingness to accept an innovation rapidly or slowly.

These theoretical frameworks emphasise the significance of institutional support, professional training and strategic planning in promoting successful technology integration and offer insightful information about the elements influencing AI adoption in libraries.

Methodology

This study adopted a qualitative research approach, using a narrative literature review design, to examine the role of artificial intelligence in enhancing library and information services in the 21st century. The narrative review approach was considered appropriate because it allows for a comprehensive synthesis and critical interpretation of existing scholarly works on a broad and evolving topic such as artificial intelligence in libraries. The study employed a descriptive and analytical design, focusing on synthesizing existing literature on artificial intelligence applications in library and information services. The aim was to identify key themes, trends, benefits, challenges, and ethical issues associated with AI adoption in libraries. Data for this study were obtained from peer-reviewed journal articles, conference papers, books, and reputable online academic sources. Key databases consulted include Google Scholar, Scopus, Web of Science, Emerald Insight, ScienceDirect, and Library and Information Science Abstracts (LISA). These sources were selected due to their relevance and credibility in the field of library and information science. A systematic search was conducted using relevant keywords and Boolean operators. The key search terms included:

- Artificial Intelligence in libraries
- Machine learning in library services
- Natural language processing and libraries
- Chatbots in academic libraries
- Digital libraries and AI
- Information retrieval systems and AI

The selection of literature was guided by the following criteria:

Inclusion Criteria:

- Studies published between 2020 and 2025
- Peer-reviewed journal articles and academic publications
- Research focusing on AI applications in library and information services

Exclusion Criteria:

- Non-academic articles, blogs, and opinion pieces
- Studies not directly related to library and information science
- Duplicate publications or incomplete studies

The selected literature was analyzed using **thematic analysis**. Relevant findings were coded and grouped into themes such as AI technologies in libraries, applications of AI, benefits of AI adoption, ethical concerns, and challenges in implementation. This thematic approach enabled a structured synthesis of existing knowledge and helped in identifying gaps in the literature. Since this study is based on secondary data, no human participants were involved. However, proper academic integrity was maintained by ensuring accurate citation of all sources and adherence to ethical standards of scholarly writing.

Literature Review

Artificial Intelligence and the Transformation of Libraries

Artificial intelligence (AI) has become a transformative force in the evolution of modern library and information services. AI refers to computational systems capable of performing tasks that typically require human intelligence, such as learning, reasoning, perception, and language understanding (Russell and Norvig, 2021). In recent years, AI has moved beyond theoretical computing into practical applications across information-intensive environments, including libraries. Brynjolfsson and McAfee (2022) argue that AI is a central driver of the fourth industrial revolution due to its ability to process large-scale data and support decision-making. Similarly, Davenport and Ronanki (2018) emphasize that AI systems are increasingly being used in organizations to automate complex tasks, improve service delivery, and enhance productivity.

In library settings, Cox et al. (2023) observe that AI is reshaping traditional library services by enabling intelligent, adaptive, and user-centred systems. Bawden and Robinson (2022) further note that while digital transformation has expanded access to information, it has also created challenges such as information overload and retrieval inefficiencies, thereby increasing the need for intelligent systems.

Machine Learning and Intelligent Information Retrieval

Machine learning (ML), a subset of AI, plays a significant role in improving library information retrieval systems. ML algorithms analyze large datasets to detect patterns and generate predictive outputs that improve system performance

over time. Xu and Chen (2023) found that machine learning enhances recommendation systems in digital libraries by analyzing user behaviour, search history, and engagement patterns to deliver personalized content. Jiang and Liu (2023) similarly report that AI-based retrieval systems improve search accuracy by moving beyond keyword-based approaches toward semantic and intent-based search models. Agbo et al. (2021) add that machine learning improves digital asset management, classification accuracy, and predictive collection development in academic libraries. These findings collectively suggest that ML is central to improving both efficiency and user satisfaction in modern library systems.

Natural Language Processing and Conversational Systems

Natural Language Processing (NLP) enables machines to interpret and respond to human language in meaningful ways. In libraries, NLP enhances user interaction by allowing natural language queries instead of structured search commands. Shiri (2023) explains that NLP makes library systems more accessible by enabling conversational search interfaces. This reduces the complexity of information retrieval for users who may lack advanced search skills. Balog (2021) further notes that NLP improves semantic search by interpreting user intent rather than relying solely on keyword matching. Additionally, recent studies show that NLP-driven systems form the foundation of intelligent chatbots and virtual assistants that support user engagement and service delivery in libraries.

Chatbots, Virtual Assistants, and User Engagement

AI-powered chatbots are increasingly being deployed in academic and public libraries to enhance user services. Kim and Abbas (2023) found that chatbots significantly improve user engagement by providing 24/7 reference support and assisting users in navigating digital resources. Similarly, Oke and Idiogho (2022) report that chatbot systems reduce the workload of library staff by handling routine inquiries such as opening hours, database access, and catalogue navigation. These systems improve service responsiveness while allowing librarians to focus on more complex user needs.

Chatterjee and Kundu (2021) also highlight that virtual assistants enhance accessibility and inclusivity in library environments, particularly for remote users.

Predictive Analytics and Data-Driven Library Management

Predictive analytics is another important AI application in libraries, enabling institutions to make data-driven decisions based on historical usage patterns. Maurantonio and Ganis (2023) argue that predictive analytics helps libraries forecast resource demand, optimize acquisitions, and improve collection development strategies. Similarly, Singh and Mehta (2022) note that predictive models can identify usage trends in digital libraries, enabling better allocation of limited resources. These findings suggest that libraries are transitioning from reactive service models to proactive, and data-informed decision-making systems.

Automation of Cataloguing and Metadata Generation

AI technologies are increasingly used to automate cataloguing and metadata creation processes. Zhou and Zhang (2022) found that machine learning algorithms can automatically extract bibliographic metadata from documents, significantly reducing manual workload and improving consistency. According to Park and Kim (2021), automation in metadata generation enhances the scalability of digital libraries and improves retrieval accuracy. These systems also reduce human error and improve standardization across library databases.

Ethical, Technical, and Institutional Challenges

Despite the benefits of AI, several challenges hinder its full adoption in libraries. Floridi et al. (2022) highlight concerns such as algorithmic bias, lack of transparency, and accountability issues in AI systems, which may affect fairness in information access. Akinola (2024) identifies infrastructural limitations, inadequate funding, and lack of technical expertise as major barriers in developing countries. Similarly, Ifijeh and Yusuf (2022) emphasize that many libraries struggle with digital readiness, which limits effective AI integration. Privacy concerns also remain critical, as AI systems rely heavily on user data to function effectively, raising ethical questions about data protection and surveillance.

Although existing literature has examined various applications of AI in libraries, most studies focus on isolated technologies such as chatbots, recommendation systems, or metadata automation. There is limited integrated analysis that examines how these technologies collectively transform library systems. Furthermore, empirical studies from developing countries remain limited, despite the fact that these regions face the greatest infrastructural and capacity challenges. This study addresses these gaps by providing a comprehensive synthesis of AI applications, benefits, challenges, and implications for modern library services.

Findings

AI-Driven Transformation of Library Information Retrieval

The reviewed literature indicates that artificial intelligence has significantly improved information retrieval systems in modern libraries. Traditional keyword-based search systems are increasingly being replaced by intelligent, context-aware retrieval models. Jiang and Liu (2023) observe that machine learning algorithms enhance search accuracy by analysing semantic relationships between user queries and available resources, thereby improving relevance in search results.

Similarly, AI-powered recommendation systems contribute to more personalized information discovery. Xu and Chen (2023) report that by analysing user behaviour, search history, and reading preferences, AI systems can anticipate user needs and deliver tailored content, thereby improving the efficiency of information access in digital libraries.

Automation of Library Operations and Resource Management

The findings also reveal that AI plays a critical role in automating core library operations, particularly in cataloguing, metadata generation, and document classification. Zhou and Zhang (2022) note that machine learning tools can automatically extract bibliographic metadata from digital documents, significantly reducing the time and labour associated with manual cataloguing processes. This automation enhances consistency, accuracy, and efficiency in library resource management. It also allows librarians to redirect their efforts toward more complex intellectual tasks such as research support and knowledge organization.

Enhancement of User Services and Engagement

Another major finding is that AI technologies are improving user experience and engagement in library environments. Natural Language Processing (NLP) enables users to interact with library systems using conversational language rather than complex search syntax. Shiri (2023) explains that this development makes library systems more accessible, especially for users with limited information literacy skills.

In addition, AI-powered chatbots and virtual assistants provide continuous user support. Kim and Abbas (2023) found that chatbots enhance service delivery by offering 24/7 assistance, answering frequently asked questions, and guiding users through digital library platforms. This significantly improves accessibility and responsiveness of library services.

Predictive Analytics and Data-Driven Decision Making

The literature also shows that predictive analytics is increasingly used to support strategic decision-making in libraries. Maurantonio and Ganis (2023) argue that by analysing historical usage data, libraries can predict future resource demands and optimize collection development strategies. This data-driven approach allows libraries to allocate resources more efficiently, improve acquisition decisions, and better align services with user needs. Consequently, libraries become more proactive rather than reactive in-service delivery.

Ethical, Technical, and Institutional Challenges

Despite the benefits of AI integration, several challenges persist. A key concern is algorithmic bias, which may lead to unfair or skewed information retrieval outcomes. Floridi et al. (2022) emphasize that biased training data can negatively influence search results and recommendation systems, thereby affecting equitable access to information.

In addition, Akinola (2024) identifies infrastructural limitations, inadequate funding, and lack of technical expertise as major barriers to AI adoption, particularly in developing regions. These challenges limit the scalability and sustainability of AI-based library systems.

Changing Role of Librarians in AI-Enabled Environments

The findings further indicate that AI does not replace librarians but reshapes their professional roles. Liu and Luo (2021) argue that while AI can automate routine tasks, librarians remain essential for critical functions such as information literacy training, ethical evaluation of information sources, and research support. This suggests a shift in librarianship from operational tasks toward more analytical, instructional, and user-centred roles. AI therefore functions as a supportive tool that enhances professional practice rather than replacing it.

Discussion of Findings

The findings of this study indicate that artificial intelligence is significantly reshaping library and information services, particularly in areas such as information retrieval, automation, user engagement, and decision-making. These developments suggest a clear shift from traditional, manually driven library systems to intelligent, data-driven service environments. The enhancement of information retrieval systems through machine learning and semantic search confirms the argument of Jiang and Liu (2023), who emphasize that AI improves search relevance by interpreting user intent rather than relying solely on keyword matching. This indicates a transition toward more user-centred and context-aware library systems.

AI and Transformation of Library Services

The findings also show that AI technologies are redefining core library operations such as cataloguing, metadata creation, and resource management. This aligns with Zhou and Zhang (2022), who found that automation significantly reduces the workload associated with manual cataloguing while improving accuracy and consistency. Similarly, the use of predictive analytics for resource allocation supports the view of Maurantonio and Ganis (2023), who argue that data-driven decision-making enables libraries to anticipate user needs and optimize collection development. This suggests that libraries are increasingly adopting proactive rather than reactive service models.

Enhancement of User Experience and Engagement

The results further reveal that AI contributes to improved user experience through personalization and conversational interfaces. The use of Natural Language Processing (NLP) enables users to interact with library systems more naturally, which supports the findings of Shiri (2023), who reported that NLP reduces barriers associated with traditional search systems.

In addition, AI-powered chatbots enhance accessibility and responsiveness of library services. This is consistent with Kim and Abbas (2023), who found that chatbots improve service delivery by providing continuous support and reducing dependence on physical reference desks. These developments indicate a shift toward more interactive and user-friendly library environments.

Ethical and Structural Challenges

Despite these advancements, the study confirms that several challenges hinder effective AI adoption in libraries. One of the most significant issues is algorithmic bias, which may compromise fairness in information retrieval systems. Floridi et al. (2022) similarly caution that biased datasets can lead to unequal access to information, raising concerns about transparency and accountability. Infrastructure and capacity limitations also remain major barriers, particularly in developing countries. This supports the findings of Akinola (2024), who highlights inadequate funding, poor technological infrastructure, and limited digital skills as key obstacles to AI implementation in library systems. These challenges suggest that technological advancement alone is insufficient without institutional and policy support.

Implications for Library Practice

The findings imply that libraries must reposition themselves as hybrid institutions that integrate both human expertise and artificial intelligence. While AI enhances efficiency and automation, librarians remain essential for tasks requiring ethical judgment, critical thinking, and human interaction. This supports Liu and Luo (2021), who argue that AI should be viewed as a complementary tool rather than a replacement for librarians.

Consequently, the professional role of librarians is evolving toward more analytical and user-centred responsibilities such as information literacy training, research support, and digital curation. This transformation requires continuous professional development and institutional investment in digital skills. Overall, the discussion demonstrates that AI is not merely a technological enhancement but a transformative force reshaping library service delivery models. However, its successful integration depends on addressing ethical concerns, infrastructural challenges, and capacity gaps. The study therefore contributes to the growing body of literature by synthesizing how AI collectively impacts library operations, user experience, and professional practice, particularly in the context of digital transformation.

Conclusion

This study examined the role of artificial intelligence in enhancing library and information services in the 21st century. Through a thematic review of existing literature, the study demonstrated that AI is significantly transforming library operations, particularly in areas such as information retrieval, cataloguing, user services, and decision-making. Technologies such as machine learning, natural language processing, predictive analytics, and chatbots are increasingly being integrated into library systems to improve efficiency, accessibility, and user experience.

Contribution of the Study

This study contributes to existing literature by providing an integrated and thematic synthesis of artificial intelligence applications in library and information services. Unlike studies that focus on isolated AI tools, this research brings together multiple AI technologies and explains how they collectively reshape library operations, user engagement, and professional practice. It also highlights the interrelationship between technological advancement and the evolving role of librarians in AI-driven environments.

Despite its contributions, the study has some limitations. First, it is based solely on secondary data derived from existing literature, which may limit the inclusion of emerging real-time developments in AI applications. Second, the study did not include empirical data from librarians or library users, which could have provided deeper insights into practical implementation challenges. Third, the review is limited to English-language publications, which may exclude relevant studies published in other languages.

Recommendations for Future Research

Future studies should adopt empirical or mixed-method approaches to investigate the actual implementation of AI in library environments. There is also a need for comparative studies between developed and developing countries to understand contextual differences in AI adoption. Furthermore, future research should explore user perception, ethical governance frameworks, and the long-term sustainability of AI-driven library systems.

In conclusion, artificial intelligence presents significant opportunities for improving library and information services. However, its successful integration depends on addressing ethical concerns, infrastructural limitations, and capacity-building needs while maintaining the core professional values of librarianship.

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UTILIZATION OF HEALTH INFORMATION RESOURCES AND SERVICES FOR CLINICAL DECISION-MAKING AMONG HEALTHCARE PROFESSIONALS IN USMANU DANFODIYO UNIVERSITY TEACHING HOSPITAL SOKOTO, NIGERIA

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Abstract

This study investigated the utilization of health information resources and services for clinical decision-making among healthcare professionals in Aliyu Magatakarda Wamakko Medical Library complex Usmanu Danfodiyo University Teaching Hospital (UDUTH) Sokoto Nigeria. The objectives of the study was to examine healthcare professionals level of awareness about the available health information resources and services, to ascertain the extent of utilization for clinical decision-making and the challenges faced by healthcare professionals in accessing and utilizing health information and services in Aliyu Magatakarda Wamakko Medical Library complex Usmanu Danfodiyo University Teaching Hospital Sokoto Nigeria. A quantitative research approach using descriptive survey research design was adopted for this study. The population of the study were1245 healthcare professionals which consisted of doctors, nurses, pharmacists and medical laboratory scientists in Usmanu Danfodiyo University Teaching Hospital Sokoto Nigeria. A sample size of 297 was determined and selected. Self-developed closed ended questionnaire was used for data collection with 276 valid responses returned representing response rate of 92.9%. The data collected was analyzed using descriptive statistics mean and standard deviation. This study revealed a high level of awareness of traditional printed health information resources among respondents, while awareness on information services was moderate. The utilization of traditional printed resources was found to moderate whereas the utilization of specialized information services among the respondents was generally low. The major challenges identified includes lack of internet facilities, lack of e-library infrastructure, limited access to online medical databases, e-books, e-journals lack of wireless connectivity and outdated textbooks and medical journals in the medical library among others. This study concluded that there is a significant gab in the use of electronic health information resources in the medical libraries. This study recommended that the management of Usmanu Danfodiyo University Teaching Hospital Sokoto should increase funding for the development of e-library, subscription to relevant health electronics resource and databases, e-books, e-journals and provision of wireless connectivity in the medical library, and also acquisition of current medical textbooks, and journals that support evidence-based clinical making and provision of quality healthcare delivery by healthcare professionals in Usmanu Danfodiyo University Teaching Hospital Sokoto Nigeria.

Keywords: Clinical Decision-Making, Health Information Resources, Information Services, Utilization

INTRODUCTION

Clinical decision-making is the process by which healthcare professionals assess and interpret patient medical information to make informed choices about diagnosis, and develop treatment plans integrating evidence-based practice into patient care. This process involves evaluating clinical data, considering the patient history and preferences and applying medical knowledge, experience, clinical expertise, and using evidence-based relevant health information resources and services to determine the best course of action, such as evidence based decisions and more effective treatment and interventions leading to better health outcomes for patients (Dusin, Melanson& Mische-Lawson; Berne & La Lande, 2016). Effective clinical decision-making aims to improve patient outcome and enhance quality of care which help in reducing unnecessary test and providing best treatment option which also aid in allocating resources more efficiently. Evidence-based clinical decision- making can also enhanced patient safety, by carefully assessing effective use of relevant health information resources healthcare professionals can reduce the risk of medical errors and adverse events of uncertainties enhancing high quality healthcare delivery. Health information resources and services play a

vital role in clinical decision-making by healthcare professionals. These resources and services provide healthcare professionals with access to accurate, reliable and up-to-date information through medical research studies, systematic reviews and clinical guidelines enabling them to make informed clinical decisions about patient care (WHO, 2024).

Health information resources are the various materials and sources that provide information about health and medical topics. These resources includes websites, databases, textbooks, articles and other materials that offer valuable insights into different aspects of healthcare, medical conditions, treatments, and general well-being. Health information resources also include medical literatures, databases, research articles, multimedia resources and online platforms that provide relevant health information (WHO, 2024). Medical personnel rely on a variety of health information resources and services to make informed clinical decisions and to provide quality healthcare delivery.

Information services are the assistance or services provided by the library to its users in order for them to access and use relevant information resources. This can include how to access and use health information resources in the library. Information services also includes circulation service, reference service, online reservation of books, recommendation of library materials, current awareness service, inter library loan service or document delivery, and selective dissemination of information. Information services can also include literature searches, information literacy programs, providing evidence-based resources, current awareness alerts, clinical queries resources, and user education (Smith, & Jones 2018). Information services play a crucial role in enhancing access to timely and accurate health information resources thereby simplifying healthcare delivery by healthcare professionals (Yogesh & Karthikeyan, 2022). This is made possible through access to comprehensive and accurate information. It directly helps healthcare professionals to make critical decisions regarding diagnosis, treatment and patient management. Similarly, utilization of information resources enhances quality of care provided to patients (Beauchemin, Cohn & Shelton 2019).Utilizing up to date medical literatures, clinical guidelines and best practices ensures the delivery of quality healthcare by professionals based on latest evidence and current trends and optimized care coordination among professionals (Donalson, Richard, Shendun & Cascinr, 2021). This paper tends to examine the utilization of health information resources and services for clinical decision-making among healthcare professionals on patients care outcomes using evidence-based research and clinical guidelines in the overall patient management and provision of quality healthcare delivery in Usmanu Danfodiyo University Teaching Hospital Sokoto. Nigeria.

Statement of the Problem

Health information resources and services have been an alternative means of learning, research and keeping up-to-date with evidence-based medical research especially in medical environment integrating evidence-based practices into clinical decision-making and patient management is paramount in order to enhance quality of care by healthcare professionals. Medical library has essential responsibilities for providing and dissemination of health information resources and services such as medical databases, textbooks, journals, multimedia materials, clinical guidelines, and other relevant materials and reference assistance for research and academic support incorporating evidence-based practices in the face of uncertainty becomes vital on daily basis towards enhancing informed clinical decision-making by healthcare professionals in teaching hospital setting for provision of quality healthcare delivery (Sutton, et al 2020) The authors observed that the teaching hospital has a diverse community of healthcare professionals who are among the categories of users in the medical library. However, based on the current library statistics of usage as contained in the statistics record of the medical library 2024-2025 showed that, these health information resources and services seemed to be underutilized by healthcare professionals which may contribute to clinical errors and reduced the quality of care provided to patients and increase healthcare cost which may lead to poor patient outcomes. It is based on this threshold that the researchers carry out this study with the view of identifying gabs and challenges in order to make recommendations that will inform interventions for establishing its impact towards enhancing informed evidence-based clinical decision-making and provision of quality care by the healthcare professionals in Usmanu Danfodiyo University Teaching Hospital Sokoto, Nigeria.

Objectives of this Study

1. To determine the level of awareness by healthcare professionals on health information resources and services available in the Aliyu Magatakarda Wamakko medical library complex Usmanu Danfodiyo University Teaching hospital, Sokoto, Nigeria.
2. To ascertain the level of utilization of health information resources and services by healthcare professionals for clinical decision-making in Aliyu Magatakarda Wamakko Medical Library complex Usmanu Danfodiyo University Teaching Sokoto, Nigeria.
3. To find out the challenges faced by healthcare professionals in accessing and utilizing health information resources and services in Aliyu Magatakarda Wamakko medical complex Usmanu Danfodiyo University Teaching hospital Sokoto, Nigeria.

Review of Related Literature

Health library information resources and services are essential for clinical decision-making, providing healthcare professionals with reliable and up-to-date health information to guide patient care. These resources include books, journals, databases, and electronic health records that support evidence-based practice. According to Nelson and Staggers (2021), well-organized health libraries facilitate access to critical information, enabling clinicians to stay updated with evidence, based knowledge to diagnose accurately and develop effective treatment plans. A study by Popescu, El-Chaarani, El-Abiad, and Gigauri (2022) highlights that healthcare professionals who utilize health information resources improved confidence and accuracy in decision-making. Awareness of health information resources and services among healthcare professionals is crucial for enhancing clinical decision-making and improving patient outcomes. Health information resources, including textbooks, journals, databases, and online platforms, provide evidence-based data to guide diagnosis and treatment. According to Zulfikar Ghose and Sardar (2024), increased awareness of these information resources empowers clinicians to integrate the latest medical advancements into practice and enhance efficiency in patient care. Agure, Miyeso, and Abdullahi (2024) emphasize that a well-informed healthcare workforce significantly reduces errors and improves the quality of care. Increased awareness of health information services fosters evidence-based decision-making among healthcare professionals. Services such as reference consultations, interlibrary loans, and access to online medical databases like PubMed, Clinical Key, and HINARI provide vital support for clinical queries.

Utilisation of health information resources and services is crucial for healthcare professionals towards enhancing evidence-based clinical decision-making. In the present-day healthcare setting, the utilisation of diverse information resources is essential for informed clinical decision-making in healthcare delivery and improved patient outcomes. These resources include peer-reviewed journals, databases, textbooks, clinical guidelines, and medical conferences. Each of these resources serves a unique role in shaping healthcare practices. As healthcare professionals navigate through this wealth of health information resources, it becomes imperative to critically assess the relevance, accessibility, and quality of these resources to ensure their effective integration into clinical practice and patient management (Al-Assaf, Bahroun, & Ahmed, 2024). The importance of utilising various Health information resources in healthcare is profound, influencing clinical decision-making processes and ultimately patient outcomes. Access to current research through journals facilitates evidence-based practice, thereby improving patient care (Connor et al., 2023). According to Ekere, Igwe, & Omekwu, (2017), healthcare professionals faced significant challenges in accessing and utilising health information resources and services, which hinder their ability to make evidence-based clinical decisions. One of the primary issues is inadequate infrastructure in medical libraries, such as limited seating, outdated facilities, and unreliable internet connectivity. Adekoya, et al. (2024), highlight that many medical libraries in Nigeria lack essential digital tools, making access to online databases and health information portals difficult by healthcare professionals. It also emphasize that the absence of modern technologies reduces the efficiency of information retrieval. These challenges create barriers for healthcare professionals seeking timely and relevant information to support clinical care. According to Bala, Underwood, and Moyane, (2025) inadequate promotion of information services by medical libraries exacerbates the problem of underutilization leaving healthcare professionals reliant on limited personal networks or outdated health information resources. Godwill, Rose & Ekemini (2024) stated that the high patient-to-doctor ratio and clinical engagements among healthcare professionals in many Nigerian hospitals leaves most healthcare professionals with limited time for library use and extensive health literature review in most cases. Limited funding for health libraries leads to a lack of subscriptions to up-to-date journals and electronic databases, as noted by Popescu, El-Chaarani, El-Abiad, and Gigauri, (2022). Overcoming these challenges is essential to empower healthcare professionals and also equip medical libraries with current and up-to-date health information resources and services for enhancing informed clinical decision-making and provision of quality (Poopola et al (2020).

Methodology

A quantitative research approach descriptive survey research design was adopted for this study. The population of the study were 1245 healthcare professionals which consisted of doctors, nurses, pharmacists and medical laboratory scientists in Usmanu Danfodiyo University Teaching Hospital Sokoto Nigeria. A sample size of 297 was determine and selected. Self-developed closed ended questionnaire was used as instrument for data collection. The instrument was validated using faced and content by three lecturers in the Department of Library and information Science Ahmadu Bello University Zaria. A pilot study was conducted at the Ahmadu Bello University Teaching Hospital, Shika-Zaria and the reliability co-efficient index obtained using Cronbach's Alfa was 0.85 which indicated that the instrument was reliable. The valid responses of 276 was returned representing response rate of 92.9%. The data collected was analysed using descriptive statistics mean and standard deviation.

Result and Discussion

Table 1.1: Level of Awareness about available Health Information Resources by healthcare professionals for Clinical Decision-makings

S/N	Items	5		4		3		2		1		T	Mean	SD
		F	(%)	F	(%)	F	(%)	F	(%)	F	(%)			
1.	Medical Books	49	17.8	217	78.6	7	2.5	3	1.1	0	0	276	**4.13**	0.5
2.	Medical Journals	51	18.5	207	75	8	2.9	7	2.5	3	1.1	276	**4.07**	0.7
3.	Medical Dictionaries	43	15.6	201	72.8	15	5.4	9	3.3	8	2.9	276	**3.95**	0.8
4.	Clinical Handbooks	47	17	198	71.7	17	6.2	11	4	3	1.1	276	**4.02**	0.7
5.	Anatomy Atlases	38	13.8	196	71	21	7.6	12	4.3	9	3.3	276	**3.91**	0.8
6.	Clinical practice guidelines	30	10.8	187	67.8	18	6.5	14	5.1	27	9.8	276	**3.69**	1.1
7.	Public health guidelines	27	9.8	192	69.6	21	7.6	10	3.6	26	9.4	276	**3.72**	1.0
8.	WHO publications	41	14.9	205	74.3	23	8.3	7	2.5	0	0	276	**4.02**	0.6
9.	Conference proceedings on health	25	9.1	178	64.5	47	17	15	5.4	11	4	276	**3.69**	0.9
10.	Health statistics reports	19	6.9	152	55.1	58	21	17	6.2	30	10.9	276	**3.41**	1.1
11.	Health organizations annual reports	32	11.6	163	59.1	41	14.9	19	6.9	21	7.6	276	**3.60**	0.4
12.	Health Org. newsletters	44	15.9	151	54.7	48	17.4	33	12	0	0	276	**3.77**	0.9
13.	E-books	12	4.3	43	15.5	28	12.1	22	8.3	162	59.6	276	**2.08**	1.4
14.	E-journals	21	7.6	14	5.0	54	19.7	45	16.8	140	50.9	276	**2.04**	1.3
15.	Online medical databases	16	5.7	17	6.1	35	12.6	71	25.7	137	49.9	276	**1.93**	1.2
16.	Hospital knowledge repositories	11	4.0	21	7.6	197	71.4	20	7.2	27	9.8	276	**2.91**	0.82
17	Multimedia resources	12	4.3	43	15.6	162	58.6	22	8.0	28	10.1	276	**2.96**	0.9
18	Health information portals	12	4.3	43	15.6	28	12.1	22	8.3	162	59.6	276	**2.08**	0.7

Keys: 5=Highly Aware 4= Aware 3= Unaware 2= Completely Unaware 1= Neutral =T Total SD= Standard Deviation

Source*:* FIELD SURVEY*, 2025.* n=276

Table 1.1 provide a detailed breakdown of the level of awareness among healthcare professionals regarding various health information resources. The highest levels of awareness were recorded for medical books with mean value of 4.13, medical journals 4.07 and WHO publications 4.02, clinical handbooks 4.02 indicating strong familiarity with traditional and reputable health information sources. High level of awareness was also recorded for medical dictionary with mean value of 3.95, public health guidelines, Anatomy atlases the mean value is 3.91, Heath organizations annual reports the mean value is 3.77, clinical practice guidelines the mean value is 3.69, conference proceedings on health the mean value is 3.69, health organizations annual reports has the mean value of 3.60, health statistics reports the mean value is 3.41.This align with Alissa, & Alwargash, (2024) in health education promotion who emphasized that increase in level of awareness of health information resources can empower healthcare professionals to integrate the latest advancement in medical research into practice. While e- resources health information resources have negative mean value which is below the bench mark of 3.0. Notably, awareness was particularly low multimedia resources 2.96, hospital knowledge repositories 2.91, health information portals, 2.08, e-books 2.08, e-journals 2.04 and online medical databases 1.93. This finding aligns with previous study of Ikolo, Kolawole & Ekoko, (2025) which states that digital health information resources often suffer low engagement due to limited access to modern digital facilities in medical libraries in Nigeria.

The finding implies that healthcare professionals such as doctors, nurses, pharmacists and medical laboratory scientists are well-informed about conventional print health information resources. Substantial need for capacity building and sensitization on digital and online health information resources and electronic health information platforms will be crucial in improving evidence-based clinical decision-making. Healthcare institutions and medical libraries should consider targeted awareness campaigns and training programs to bridge the digital health information utilization of the library under the study tailored towards enhancing clinical decision-making and provision of quality care.

Table 1.2: Level of Awareness about Available Information Services by Healthcare Professionals

S/N	Items	5		4		3		2		1		T	Mean	SD
		F	(%)	F	(%)	F	(%)	F	(%)	F	(%)			
1.	Specialized reading room services	0	0	25	9.1	198	71.7	45	16.3	8	2.9	276	**2.89**	0.59
2.	Circulation services	61	22.1	181	65.6	22	8.0	12	4.3	0	0	276	**4.05**	0.69
3.	Information literacy services	35	12.7	168	66.9	35	12.7	13	4.7	25	9.1	276	**3.72**	0.85
4.	Interlibrary loan services	0	0	35	12.7	182	65.9	18	6.5	-41	14.9	276	**2.76**	0.86
5.	Selected dissemination of Information services	11	4.0	21	7.6	197	71.4	20	7.2	27	9.8	276	**2.91**	0.82
6.	Current Awareness services	45	16.3	173	62.7	27	9.8	23	8.3	8	2.9	276	**3.81**	0.91
7.	Reference services	51	18.5	18	68.5	17	6.2	7	2.5	12	4.3	276	**3.94**	0.86
8.	Document Delivery services	0	0	25	9.1	198	71.7	45	16.3	8	2.9	276	**2.89**	0.59
9.	Research Assistance	9	3.3	181	65.6	38	13.8	21	7.6	27	9.8	276	**3.45**	1.03
10.	Readers Advisory Services	41	14.9	162	58.7	47	17.0	17	6.2	9	3.3	276	**3.76**	0.90

Key: 5=Highly Aware 4=Aware 3= Unaware 2= Completely Unaware1= Neutral =T Total SD = Standard Deviation

Source*:* FIELD SURVEY, 2025 *n*=276

Table 1.2 presents the level of awareness of information services available in the Aliyu Magatakarda Wamakko Medical Library Complex, UDUTH Sokoto. The level of awareness was high on circulation services with mean value of 4.05, follow by reference services 3.94, current awareness services 3.81, readers advisory services 3.76, the mean value of information literacy is 3.72 and research assistance 3.45. Indicating that, most of the library services are well-known by the respondents. High recognition likely stems their fundamental role in daily library operations, making them more visible to the user. However, a majority of respondents showed low awareness on others services with mean value below the bench mark of 3.0. Such as Selected dissemination of information the mean value is 2.91, specialized reading room services 2.89, document delivery 2.89 Interlibrary loan services the mean value is 2.76 which indicate negative value below the bench mark of 3.0. Similarly, this finding showed that healthcare professionals in the teaching of such Doctors, Nurses Pharmacists and medical laboratory scientists are mostly aware about the core information services available in Aliyu Magatakarda Wamakko medical library complex UDUTH, Sokoto.

This implies that a strong familiarity with basic library functions, but a critical gap in awareness regarding advanced and value-added services that could significantly enhance information access and research support. To address this, the library should intensify outreach and orientation programs to promote underutilized services, particularly those that support collaborative research and evidence-based clinical decision-making that impact patient care.

Table 1.3: Level of Utilization of Health Information Resources for Clinical Decision-making in Aliyu Magatakarda Wamakko Medical Complex UDUTH, Sokoto Nigeria?

S/N	Items	5		4		3		2		1		T	Mean	SD
		F	(%)	F	(%)	F	(%)	F	(%)	F	(%)			
1.	Medical books	21	7.6	62	22.5	147	53.3	24	8.7	22	8.0	276	**3.13**	0.96
2.	Medical Journals	27	9.8	73	26.4	149	54.0	16	5.8	11	4.0	276	**3.32**	0.88
3.	Medical Dictionaries	31	11.2	70	25.4	151	54.7	19	6.9	5	1.8	276	**3.37**	0.82
4.	Clinical Handbooks	42	15.2	59	21.3	149	54.0	21	7.6	5	1.8	276	**3.41**	0.90
5.	Anatomy Atlases	35	12.7	62	22.5	144	52.2	25	9.1	10	3.6	276	**3.32**	0.88
6.	Clinical Practice Guidelines	45	16.3	71	25.7	150	54.3	10	3.6	0	0	276	**3.49**	0.81
7.	Public Health guidelines	38	13.8	68	24.6	148	53.6	17	6.2	5	1.9	276	**3.42**	0.87
8.	WHO Publications	25	9.1	56	20.3	152	55.1	30	10.9	13	4.7	276	**3.18**	0.91
9.	Conference proceedings on health	41	14.9	68	24.6	145	52.5	20	7.2	2	0.7	276	**3.46**	0.86
10	Health Statistics report	31	11.2	58	21.0	154	55.8	17	6.2	16	5.8	276	**3.26**	0.94
11	Health Organizations annual reports	47	17 0	74	26.8	137	49.6	8	2.9	10	3.6	276	**3.45**	0.85
12	Health organizations Newsletters	39	14.1	63	22.8	141	51.1	22	8.0	11	4.0	276	**3.35**	0.96
13	E-books	17	6.2	51	18.5	153	53.4	20	7.2	35	12.7	276	**2.98**	1.01
14	E-journals	14	5.1	29	10.5	167	60.5	21	7.6	45	16.3	276	**2.80**	1.00
15	Online medical databases	12	4.3	17	6.2	151	54.7	52	18.8	44	15.9	276	**2.64**	0.97
16	Hospital knowledge repositories	21	7.6	26	9.4	162	58.7	28	10.1	39	14.1	276	**2.86**	1.03
17	Multimedia resources	11	4.0	29	10.5	159	57.6	23	8.3	54	19.6	276	**2.71**	1.02
18	Health information portals	12	4.3	16	5.8	163	59.1	40	14.5	45	16.3	276	**2.67**	0.96

Keys: 5= Highly Utilized 4=Utilized 3=Unutilized 2= Completely Unutilized 1=Neutral T= Total SD= Standard Deviation

Source: FIELD SURVEY, 2025 ***n276***

Table 1.3 reveals that the level of utilization of health information resources and services among healthcare professionals in UDUTH Sokoto is predominantly moderate, with a significant proportion of doctors and nurses reporting only partial engagement with the available resources, other than pharmacists and medical laboratory Scientists across all 18 listed health information resources, the majority of respondents consistently selected unutilized, indicating moderate level of utilization. For clinical practice guidelines, the mean value is 3.49, followed by health organization annual reports which the mean value is 3.45, conference proceedings on health the mean value is 3.46, public health guidelines 3.42, clinical handbooks 3.41, medical dictionaries 3.37, health organizations newsletters 3.35 anatomy atlases 3.32, medical journals 3.32 health statistics 3.26, WHO publications 3.18 and medical textbooks 3.13. This finding aligns with Popescu, El-Chaarani, El-Abiad, & Gigauri (2022), who noted that healthcare professionals often prioritise resources like clinical guidelines and public health guidelines because they align more closely with national standards and protocols. These results highlight that when health information resources are adequate, accessible and utilized, it will promote informed clinical-making by healthcare professionals (Nwafor-Orizu, 2020).

Digital resources such as e-books, indicating negative value of 2.98 hospital repositories 2.86, e-journals 2.80, multimedia resources 2.71 health information portals 2.67 and online medical databases 2.64. For these resources the mean values were below the bench mark of 3.0 indicating noticeable gab in their utilization rates. This might stem from inadequate digital infrastructure in the medical library at UDUTH Sokoto.This finding supports Uzoagba, Egneti & Oyam (2017), who identified poor internet connectivity, inadequate digital infrastructure, lack of e-resources, lack of institutional subscriptions, and low digital literacy as major barriers to accessing and utilization of e- resources in Nigerian tertiary hospitals.

This implies unavailability of e-resources can hinder the utilization of evidence-based research articles which is vital in clinical decision-making practices meaningful improve patient outcomes. It is essential that healthcare institutions not only provide access to health information resources but also implement structured training programs, foster a research-informed culture, for enhancing healthcare professional engagement through tailored digital platforms relevant to the specific roles in clinical decision-making that impact patient care. When such strategies are put in place, medical libraries can be transformed into hubs of clinical excellence, reinforcing the link between health information and evidence-based practices.

Table 2.2: Level of Utilization of Information Services available in Aliyu Magatakarda Wamakko Medical Library complex, UDUTH Sokoto Nigeria

S/N	Items	5		4		3		2		1		T	Mean	SD
		F	(%)	F	(%)	F	(%)	F	(%)	F	(%)			
1.	Specialized reading room services	15	5.4	39	14.1	167	60.5	19	6.9	36	13.0	276	**2.92**	0.97
2.	Circulation services	45	16.3	71	25.7	141	51.1	14	5.1	5	1.8	276	**3.45**	0.89
3.	Information literacy	51	18.5	82	29.7	133	48.2	6	2.2	4	1.4	276	**3.48**	0.87
4.	Inter library loan services	13	4.7	25	9.1	159	57.6	27	9.8	52	18.8	276	**2.70**	1.02
5.	Selected dissemination of Information	5	1.8	65	23.6	145	52.5	24	8.8	37	13.4	276	**2.92**	0.96
6.	Current Awareness services	45	16.3	71	25.7	121	43.8	25	9.1	14	5.1	276	**3.39**	1.03
7.	Reference services	51	18.5	75	27.2	132	47.8	18	6.5	0	0	276	**3.49**	0.86
8.	Document Delivery services	8	2.9	51	18.5	158	57.2	21	7.6	38	13.8	276	**2.86**	0.98
9.	Research Assistance	51	18.5	73	26.4	122	44.2	25	9.1	5	1.8	276	**3.41**	1.06
10.	Readers Advisory Services	4	1.4	69	25	132	47.8	24	8.8	47	17	276	**3.01**	1.01

Keys: 5=Highly Utilized 4=Utilized 3=Unutilized 2=Completely Unutilized 1= Neutral T=Total SD= Standard Deviation
Source: FIELD SURVEY, 2025 n276

The analysis of Table 2.2 shows that the level of utilization of health information services for clinical decision-making at UDUTH, Sokoto is moderate for most services, such circulation services with mean value of 3.45 followed by information literacy 3.48, reference services 3.49, research assistance 3.41 and current awareness services 3.39, and reader advisory services 3.01. While services like selected dissemination of information is indicating negative value of 2.92, specialized reading room services 2.92, document delivery services 2.86, readers advisory services 2.85 and inter library loan services has the mean value of 2.70 all these are below the bench mark of 3.0. These results suggest that most of the respondents indicated low level of underutilization of these services in clinical decision-making contexts.

This finding implies that the underutilization of these vital information services can hinder evidence-based clinical decision-making, especially in complex cases requiring in-depth consultation of diverse sources of health information resources. A possible explanation is that health professionals may not be fully aware of the potential of library services in supporting clinical decisions or face time constraints that prevent in-depth engagement with these services (Ocheibi & Lawal, 2021). There is a clear need to strengthen awareness, and accessibility to these information services through targeted information literacy programs and digital integration. Libraries must also evolve to become more user-centered, supporting research and real-time clinical application of knowledge into clinical practice (Osaro & Garrick, 2024).

TABLE: 3: CHALLENGES FACED BY HEALTHCARE PROFESSIONALS IN ACCESSING AND UTILIZING HEALTH INFORMATION RESOURCES AND SERVICE IN ALIYU MAGATAKARDA WAMAKKO MEDICAL LIBRARY MEDICAL LIBRARY COMPLEX UDUTH SOKOTO

S/N	CHALLENGES	DOCTORS (F)	NURSES (F)	PHAMACISTS (F)	MED. LAB SCI. (F)	TOTAL	%
1	Lack of time due to clinical engagement	82(29.7)	149 (53.9)	12 (4.3)	15 (5.4)	**258**	**93.5 %**
2	Lack of awareness about health information resources	19(6.8)	52((18.8)	7(2.5)	8 (2.8)	**86**	31.1. %
3	Inadequate health information resources	52 (18.8)	134 (48.5)	9(3.2)	14 (5.07)	**209**	75.7 %
4	Outdated health information resources	69 (25)	147 (53.2)	10(3.6)	11 (3.9)	**237**	85.9 %
5	Inadequate clinical guidelines	51 (18.4)	127 (46.0)	8(2.8)	12 (4.34)	**198**	71.7 %
6	Lack of e-library facilities in the medical library	69 (25)	149 (53.9)	12 (4.3)	17 (6.1)	**246**	89.1%
7	Lack of e-books and e-journals	71 (25.7)	151 (54.7)	13 (4.7)	14 (5.0)	**249**	90.2 %
8	Lack of online medical databases	67(24.2)	143(51.8)	124 (.30	15 (5.4)	**237**	85.7%
9	Lack of wireless connectivity in medical library	75(27.1)	147(53.2)	13(4.7)	16 (5.7)	**251**	90.9 %
10	Lack conducive reading environment in the medical library	24(8.6)	33(11.9)	8(2.8)	10 (3.6)	**75**	27.2 %
11	Non-challant attitudes of library staff	15(5.4)	27(9.7)	4(1.4)	6 (2.1)	**52**	18.8 %
12	Frequent power outage in the medical library	17(6.1)	23(8.30	7(2.5)	11 (3.9)	**58**	21.0 %
13	Insufficient skills in searching and using health information resources	3(1.0)	35(12.6)	5(1.8)	6 (2.1)	**49**	17.8 %

KEY: F=FREQUENCY, (%) PERCENTAGE

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The analysis of Table 3: revealed that the most common challenges faced by healthcare professionals in accessing and utilizing health information resources and services is a lack of time due to clinical engagements, which refers to the duration of time spend in clinics attending to patients especially doctors and nurses than other healthcare professionals. This aligns with previous finding Godwill Rose & Ekemini (2024) who states that the high patient-to-doctor ratio in many Nigerian hospitals leaves healthcare professionals with little time for extensive literature review or library use. A significant number of respondents had indicated by 93.5%. This is followed closely by infrastructural and digital access issues such as lack of wireless connectivity (90.9%), lack of e-books and e-journals (90.2%), and lack of e-library facilities (89.1%), indicating a severe gap in digital health information access. These limitations point to a broader issue of digital resource insufficiency, confirming the assertions of Ajuwon and Popoola (2015) that many health libraries in Nigeria are under-digitized, despite the global shift toward e-resources in clinical decision-making. A considerable number of respondents also cited the outdated nature of available health information resources (85.9%) and the lack of online medical databases (85.7%) as major barriers. On the other hand, challenges such as nonchalant attitudes of library staff (18.8%), frequent power outages (21.0%), insufficient skills in using health information resources (17.8%), and poor reading environments (27.2%) were identified by fewer respondents, suggesting they are less prevalent. Overall, the data highlights that the key challenges revolve around time constraints, digital resource inadequacies, and outdated or insufficient information infrastructure, which significantly hinder effective utilization of health information services.

The implications of these findings are significant for the improvement of health information services in tertiary healthcare centers. The dominance of time constraints due to clinical engagements suggests a need for more flexible, user-friendly, and on-demand access to health information resources. The overwhelming lack of digital infrastructure including e-library facilities, online databases, and reliable internet connectivity indicates that healthcare institutions must prioritize digital transformation and investment in e-health information resources to enhance access to up-to-date medical knowledge. This implies a pressing need for regular updates of information resources and subscriptions to current and evidence-based materials to support clinical decision-making. Addressing these challenges is essential not only for improving information utilization among health professionals but also for promoting evidence-based practice, patient safety, and overall healthcare quality.

Conclusion

This study concluded that there is a notable gap between awareness and actual utilization of electronic health information resources for clinical decision-making by healthcare professionals such as e-journals, e-books, online medical data bases, health information portals, and hospital knowledge repositories due to limited access to digital health information resources, in the medical library as well as lack of wireless connectivity in the medical library and inadequate health information resources. This study also uncovered lack of time due clinical engagements and interaction with patients on daily basis by healthcare professional that affect time for library use and literature searches. To bridge this gab targeted interventions are needed for provision of digital health information resources and wireless connectivity in the medical library and the teaching hospital environment to enable easy access and utilization of electronic health information resources including promotion of information services addressing these issues will support evidence-based clinical decision-making and enhance quality of patient care outcome.

Recommendations

1. The Usmanu Danfodiyo University Teaching hospital management and stakeholders should ensure that the medical library create library committee to facilitates communication between librarians and healthcare professionals, the medical library should also create awareness on the available information services that support evidence-based clinical decision-making, there should be a collaborative relationship between librarians and healthcare professionals in Aliyu Magatakarda Wamakko medical Library complex, Usmanu Danfodiyo University teaching Hospital Sokoto, Nigeria.
2. The Usmanu Danfodiyo University teaching hospital management should increase resource allocation to the medical library to enable the medical library develop e-library and provide strong and reliable internet infrastructure to facilitate easy access to online health information resources and subscription of relevant databases, e-books and e-journals in Aliyu Magatakarda Wamakko medical library complex UDUTH for enhancing evidence-base clinical decision-making and provision of quality care by healthcare professionals
3. To breach the gab of challenges faced by healthcare professionals on the utilization of information resources the medical library should also acquire current and up-to date medical textbooks and Journals that supports evidence-based clinical decision-making and integrate internet facilities and wireless connectivity including automated alerts and mobile notifications to heads of clinics on any development on health information resources available in the medical library that will enhanced evidence-based clinical decision-making by healthcare professionals in Aliyu Magatakarda Wamakko medical library complex Usmanu Danfodiyo University Teaching Hospital Sokoto Nigeria.

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