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Library and Information Management Forum of
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Aims and Scope

Library and Information Management Forum - ISSN 1117-7918 is a publication of Ahmadu Bello University Library Complex. It is published two times a year – January and July.

The journal is a peer reviewed publication which aims at publishing articles of interest and value to information management and academics within Library and Information profession. It also publishes articles designed to assist in the teaching of information and library management as academic disciplines. Field experiences and reports are as well encouraged. The journal is designed for academic scholars and information managers as well as those out there seeking updates on current experiences and future prospects on contemporary information and communication environment.

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EDITORIAL NOTE

This edition of the Library and Information Management Forum features twenty-seven (27) high quality and peer reviewed articles with contemporary articles in line with global trends as well as specialized content areas in the field of Library and Information Science and related disciplines. The articles focused on Open Education Resource, Information and Communication Technology, Artificial Intelligence (AI), Information Utilization, Information Resources, Research Productivity, Book Piracy, Library Organizational Structures and Policies, and also Collection Development.

The lead paper by Okonkwo, et al. explored Optimizing Open Educational Resources through Internet based Adaptive Pedagogies to Foster Collaboration among Distance Learners at the National Open University of Nigeria. Dolapo and Abdullahi also examined the Awareness and Adoption of Cloud Computing in Library Services in Bayero University Library, Kano. So also Liman, et al. discussed 5th industrial Revolution: Roles of Artificial Intelligence in Academic Libraries. Furthermore, Agboola and Brisibe explored the Role of Artificial Intelligence (AI) on Professional Librarians' Service Delivery in Tertiary Institutions of Yobe State. Igwe, et al. focused on Global Perspective of Human - AI Collaboration in Modern Libraries: Opportunities and Challenges. Inyang, et al discussed on Examining the Extension Services and Information Utilization in Akwa Ibom State Public Library.

On the other hand, Kalu, discussed Leveraging Open Education and Library Information Resources for Sustainable Development in Nigeria. Oserada, et al. explored Influence of Utilisation of School Library Resources on Lifelong Learning of Secondary School Students in Karu Local Government Area, Nasarawa State. Likewise, Ogbuabor, focused on Designing for Inclusion: Library Programmes and Spaces for Neurodiverse Users. Abdulrahim and Yunusa discussed Application of Artificial Intelligence for Library Services in Federal University of Education Library, Zaria. While, Ejila, et al., discussed Utilization of Artificial Intelligence in Library and Information Services for Effective Teaching, Learning and Research in Academic Libraries. Galadima and Amidu assessed the Impact of Library Statistical Records on Management of University Libraries in Nasarawa State, Nigeria. So also, Okonkwo, et al. investigated Collaboration among Final Year library and Information Science Students for Enhancing Awareness and Utilization of Open Education Resources in Awka Study Centre, National Open University of Nigeria.

Idakwo, discussed the Availability and Utilization of Library and Information Resources for Research Productivity by Academic Staff in Private Universities in North Central, Nigeria. Similarly, Goshie, et al. explored Information Technology (IT) Training Programmes for Effective Youth Empowerment in Kankia L.G.A, Kastina State, Nigeria. Okechukwu, et al. also studied Librarians' Research Productivity: A reflection of Institutional Sponsorship to Conferences and Mentorship. IORSHE, et al focused on Challenges in Implementing Public Relations Practices for Enhanced Service Delivery in State University Libraries of Benue and Nasarawa States. Furthermore, SA'AD, et al. discussed Equipping Library and Information Science Professionals as Agents of Change through the Use of Telecommunication Gadgets in the Fifth Industrial Revolution. So also, Musa, et al., explored the Socioeconomic Effect of Piracy on Books Publishing Industry in Nigeria. Mukhtar, et al talked on the Availability of

Library and Information Resources for Accreditation of Programmes in State Universities in North Northwest, Nigeria.

Ahmad, et al., discussed the Impact of Internet Access on the Use of Law Library Information Resources by Students at Ahmadu Bello University, Zaria. Usman, et al. investigated the Comparative Study of Organisational Structures, Policies, ICT Adoption and Service Delivery in Selected American and Nigerian University Libraries. So also, Nehemiah Helda, et al., assessed Data-driven Collection Development in Libraries: A Case Study of Federal College of Education, Yola, and College of Education, Hong Libraries, Adamawa State. Kasa and Okafor also discussed Integration of Information and Communication Technologies (ICTs) into Academic Libraries: Benefits and Challenges. Olubunmi and Olubunmi focused on Exploring Foreshadowing in Dialogue through the Characters of Say Tokyo Kid and Salubi in Wole Soyinka's the Road. Abdullahi, et al. also focused on Evaluating the Extent of Destruction to Library Infrastructures and Collections in Conflict affected Areas of North East Nigeria. While, Nalado, et al., discussed the Role of Digital Libraries in Enhancing Access to Education Resources in Isa Kaita Library, Federal Polytechnic Kaduna, State, Nigeria. Esew et al also discussed the Challenges in the Utilization of Information Retrieval Systems (IRS) for Human Resource (HR) Functions at the National Youth Service Corps (NYSC) Headquarters, Abuja

All the articles contained in this edition were peer reviewed by experts in various content areas of Library and Information profession and related disciplines before the acceptance for inclusion. Sincere gratitude goes to the editorial team of this journal and the reviewers who ensured that this edition sees the light of the day. I therefore, recommend this edition to all stakeholders in the profession to purchase and utilize.

Dr. Amina Oiza Jimoh
Editor – in - Chief

OPTIMIZING OPEN EDUCATIONAL RESOURCES THROUGH INTERNET-BASED ADAPTIVE PEDAGOGIES TO FOSTER COLLABORATION AMONG DISTANCE LEARNERS AT THE NATIONAL OPEN UNIVERSITY OF NIGERIA

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Abstract

This study explored internet-based adaptive pedagogies to optimise the utilisation of Open Educational Resources (OERs) in promoting collaboration and the development of learning communities among distance learners at the National Open University of Nigeria (NOUN). Employing a quantitative research approach, data were gathered through a structured questionnaire distributed via Google Forms. A multistage sampling method selected 925 undergraduate students from the Awka, Enugu, and Umudike study centres, with 862 valid responses analysed (93.2% response rate). The questionnaire, validated through expert review and pilot testing ($\alpha = 0.85$ for IBAP access; $\alpha = 0.90$ for OER use), assessed students' experiences with digital learning tools, including challenges, engagement, and collaboration. Results indicated high awareness of OERs (81.9%) and adaptive learning tools (77.4%). Although platforms like the NOUN student portal and Moodle were widely utilised, daily engagement was limited, with only 17.9% and 26.5% reporting daily use of OERs and adaptive tools, respectively. Challenges such as poor internet connectivity, high data costs, and lack of training significantly impeded effective utilisation. Nonetheless, most respondents viewed these tools as beneficial for enhancing learning and fostering collaboration. The study concludes that despite growing adoption, infrastructural and support barriers remain. It recommends improving internet access, strengthening digital literacy, and expanding training and institutional support to fully harness the transformative potential of IBAPs and OERs in distance education, ensuring equitable and student-centred learning experiences.

Keywords: Internet-Based, Adaptive Pedagogies, Open Educational Resources (OER), Collaboration, Distance Learners

Introduction

Open Educational Resources (OERs) are vital in expanding access to quality education, particularly within Open and Distance Learning (ODL) frameworks. As freely available and adaptable materials, OERs enable "5R activities" retaining, remixing, revising, reusing, and redistributing, thus promoting collaboration and innovative pedagogical practices (Clinton-Lisell, 2021; Hewlett, 2024). Supported by organisation such as UNESCO (2019), OERs foster inclusive and participatory learning environments, aiming to mitigate the high costs associated with commercial textbooks that often limit student access and academic performance (Hilton et al., 2019). At institutions like the National Open University of Nigeria (NOUN), OERs facilitate affordable education for a diverse range of learners; however, challenges such as limited digital literacy, infrastructural deficits, and insufficient integration into teaching practices hinder their effective adoption (Njeze, 2020).

Emerging adaptive pedagogies incorporating artificial intelligence, learning analytics, and recommendation systems offer promising avenues for personalising learning experiences and cultivating collaborative communities, thereby enhancing OER adoption and student engagement (El-Sabagh, 2021). Recent research underscores the importance of integrating technological innovations to overcome barriers and optimise OER utilisation in distance education contexts. Tools like Moodle and TPACK-based platforms play crucial roles in fostering collaboration and improving learning outcomes, especially when combined with adaptive pedagogies that tailor content to individual learner needs. By leveraging these developments, NOUN can adopt strategies that drive participation, enhance peer engagement, and build vibrant learning communities, ultimately shaping a more inclusive and effective open education system.

Problem Statement

Although Open Educational Resources (OERs) offer considerable potential to expand access to learning in distance education, many students at NOUN struggle to effectively navigate and utilize these resources. The lack of adaptive learning support and limited collaborative opportunities often results in reduced participation, learner isolation, and elevated dropout rates. Many institutions still adopt one-size-fits-all approaches that ignore learner differences, lowering satisfaction and increasing attrition. As El-Sabagh (2021) noted, low interactivity and inadequate adaptability further worsen dropout tendencies. Both practical experience and scholarly research highlight a critical gap in understanding how adaptive, internet-based pedagogical approaches can enhance OER utilization, personalize learning experiences, and foster stronger communities of practice. This study therefore seeks to develop and implement pedagogical frameworks that integrate adaptive learning and collaboration in order to optimize OER use and strengthen community engagement in open and distance learning contexts, particularly at the National Open University of Nigeria.

Research Questions

1. What is the level of access and utilization of Internet-Based Adaptive Pedagogies and OERs among distance learners at NOUN, Awka study centre?
2. How do Internet-Based Adaptive Pedagogies facilitate collaboration and the formation of learning communities among distance learners?
3. What are the challenges hindering the effective utilization of Internet-Based Adaptive Pedagogies and OERs, and what strategies can be implemented to overcome them?

Literature review

Access and Utilization of Internet-Based Adaptive Pedagogies and OERs among Distance Learners

Internet-Based Adaptive Pedagogies (IBAPs) have significantly reshaped global education by leveraging on technology to enhance access to knowledge (Khosravi, Kitto & Buckingham Shum, 2020). The internet, as a central tool, supports academic engagement, learner autonomy, and broad educational accessibility (Onah, Altinay & Altinay, 2021). In Nigeria, it aids in research and teaching, helping universities provide timely and relevant information beyond traditional libraries. At the National Open University of Nigeria (NOUN), IBAPs and Open Educational Resources (OERs) are increasingly integrated to create flexible, student-centered learning environments (UNESCO, 2020).

However, persistent issues such as high data costs, poor connectivity, and infrastructural gaps hinder full utilisation. Yet, access and utilisation remain uneven due to factors like electricity instability, low internet penetration, limited digital literacy, and varying awareness levels (Afolabi, 2019; Okonkwo and Yusuf, 2021; Eze, 2021). Although platforms like Moodle and Coursera are available, many learners use them primarily to download materials, neglecting interactive features such as quizzes and forums. Key barriers at NOUN Awka Study Centre include limited internet access, insufficient devices, and inadequate institutional support (Okonkwo & Chiemeka, 2022). Also, Jegede (2021) notes that despite learners' familiarity with online learning, actual engagement with adaptive and open resources remains moderate due to technical and infrastructural constraints.

Facilitation of Collaboration and Learning Communities through Internet-Based Adaptive Pedagogies

Internet-Based Adaptive Pedagogies (IBAPs) play a vital role in fostering collaboration and building learning communities in distance education by promoting interactive, personalized, and peer-supported environments. They enable real-time learner-instructor and peer-to-peer engagement through tools like forums, group projects, social media, and virtual classrooms (Eze, Chinedu-Eze, & Bello, 2022). As universities globally invest in internet infrastructure, the benefits include quicker access to knowledge, multidisciplinary collaboration, and reduced reliance on costly hardcopy resources (Adeola, & Okonkwo, 2025). According to Connectivism theory, the internet supports dynamic knowledge networks, making collaborative learning more decentralized (Udo & Nwachukwu, 2024).

In Nigeria, the internet is indispensable for students and staff, providing access to up-to-date scholarly content and enhancing intellectual and professional development (Khosravi, Kitto & Buckingham, 2020). At the National Open University of Nigeria (NOUN), tools like Moodle, Zoom, and WhatsApp groups have strengthened collaboration and engagement

(Adewuyi & Okonkwo, 2020; NOUN Directorate of Learning Content Management Systems, 2022). However, Eze (2021) noted that participation is often low without instructor motivation and structured tasks. IBAPs support learning communities by encouraging peer interaction, enabling feedback, and facilitating co-construction of knowledge (Okonkwo, & Oluwaseun, 2023; Ojedokun & Owolabi, 2021), thus mitigating the isolation typical of distance learning.

Challenges Faced by Distance Learners and the Impact on the Effective Utilization of Internet-Based Adaptive Pedagogies and Open Educational Resources (OERs).

Distance learners face numerous challenges that hinder the effective use of Internet-Based Adaptive Pedagogies (IBAPs) and Open Educational Resources (OERs). Technological barriers, such as limited high-speed internet, inadequate hardware, and lack of digital literacy, especially in rural areas, significantly impact access and navigation of learning platforms (López et al., 2022; Alvarez et al., 2021). Personal factors, including time constraints from balancing work, family, and education, reduce learner engagement, while low motivation and self-discipline further impede the use of IBAPs and OERs (Kebritchi et al., 2020; Moore et al., 2021; Wang, 2023). Social isolation due to limited face-to-face interaction affects learners' sense of connection, lowering satisfaction and retention (Garrison et al., 2021).

Inadequate support systems, such as academic advising and peer interaction, also hinder engagement (Bennett et al., 2022). Additionally, concerns about the quality and curriculum alignment of OERs, along with inconsistent updates, reduce learners' trust and reliance on them (Hew et al., 2021; Cronin & MacLaren, 2022). Institutional barriers, including misalignment of pedagogies with curricula and lack of faculty training, further affect outcomes (Bishop et al., 2023; Pérez & Sampaio, 2022). Addressing these interrelated challenges requires strategic institutional, policy, and technological interventions to enhance equitable and effective distance education.

Methodology

This study adopted a quantitative research design, utilizing a structured questionnaire to collect data on students' access to and utilization of Internet-Based Adaptive Pedagogies (IBAPs) and Open Educational Resources (OERs) among distance learners. This design enabled the researcher to objectively measure variables and analyze trends using statistical methods. The research was conducted across three study centres of the National Open University of Nigeria (NOUN): Awka, Enugu, and Umudike. These centres were selected due to their strategic relevance in serving a diverse population of distance learners, providing a suitable setting for investigating digital learning practices. The target population consisted of 7,254 undergraduate students that enrolled across nine faculties at the selected NOUN study centres. A multistage sampling technique was employed to select a representative sample of 925 students. The sampling process involved stratification by study centre and faculty to ensure proportional representation. Random sampling was also employed to select participants with stratum representing varying backgrounds and demographics. Out of the 925 distributed questionnaires, 862 completed responses were received via Google Forms, representing a 93.2% response rate, which was deemed sufficient for robust analysis. Data were collected using a structured questionnaire titled Internet-Based Adaptive Pedagogies for Effective Utilization of Open Educational Resources (IBAPEUOER). The instrument consisted of closed-ended questions designed to gather data on internet access and connectivity, Awareness and usage of OERs and adaptive tools, Frequency and platforms of use, Perceived effectiveness of digital learning tools, Participation in online collaborative learning, and Challenges

encountered in digital learning environments. To ensure content validity, the questionnaire was reviewed by subject-matter experts in educational technology and distance learning. A pilot test was also conducted, and items were refined based on feedback. Reliability was evaluated using Cronbach's Alpha, yielding access to IBAPs: $\alpha = 0.85$, OER Utilization: $\alpha = 0.90$. These coefficients reflect high internal consistency, indicating that the instrument reliably measured the intended constructs.

Data Analysis

The responses were analyzed using the Statistical Package for the Social Sciences (SPSS). The analysis included descriptive statistics (frequencies, percentages) to summarize demographic data and usage patterns of IBAPs and OERs.

Presentation of results

Table 1: Respondents' Age Range

Age Range	Frequency	Percent	Valid Percent	Cumulative Percent
18–24	225	26.1	26.1	26.1
25–34	302	35	35	61.1
35–44	214	24.8	24.8	86
45 and above	121	14	14	100
Total	**862**	**100**	**100**	—

Table 1 reveals that most NOUN respondents (61.1%) are young adults aged 18–34, with 35% in the 25–34 age group and 26.1% aged 18–24. Middle-aged learners (35–44) account for 24.8%, while only 14% are aged 45 and above. This indicates that NOUN primarily serves a younger adult population, yet still attracts a substantial number of older learners, highlighting its broad appeal across age groups. The age distribution suggests a diverse learner demographic, which may influence the design and delivery of digital learning tools and support services to meet varied generational needs.

Table 2: Respondents' Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	379	44	44	44
Male	483	56	56	100
Total	**862**	**100**	**100**	—

Table 2 details the gender distribution of the respondents. Males represent a slight majority, comprising 56% of the sample, while females account for 44%. Although the gender distribution is not perfectly balanced, it indicates a reasonably equitable level of participation among both genders. The moderate male predominance may reflect broader trends in access to or interest in distance learning programs among different gender groups within the Nigerian educational context.

Table 3: Level of Study at the National Open University of Nigeria

Level of Study	Frequency	Percent	Valid Percent	Cumulative Percent
Undergraduate	765	88.7	88.7	88.7
Postgraduate	97	11.3	11.3	100
Total	**862**	**100**	**100**	—

As reflected in Table 3, most respondents are enrolled in undergraduate programs, comprising 88.7% of the sample. In contrast, postgraduate students make up only 11.3% of the respondents. This distribution underscores the National Open University of Nigeria's primary focus on undergraduate education. The relatively low proportion of postgraduate students may be attributed to limited program availability at the postgraduate level or a greater demand for undergraduate qualifications among the broader population.

Table 4: Duration of Study at NOUN

Duration	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 1 year	347	40.3	40.3	40.3
1–3 years	447	51.9	51.9	92.1
4–6 years	68	7.9	7.9	100
Total	**862**	**100**	**100**	—

As shown in Table 4, most respondents (51.9%) have been enrolled at NOUN for between one and three years. Those with less than one year of study account for 40.3%, while only 7.9% have studied for four to six years. This suggests that most students are in the early or intermediate stages of their academic journey, indicating potential for ongoing engagement with institutional resources such as OERs.

Access and Utilization of IBAPs and OERs among distance learners at NOUN

Table 5: Familiarity with Open Educational Resources (OERs)

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	706	81.9	81.9	81.9
No	156	18.1	18.1	100
Total	**862**	**100**	**100**	—

Table 5 reveals a high level of awareness regarding OERs among respondents, with 81.9% indicating familiarity and only 18.1% reporting unfamiliarity. This widespread recognition underscores the growing role of OERs in the academic environment at NOUN.

Table 6: Frequency of OER Use in Learning

Frequency of Use	Frequency	Percent	Valid Percent	Cumulative Percent
Daily	154	17.9	17.9	17.9
Weekly	285	33.1	33.1	50.9
Occasionally	250	29	29	79.9
Rarely	173	20.1	20.1	100
Total	**862**	**100**	**100**	—

As shown in Table 6, usage patterns of OERs vary among students. While only 17.9% use OERs daily, 33.1% report weekly use, and 29% access them occasionally. A notable 20.1% of

respondents rarely use OERs. This distribution suggests that although awareness is high, consistent utilization remains uneven, pointing to opportunities for increased integration of OERs into regular learning activities.

Table 7: Platforms Used to Access OERs

Platform	Frequency	Percent	Valid Percent	Cumulative Percent
NOUN Student Portal	408	47.3	47.3	47.3
YouTube	92	10.7	10.7	58
OER Commons	121	14	14	72
NOUN Student Portal, YouTube	34	3.9	3.9	76
NOUN Student Portal, YouTube, OER Commons	59	6.8	6.8	82.8
NOUN Student Portal, YouTube, OER Commons, MIT OpenCourseWare	148	17.2	17.2	100
Total	**862**	**100**	**100**	**—**

The data presented in Table 7 indicates that the NOUN Student Portal is the most frequently used platform for accessing Open Educational Resources (OERs), with nearly half of the respondents (47.3%) relying on it. A significant minority also utilize comprehensive platform combinations, notably NOUN Student Portal, YouTube, OER Commons, and MIT OpenCourseWare (17.2%). Use of single platforms like YouTube (10.7%) and OER Commons (14%) was less common, suggesting that while centralized institutional access points are preferred, some students diversify their sources to broaden their learning resources.

Table 8: Awareness of Adaptive Learning Platforms or Tools at NOUN

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	667	77.4	77.4	77.4
No	66	7.7	7.7	85
Not sure	129	15	15	100
Total	**862**	**100**	**100**	**—**

Table 8 shows that a substantial majority of students (77.4%) are aware of adaptive learning platforms or tools available at the National Open University of Nigeria (NOUN), though a small segment remains unaware (7.7%) or uncertain (15.0%). This high level of awareness sets a favourable context for the integration and effectiveness of such tools.

Table 9: Frequency of Adaptive Learning Tool Use

Frequency	Frequency	Percent	Valid Percent	Cumulative Percent
Daily	228	26.5	26.5	26.5
Weekly	314	36.4	36.4	62.9
Occasionally	235	27.3	27.3	90.1
Rarely	85	9.9	9.9	100
Total	**862**	**100**	**100**	**—**

Usage frequency data in Table 9 shows that 36.4% use adaptive tools weekly, 26.5% daily, and 27.3% occasionally. Only 9.9% reported rare use, suggesting that adaptive tools are regularly integrated into students' learning routines.

IBAPs and the Facilitation of Collaboration and Learning Communities

Table 10: Participation in Online Learning Communities Through NOUN

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	580	67.3	67.3	67.3
No	282	32.7	32.7	100
Total	**862**	**100**	**100**	—

Table 10 shows that engagement in online learning communities through NOUN is robust, with 67.3% of respondents participating. This level of involvement suggests that online peer interaction is a prominent feature of the learning environment and potentially contributes to collaborative knowledge building.

Table 11: Perception of Group Collaboration Support by Adaptive Tools

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	630	73.1	73.1	73.1
No	109	12.6	12.6	85.7
Not sure	123	14.3	14.3	100
Total	**862**	**100**	**100**	—

Finally, Table 11 shows that a substantial majority (73.1%) believed adaptive tools have supported group collaboration. Only 12.6% disagreed, while 14.3% were unsure. This affirms the perceived value of adaptive technologies in facilitating interactive learning experiences among peers.

Table 12: Platforms Used for Collaboration

Platform	Frequency	Percent	Valid Percent	Cumulative Percent
WhatsApp groups	224	26	26	26
NOUN Moodle forums	69	8	8	34
Google Classroom	9	1	1	35
Telegram groups	40	4.6	4.6	39.7
WhatsApp groups, NOUN Moodle forums	100	11.6	11.6	51.3
WhatsApp groups, Google Classroom, Telegram groups	43	5	5	56.3
WhatsApp, NOUN Moodle, Google Classroom, Microsoft Teams, Telegram	37	4.3	4.3	60.6
NOUN Moodle forums, Telegram groups	150	17.4	17.4	78
WhatsApp groups, Telegram groups	38	4.4	4.4	82.4
WhatsApp, NOUN Moodle, Google Classroom, Telegram	75	8.7	8.7	91.1
WhatsApp groups, Google Classroom	24	2.8	2.8	93.9
WhatsApp, NOUN Moodle, Google Classroom, Microsoft Teams	8	0.9	0.9	94.8
WhatsApp, NOUN Moodle, Google Classroom	30	3.5	3.5	98.3
None	15	1.7	1.7	100
Total	**862**	**100**	**100**	—

Table 12 reveals that WhatsApp groups (26.0%) and NOUN Moodle forums in various combinations (e.g., Moodle + Telegram at 17.4%) are the most used platforms for collaboration. The preference for informal tools such as WhatsApp, even in multi-platform combinations, reflects a student-driven trend toward accessible and mobile-friendly collaboration environments, although formal platforms like Google Classroom and Microsoft Teams remain underutilized.

Challenges affecting the effective utilization of IBAPs and OERs

Table 13: Major Challenges in Using OERs and Adaptive Tools

Challenges	Frequency	Percent	Valid Percent	Cumulative Percent
Inadequate internet connectivity	137	15.9	15.9	15.9
High cost of internet/data	184	21.3	21.3	37.2
Lack of training or technical support	59	6.8	6.8	44.1
Insufficient or irrelevant content	8	0.9	0.9	45
Inadequate internet connectivity, Lack of training or technical support	119	13.8	13.8	58.8
Inadequate internet, High cost, Lack of support, Navigation issues, Insufficient/irrelevant content	23	2.7	2.7	61.5
Lack of support, Insufficient/irrelevant content	188	21.8	21.8	83.3
Inadequate internet, High cost of internet/data	86	10	10	93.3
Inadequate internet, High cost, Navigation issues	10	1.2	1.2	94.4
Inadequate internet, High cost, Lack of support	20	2.3	2.3	96.8
Inadequate internet, Lack of support, Navigation issues	28	3.2	3.2	100
Total	**862**	**100**	**100**	—

Table 13 outlines the major challenges faced in using OERs and adaptive tools. High cost of internet/data (21.3%) and inadequate internet connectivity (15.9%) were the most frequently reported standalone challenges. Notably, 21.8% cited a combination of lack of training and insufficient or irrelevant content as significant barriers. This highlights persistent infrastructural and capacity issues affecting digital learning adoption.

Table 14: Training Received to Use Adaptive Learning Tools

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	394	45.7	45.7	45.7
No	309	35.8	35.8	81.6
Not sure	159	18.4	18.4	100
Total	**862**	**100**	**100**	**—**

Despite high awareness and perceived effectiveness, Table 14 highlights a gap in capacity building, as only 45.7% of respondents reported receiving adequate training on using adaptive learning tools. A notable 35.8% indicated they had not received any training, while 18.4% were unsure. This underscores the need for structured orientation and continuous support mechanisms.

Discussion of findings

The study highlights key trends and challenges in the use of Internet-Based Adaptive Pedagogies (IBAPs) and Open Educational Resources (OERs) among distance learners at NOUN. Most learners (61.1%) are aged 18–34, a digitally literate demographic and gender distribution is nearly balanced (56% male), reflecting inclusive access (UNESCO, 2020). A majority (88.7%) are undergraduates, with over 92% enrolled for less than three years, indicating a cohort in need of orientation (Afolabi, 2019). OER awareness is high (81.9%), largely introduced by lecturers (54.2%) (Ellore et al., 2014), yet only 17.9% use them daily, reflecting underutilization. The NOUN Student Portal is the main access point (47.3%) with increasing multi-platform usage. While 77.4% are aware of adaptive tools, only 45.7% received formal training, echoing concerns on preparedness (Pérez & Sampaio, 2022). Despite this, perceived effectiveness is strong, 79.6% find them effective, and 74.8% report improved learning outcomes.

Collaboration is robust, with 67.3% active in learning communities and 73.1% affirming group work benefits, mainly via WhatsApp and Moodle (Adewuyi & Okonkwo, 2020), supporting Connectivism (Siemens, 2005). Challenges include high internet costs (21.3%) and limited access (15.9%) (López et al., 2022; Okonkwo & Chiemeka, 2022), along with digital illiteracy and time constraints (31.1%) (Garrison et al., 2021; Kebritchi et al., 2020). Learners prefer videos (21.8%) and e-textbooks (18.3%) and Moodle is the dominant platform (62.6%) with emerging AI tool use (10.8%).

Despite high awareness, effective utilization is limited by infrastructure, skills, and institutional support, requiring strategic investment in connectivity, training, and learner services (Jegede, 2021; Bishop et al., 2023).

Summary of findings

The study at NOUN found high awareness of OERs (81.9%) and IBAPs (77.4%), but daily usage remains low. Lecturers are key in introducing OERs, with platforms like Moodle and the student portal being most used. Adaptive tools are seen as effective, yet challenges like poor internet access, high data costs, and limited training hinder usage. Collaboration through WhatsApp and other platforms is common, though also affected by digital skill gaps and connectivity issues. Most learners are undergraduates in early academic years, favoring multimedia resources like videos and e-textbooks for learning.

Conclusion

IBAPs and OERs at NOUN enhance student engagement and academic performance; however, their utilization remains constrained by technological, institutional, and individual barriers. Although awareness of these resources is high, actual adoption rates are still low. Achieving greater impact requires addressing these challenges and strengthening support systems to foster digital inclusion and encourage ongoing academic involvement.

Recommendations

1. To enhance the use of IBAPs and OERs at NOUN, key strategies include improving internet access and affordability, providing structured digital literacy training, and increasing institutional support through onboarding and helpdesks.
2. The university should curate updated, curriculum-aligned OERs and promote collaborative learning via both formal and informal platforms.
3. Faculty engagement and AI-based adaptive technologies should be encouraged to support diverse learning needs. Finally, regular monitoring of usage patterns is essential to identify challenges and inform targeted interventions, ensuring sustained engagement and academic success.

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AWARENESS AND ADOPTION OF CLOUD COMPUTING IN LIBRARY SERVICES IN BAYERO UNIVERSITY LIBRARY, KANO

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Abstract

The study investigated awareness and adoption of cloud computing in library services in Bayero University Kano. Four (4) research questions and research objectives were formulated for the study. Quantitative research methodology using survey research design was used. The population of the study comprised of 122 professional librarians drawn from Bayero University library. Total enumeration was used to include all the 122 professional librarians because the population was not much and was conveniently managed by the researcher. Questionnaire was the instrument used for data collection. A total of 122 questionnaires were administered and 101 were returned and found useful. The data collected was analysed using descriptive statistics (frequency and percentages). The findings revealed that the librarians in Bayero University are well aware of cloud computing. It also revealed that the library has adopted cloud-based services, indicating that database management, e-resources and storage of sensitive documents are rendered through loud computing. The findings revealed ICT skills, availability of the technology, compatibility of the technology with library system and services, attitude of librarians towards cloud computing and perceived ease of use and usefulness could facilitate adoption of Cloud Computing in library service. Furthermore, the findings also showed that challenges associated with adoption of Cloud Computing in library services are: insufficient funding, poor internet connectivity and inadequate training among others. It was recommended that the University library should diversify the scope of cloud-based services to include other types of cloud-based services such as library management systems, cloud-based digital preservation, virtualised services, etc. Relevant funding authorities should adequately fund the library so as to tackle the challenges associated with the adoption of cloud computing in library services.

Keywords: Awareness, Adoption, Cloud Computing, Library Services, University Library

Introduction

Libraries play a crucial role in supporting academic institutions by providing access to a vast range of resources, fostering research, and meeting the information needs of users. Over the years, technological advancements have significantly transformed library operations which has changed the roles and operations of traditional libraries. This shift has been driven by the rapid development of information and communication technologies (ICT), which have introduced innovative technology such as cloud computing that has emerged as a powerful technology with transformative potential for libraries (Hussin and Rohani, 2015). According to Mell and Grance (2011), Cloud computing is a transformative paradigm that leverages the power of the internet to deliver computing services such as servers, storage, databases, networking, software, and analytics that can be rapidly provisioned and released with minimal management effort or service provider interaction. In this regard, Cloud computing could be regarded as a platform for offering or delivering computing services over the internet, where resources are paid for as they are being used.

Organizations keep striving to adopt new technologies to improve their activities and cloud computing is not an exception. Cloud computing is a new technology of computing services offered over the internet. It provides a shared pool of resources that helps people to access their personal or specialized corporate use of the information such as emails services, social networking, file storage, and sharing, online image storage etc theses are all provided by cloud computing service providers such Amazon, Google, Microsoft, Oracle. etc. (Zubairu, Akiola and Hamzat, 2021). In libraries, cloud computing provides access to computing resources such as servers, storage, applications and services via the internet, eliminating the need for physical infrastructure and enabling libraries to operate more efficiently. Unlike traditional IT systems that require substantial capital investment in hardware and maintenance, cloud computing offers a cost-effective, scalable and flexible solution. These features make it particularly appealing for libraries in resource constrained environments (American Library Association, 2010).

The awareness of cloud computing in libraries and among library users grew through digital transformation and technological advancements presented librarians with varying technology proficiencies and the ability to access and use technologies and related services that might otherwise be beyond their reach. Consequently, many librarians are considering the adoption of these third-party tools in their work to improve access, storage and collaboration. For example, cloud-based integrated library systems (ILS) have replaced traditional cataloguing systems, enabling seamless access to digital and physical resources. Digital repositories hosted on the cloud facilitate the storage and sharing of scholarly content, while cloud-based collaboration tools enhance communication and teamwork among librarians and users. By adopting these technologies, libraries can improve service delivery, reduce costs, and expand access to resources for users regardless of their physical location. Therefore, it has become inevitable for academic libraries to tap into the opportunities offered by cloud computing that could necessitate the adoption of cloud based services for improved service delivery to the library user. On this note, this study is aimed at providing insights for leveraging cloud computing to improve library operations and overall information service delivery in the library.

Statement of the Problem

Cloud computing is important for library services as it enables improved and continuous accessibility to digital resources, enhances operational efficiency, meets fluctuating demands and saves cost. It also provides cost-effective and scalable solutions to libraries. Despite these potentials and benefits to libraries, it has been observed that, there is limited literature on awareness and adoption of cloud computing in Northern institutions. In addition, there is also dearth of knowledge on awareness and adoption of cloud computing in Bayero University library Kano. Consequently, this may impede the library's ability to modernise its services and effectively meet the needs of its users. It is in view of the above-mentioned problem that the researcher aims to investigate the awareness and adoption of cloud computing in Library services in Bayero University Library, Kano in order to fill this gap.

Research Questions

The following research questions of the study are guide the conduct of the study as follows:

1. To what extent are the librarians in Bayero University, Kano aware of cloud computing for library services?
2. What types of services are rendered through the adoption of cloud computing in the library under study?
3. What factors facilitate the adoption of cloud computing service in the library under study?
4. What are the challenges associated with the adoption of cloud computing in Bayero University Library, Kano?

Literature Review

Cloud computing is a major breakthrough in information technology that enables access to computing resources such as storage, processing power, and software applications over the internet instead of local servers or personal computers (Mell & Grance, 2011). According to Yaduh and Geoffrey (2019), cloud computing is generally used to describe data centres that are available to many users over the Internet, this is because it provides a shared pool of resources, including data storage space, network, computer processing power, and specialized corporate and user applications. In another definition Kutty (2019) referred to Cloud computing as advancement in technology allows the delivery of software, infrastructure, and services over the Internet.

Cloud computing has been identified as an affordable option which creates efficiency and effectiveness, reduction of costs involving electricity, bandwidth, operations, and hardware which does not require functional staff, in-house expertise, space, power, and infrastructure to perform. Cloud computing has transformed the way information systems are built and services delivered, thus, this is an opportunity for the library to extend its impact to its users anywhere. In libraries, cloud computing enhances service delivery, reduce operational costs, and improve access to knowledge resources. Thus, library can benefit from using cloud computing technology by increasing computing performance, storage capacity, universal accessibility, and cost reduction in the IT investment of both hardware and software as well as computer services (Tuncay,2010)

The awareness of cloud computing is critical to its adoption and use, as many studies have been conducted in this regard. In Dar es Salaam, Idhalama and Fidelis (2020) investigated librarian's perspectives on cloud computing. The results revealed that librarians are enthusiastic about the usage of cloud computing solutions. In a similar study on awareness and use of cloud computing services and technologies by librarians, Aiyebelehin, Makinde, Odiachi, Mbakwe (2020) found that librarians in the selected universities in Edo State are aware of the types of cloud computing services used in the Library. Njoku and Ken- Agbiriogu (2021) in a study found that libraries in the selected academic libraries in Imo State are not unaware of or alien to this new technology.

Mahalakshmi and Sornam (2012) who conducted a study to identify the awareness of cloud computing services by librarians, and observed that most librarians are aware of the use of CCS in the library. The study of Idahosa and Eireyi-Edewede (2023) showed that awareness of cloud computing technology among librarians in university libraries in South-South Nigeria is low. This may be because of technological advancement presently influencing librarians as a profession. The opinion of librarians at university libraries in India were examined by Majhi, Meher and Maharama (2015) to see how much they were acquainted with, using, and knowledgeable about cloud computing in libraries. The result revealed that while librarians' usage of cloud computing services was only minimal and their familiarity with it was poor.

A study by Oduwole and Salami (2020) found that although cloud computing is becoming increasingly popular among businesses in urban centres, its adoption in rural and non-tech sector remains limited due to a lack of awareness and understanding. In a related study by Adewoye and Adebayo (2018), findings showed that many Nigerian organizations are not fully aware of the potential advantages of adopting cloud-based solutions, such as reduced operational costs and improved scalability. This lack of awareness can be attributed to limited exposure to digital resources, insufficient training, and the complexity of cloud services, which may seem daunting to non-technical individuals. Also, many library professionals have not received formal training on cloud computing and its implications for library services (Obi & Nwosu, 2020).

Through cloud computing, libraries in Nigeria could transform the delivery of library service by leveraging on cloud computing services. Wasike and Njoroge (2015) observed that like the OCLC (Online Computer Library Centre) libraries can chose to share their cataloguing tools, and indeed any other library resources via the Internet for other member-libraries to access and use. With cloud computing, libraries in Nigeria can have a kind of union catalogue, hosted over the Internet; this can ease the process of inter-library cooperation among libraries. Swapna and Biradar (2017) researched on application of cloud computing technology in libraries.

The researchers found that cloud computing technologies can be applied in the library in the following areas: building digital library/repository; searching scholarly contents; file storage; library automation; library website hosting; building community power; searching library data. Solomon and Bakare (2022) found the areas where cloud computing is applied in libraries include library automation system; search for scholarly materials; cloud computing serve as frameworks for repositories and digital libraries; cloud computing is used for hosting websites of libraries; storage of sensitive documents; building up community strength; searching or browsing library data.

According to Luo (2013), virtual reference services and research guides can be provided in libraries through software such as LibChat, Question Point and Lib Guides which are all

hosted on the cloud. Libraries worldwide have also started using cloud computing to handle e-resources usage, hosting web applications, cataloguing online public access, managing digital libraries, hosting various statistical tools and data sets, etc (Salam & Ali, 2020). In a study of Dime and Okeji (2023) the findings revealed librarians use CC technologies to store and share files, for sharing videos related to library orientations/other video contents, to collaborate with other librarians for research projects, to survey users level of satisfaction with library services, online document editing services, and provision of virtual/online reference services.

Majhi, Meher, and Maharana (2015) conducted a study on "awareness and usage of cloud computing application among LIS professionals" The result revealed that usage of cloud in library operations and services was not significant. A total of 75 % of the library professionals used basic cloud services for personal purposes such as store files online, store personnel videos, and photographs online and as well for collaborative writings and 42 % used this technology for providing library services.

An understanding of the literature reveals that in addition to awareness, other factors are relevant for the adoption of cloud computing in library services. A number of studies have been conducted in this regard, Alghushimi, Zakari, and Aji (2020) investigated factors influencing cloud computing adoption in higher education institutions of least developed countries: evidence from republic of Yemen. They formulated hypothesis that relative advantage, compatibility and complexity has a positive effect on cloud computing adoption, after examining the influence of relative advantage, compatibility and complexity on cloud computing adoption the result revealed a significant positive relationship ($\beta = 0.131$, $t = 4.392$, $p < 0.000$).

In another study of Yuvraj (2016), the findings validate the fact that perceived ease of use, usefulness and ubiquitous availability of the enabling technology are strong drivers of the adoption of cloud computing in the libraries. Also, attitude is significantly correlated with behavioural intention to adopt cloud computing services. In Portuguese manufacturing firms, Oliveira et al. (2014) found that complexity and compatibility were not significant whereas relative advantage had significant positive influence on cloud adoption intention. In another study, related to the Taiwanese high-tech industry, complexity and compatibility were not significant and relative advantage had a significant negative effect on cloud adoption (Low et al, 2011). Studies also showed that libraries with well-trained staff who understand cloud technologies have a higher adoption rate than those lacking ICT-proficient personnel (Adeyemi, 2020).

The adoption of cloud computing particularly in libraries of developing countries like Nigeria is evidently faced with a pool of challenges. Many studies have been conducted to prove this; Alabi, Omekwu and Martins (2024) in a study found identified challenges librarians and IT staff face in implementing cloud computing technology for effective library service delivery, including poor subscription of internet, power supply issues, fear of staff elimination, economic situation, inexperience, and resistance to change. Idahosa and Eireyi-Edewede (2023) studied university libraries in South-South, Nigeria.

The findings revealed drawbacks to cloud computing adoption in the libraries studied are internet connectivity, power failure and data integrity. In a related study, Efevberha-Ogodo and Ivwighreghweta (2023) discovered that epileptic power supply, slow internet and lack of

technical skills were the challenges associated with the use of cloud-based technology as indicated by the librarians in South-South, Nigeria.

Methodology

For the conduct of the study, quantitative research methodology using survey research design was used. The population comprises of one hundred and twenty-two (122) professional librarians who provide library services to users. Total enumeration was used to include all the 122 professional librarians because the population is not much and could be managed effortlessly by the researcher. The instrument for data collection was a structured questionnaire, designed into sections covering the research questions of the study. Data collected was analysed using descriptive statistics (frequency distributions and percentages). The Statistical Package for Social Sciences (SPSS) software was used for data processing and interpretation.

Findings and Discussion

Table 1: Response Rate

Questionnaire	Frequency	Percentage
Administered	122	100%
Returned	101	82.7%
Not returned	21	17.3%

Table 1 shows that 122 (100%) copies of questionnaires were administered to the respondents of which 101 (82.7%) were returned and found useful while 21 (17.3%) were not returned. The high rate of returned copies of questionnaire was attributed to the fact that the respondents are within the reach of the researcher.

Table 2: Awareness of Cloud Computing

Response	Very Aware	Aware	Not Sure	Not Aware	Total
Frequency	46	52	3	0	101
Percentage	45.5%	51.5%	3%	0%	100%

Table 2 presents the awareness of cloud computing. It shows that 46(45.5%) and 52(51.5%) of the respondents indicated various levels of awareness of cloud computing. The finding on awareness of cloud computing cannot be detached from its increasing popularity and its adoption by libraries across the globe. Further justification is that cloud computing is convenient to use in library operation.

Table 2.1 Source of Awareness of Cloud Computing

Source	Frequency	Percentage
Through training such as workshop, webinars, conferences on cloud computing	55	54.5%
Through colleagues	56	55.4%
Through the Internet	33	32.7%
Others	0	0%

Table 2.1 reveals the various sources through which librarians became aware of cloud computing. The findings show that 55(54.5%) of the respondents gained awareness through training sessions such as workshops, webinars, and conferences, 56(55.4%) of the respondents cited colleagues as their source of awareness, 33(32.7%) respondents became aware through the internet. The finding on source of awareness of cloud computing reveals that cloud computing is widely discussed at various levels among colleagues in conferences, workshops, etc.

Table 2.2: Awareness of Cloud Computing for Library Services

Response	Yes	No	**Total**
Frequency	101	0	101
Percentage	100%	0%	100%

Table 2.2 shows respondents' awareness on the adoption of cloud computing in the delivery of library services. It shows that all 101(100%) of the respondents are aware that cloud computing could be used to render library services. Such a high level of awareness is significant as it indicates that the concept of integrating cloud technology into library operations is well understood within the respondent group.

Table 3: Adoption of Cloud-based Library Services

Response	Yes	No	**Total**
Frequency	94	7	101
Percentage	93%	7%	100%

In Table 3, respondents were asked to indicate if their library has adopted cloud-based services. Findings from table 4.9 revealed that majority 94(93%) of the respondents indicated that their library has adopted cloud-based information services. This finding implies a shift from traditional mode of service delivery to digital transformation. It also shows that the librarians are technology inclined and prepared to ensure global best practice in information service delivery.

Table 3.1 Adoption of Cloud-based Services

Cloud-based Services	**Frequency**	**Percentage**
OPAC	34	33.7%
E-resources	52	51.5%
Virtual reference service	35	34.7%
Database management	54	53.4%
Storage of sensitive documents	52	51.5%
Library Automation	32	31.7%

Respondents were asked to indicate the cloud-based services preferred to be adopted by the library in table 3.1. It shows that more than half 52(51.5%) of the respondents indicated database management, e- resources and storage of sensitive documents. The finding shows that there is a growing need for cloud-based storage and organisation of vast amount of information in the library. It also suggests that the library has much interest on e-resources. This is because most of the e-resources are current and up-to-date which the library may not be able to purchase the print copy as a result of cost and dwindling library budget.

Table 4: Factors Facilitating Adoption of Cloud Computing

Factors	Frequency	Percentage
Availability of the technology	66	65.3%
Compatibility of the technology with library system and services	51	50.5%
Attitude of librarians towards the adoption of cloud computing	54	53.5%
ICT skills	35	34.5%
Perceived usefulness and ease of use	67	66.3%

Table 4 presents the factors facilitating adoption of cloud computing in library services. It shows that majority of the respondents 67(66.3%), 66(65.3%), 54(53.5%) and 51(50.5%) indicated factors such as perceived usefulness and ease of use, availability of the technology, attitude of librarians towards adoption of cloud computing and compatibility of the technology with library system and services. The analysis shows that the provision of the above factors would go a long way to facilitate effective and efficient cloud-based services delivery in the library.

Table 5: Challenges Associated with Adoption of Cloud Computing in Library Services

Challenges	Frequency	Percentage
Lack of technical knowledge and skills	46	45.5%
Insufficient funding	56	55.4%
Poor internet connectivity	59	58.4%
Security and privacy concerns	21	20.8%
Resistance to change	25	24.8%
Inadequate training	55	54.5%
Lack of management support	48	47.5%

In table 5 respondents were asked to indicate challenges associated with the adoption of cloud computing in library services. It shows the most pressing challenge were poor internet connectivity 59(58.4%), insufficient funding 56(55.4%) and inadequate training 55(54.5%). The analysis shows that when these pressing challenges are addressed, all other challenges highlighted would be taken care of thereby ensuring effective adoption of cloud-based library services

Discussion of Findings

On awareness of cloud computing, the study found that librarians in the library studied are aware of cloud computing. The study also found that the librarians' sources of awareness were through conferences, seminars and workshops and colleagues. The findings further revealed that the librarians are aware that cloud computing could be adopted to render library services. The findings on awareness contradicts the study of Idahosa and Eireyi-Edewede (2023), Njoku and Ken-Agbiriogu (2021) Adewoye and Adebayo (2015), Oduwole and Salami (2020) who concluded on librarian's low awareness of cloud computing. The finding is also not in tandem with study of Obi and Nwosu (2020) who found that many library professionals have not received formal training on cloud computing and its implications for library services.

On adoption of cloud computing services, the study found that the library under study has adopted cloud-based services indicating that database management, e-resources and storage of sensitive documents are the preferred types of services offered through cloud adoption. This finding support the study of Dime and Okije (2023), Solomon and Bakare (2022), Salam and Ali (2020) who found cloud computing could be adopted in various library operations and services. It contradicts the findings of Adegoke et al (2018) who reported that many are unaware of the practical application of cloud-based services and are hesitant to adopt these technologies.

In an attempt to identify the factors facilitating adoption of cloud computing in the library, the findings revealed ICT skills availability of the technology, compatibility of the technology with library system and services, attitude of librarians towards cloud computing and perceived usefulness and ease of use. Thus, reaffirming the findings of Alghushimi, Zakari and Ali (2020), Yuvraj (2016) and Adeyemi (2020) on factors influencing adoption of cloud computing where they indicated availability, compatibility attitude, perceived usefulness, ease of use and skills.

In investigating the challenges associated with adoption of cloud computing, the findings revealed the most pressing challenges are insufficient funding, poor internet connectivity and inadequate training. Although the respondents go through training, the level of training may not be sufficient enough for the librarians to adopt cloud computing in the library. This reaffirmed the findings of Alabi, Omekwu and Martins (2024), Idahosa and Eireyi-Edewede (2023) on challenges associated with cloud based technology implementation.

Conclusion

The study established that Bayero University Library, Kano has adopted cloud-based library services. Several challenges were identified which if addressed would facilitate maximum utilization of cloud computing in library services.

Recommendations

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

1. The University library should diversify the scope of cloud-based services to include other areas such as cloud-based digital preservation, digital library/repository, OPAC, virtual reference service, library automation etc This would not only change the face of library services but would also ensure best practice in library services.

2. There is need for relevant funding authorities to adequately fund libraries. This would go a long way in tackling the challenges associated with adoption of cloud computing services in libraries. Adequate funding would ensure reliable internet connectivity, provision of state-of-the-art ICT facilities and adequate training of staff on cloud computing related issues as well as other emerging technologies.

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5TH INDUSTRIAL REVOLUTION: ROLES OF ARTIFICIAL INTELLIGENCE IN ACADEMIC LIBRARIES

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Abstract

This paper is to examines 5th industrial revolution and the role of Artificial Intelligence (AI) in Academic Libraries. The paper is a reflective piece examining 5th Industrial Revolution and advancement in the context of artificial intelligence in academic libraries. The paper argued thar 5th industrial revolution has advance information service delivery by connecting cyber, virtual and physical space in contemporary academic libraries. Various studies indicated that artificial intelligence is contributing significantly to global information provision and dissemination. The paper indicated that the 5th industrial revolution and the role of Artificial Intelligence (AI) has brought about significant transformation in the way academic libraries manage and provide access to information. Literature reviewed indicated that Artificial Intelligence (AI) is one of the emerging trends and applications of computing in academic libraries. The paper also focuses on the advantages of Artificial Intelligence which enhances information services delivery. Artificial Intelligence also improves library operations and services and upgrades and heightens the relevance of academic libraries in an ever-changing digital society. The paper also discusses application of Artificial Intelligences in academic libraries in the Era of 5th Industrial Revolution. The paper also highlights the benefits of Artificial Intelligences in academic Libraries. The paper emphasizes on the challenges of integrating Artificial Intelligence (AI) in Academic Libraries. Opportunities for Artificial Intelligence (AI) in academic libraries was also discussed in the paper. The paper concluded that despite the advancements brought by the 5th industrial revolution, challenges such as privacy concerns and algorithmic biases were still pertinent in AI which must be addressed to ensure responsible AI implementation. The paper proffered way forward that there is need for academic libraries from developing countries especially Nigeria to strengthened and priorities for AI to enhance research output in the delivery of information

Keywords: Academic Libraries, Artificial Intelligence, Chatbots, Digital Technologies, Digital Preservation, Internet of Things

Introduction

The 5th Industrial revolution (AI) is making a remarkable strives with the role of digital technologies which currently influenced contemporary societies in all sectors of life; be it social, political, governance and economic development. Today, the 5th Industrial revolution has become pervasive, as it cuts across every government agency, organizations and professional bodies (UNESCO, 2024). The 5th Industrial Revolution and the role of Artificial Intelligence are currently transforming the global world. This is because the advent of artificial intelligence has revolutionized the way services are delivered for communication, information generation, access and dissemination.

AI is characterized by digital revolutions and innovations. This is because its connecting cyber, virtual and physical space with advancement in digital technology which has made communication, collaboration, information flow and work easier. For example, self-driving cars, online shopping and drone delivery services are digital technology systems that continue to solve some of the world's biggest problems faster with fewer errors and better results (Wani, & Bhat, 2023). The 5th industrial revolution also reflects and guides our way of life and thinking towards digital technology development for advancement in collection and processing of huge amount of information at an alarming rate (Okunlaya, Syed, et al, 2022).

Digital technologies such as robotic technology, artificial intelligence, cloud computing, big data, social media, smart phones, digital cameras, sensors and Internet of Things are contributing significantly in global information provision and dissemination (Anumula, et al, 2024). The emergence of 5th Industrial revolution has opened opportunities for individuals, organizations, corporate bodies and nations to develop knowledge and competencies in artificial intelligence (Senthilkumar, Jagajeevan, & Sangeetha, 2024). For instance, in order for individuals and corporate institutions to exploit the 5th industrial revolution to its fullest potential, knowledge of Artificial Intelligence is fundamental.

Globally, Artificial Intelligence (AI) is dominating research and academic discussions in recent time. Its integration has extended across numerous fields, professions, and countries. Notably, sectors like agriculture, industrialization, economy, information technology, medicine, education, military, and business, along with nations such as the United States, the United Kingdom, the European Union, and China, are at the forefront of AI integration. Despite the critical role of Artificial Intelligence (AI) across the world, literature shows disparities between the developed and the developing countries (United Nations, 2023).

While developed countries like Britain, the United States of America, Canada, France and Germany have harnessed the integration of Artificial Intelligence to foster development, developing countries like Morocco, Liberia, South Sudan and Malawi still find it difficult to progress into a technology-driven environment, global economy and knowledge-based society (UNESCO, 2024). The benefits of AI are widely recognized, including enhanced efficiency, increased productivity, improved customer services, informed decision-making, personalized experiences, and reduced risks and errors (Owolabi et al., 2022; Oyetola et al., 2023).

Academic libraries, though slower in integrating AI, are gradually catching up (Oladokun et al., 2023). Academic libraries are pivotal contributors to the academic success of higher education, fostering intellectual growth, facilitating research endeavors, creativity, life-long learning and enhancing overall excellence by providing a diverse range of information resources and promoting information literacy (Hotsonyame 2023). Academic libraries serve as indispensable technological hubs that cater for the students, lecturers, researchers and other

members' academic community for advancement in scholarship and educational excellence (Rodrigues & Mandrekar 2020). The global evolution of technological advancements has significantly reshaped and revolutionized various sectors, including academia. The integration of Artificial Intelligence (AI) technology into the educational landscape has elicited both commendation for its streamlining of traditional processes and criticism for its limitations (Gillespie et al. 2023).

Over the years, academic libraries, mirroring other sectors, have undergone substantial transformations, transitioning from manual operations to embracing cutting-edge technologies to enhance library utilization and streamline service access. Notable advancements include the transition from traditional card catalogues to Online Public Access Catalogues (OPAC), simplifying information retrieval and eliminating the need for exhaustive manual searches (Eserada & Okolo 2019). Additionally, the accessibility of library services has significantly improved, enabling remote subject assistance without physical presence (Adetayo 2023). These technological strides have been instrumental in fostering improved library utilization, particularly pertinent in the context of the fourth and fifth industrial revolutions (Oke & Fernandes 2020).

Despite proactive integration, particularly of AI, by academic libraries to reshape information service delivery and enhance paradigm shift, there remains an observable gap in comprehensive implementation (Wheatley & Hervieux 2019; Farag, Mahfouz & Alhajri 2021). While AI is being harnessed to leverage big data and data analytics for operational and service-oriented purposes, bridging this implementation gap remains crucial to fully exploit these technological advancements (Garoufallou & Gaitanou 2021; Luca, Narayan & Cox 2022). However, despite the acknowledged necessity and potential of Artificial Intelligence (AI), gaps still exist in the realization of AI in academic libraries in developing countries (Farag et al. 2021).

The idea of integrating AI into libraries has existed since at least 1985, but interest has surged in the last five years (Huang, et al., 2023). According to Li et al., (2019) in their report on the IFLA (International Federation of Library Associations and Institutions) 2017 Trend Report, AI's primary implications for libraries include speech recognition and machine translation for real-time multilingual support, complex identification of cloud services for web content, and next-generation browsers that go beyond simple keyword searches to incorporate semantic analysis. There is also significant potential for AI in academic libraries to improve user experiences, streamline operations, and enhance access to information in innovative ways (Nehra & Bansode, 2024).

Presently, numerous studies explore AI in academic libraries, focusing on AI-based services, benefits, and challenges (Aslim et al., 2023), strategies for AI adoption (Huang, et al., 2023), and the readiness of academic libraries to integrate AI into operations and services (Ajani, et al., 2022). Studies also examine librarians 'perceptions of AI technologies (Hervieux & Wheatley, 2021) and attitudes towards AI (Andrews, et al., 2021). Consequently, a thorough investigation into these opportunities and challenges is necessary. The findings and baseline insights from this study can guide academic libraries in their efforts to adopt and implement AI technologies. Additionally, this analysis provides valuable knowledge and data for governments, higher institution administrations, library managers, practitioners, and AI developers to better understand the current state of AI integration in academic libraries within the context of Nigeria.

Theoretical Perspectives

The objective of a theoretical framework in any study is to define a broad framework within which a researcher may work. The framework also enhances clarity of the research and helps the researcher to get through the research faster. There are numerous theories related to the diffusion, gratification, implementation, and adoption of information and communication technology (ICT) systems. These frameworks have been widely employed by scholars to explain how technology spreads across societies and how individuals, organizations, and communities respond to its adoption. Among these, the Technology Acceptance Model (TAM), developed by Davis (1989), remains the most popular and frequently cited. TAM is designed to predict and explain individual behavioral intentions to accept or reject the use of information technology, with its core constructs being perceived usefulness and perceived ease of use.

Due to its broad applicability and reliability, TAM has been validated and extended through various studies, resulting in several derivatives over time. Other notable theories of behavioral intention include Fishbein and Ajzen's (1975) Theory of Reasoned Action (TRA), which links beliefs, attitudes, norms, intentions, and behaviors, as well as Ajzen's (1991) Theory of Planned Behavior, which emphasizes cognitive self-regulation. Venkatesh et al.'s (2003) Unified Theory of Acceptance and Use of Technology (UTAUT) also plays a key role in explaining user intentions toward ICT adoption, focusing on constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions.

UTAUT is further moderated by variables like gender, age, experience, and voluntariness. In terms of organizational and community adoption of technology, Roger's Diffusion of Innovation (DOI) Theory (1983) is one of the most widely used models. DOI explains how communication channels and opinion leaders influence the spread of new technologies and ideas at both individual and organizational levels. Other key theories include the Technology-Organization-Environment (TOE) framework by Tornatzky and Fleischer (1990), the Institutional Theory by Scott and Christensen (1996) and Scott (2001), Concern Based Adoption Model (CBAM) by Fuller (1969) and Technology Readiness Index (TRI) by Parasuraman (2000) as well as the model by Lacovou et al. (1995), among others. Previous research has often combined these theories with other frameworks to better understand technology adoption in organizations.

Given that artificial intelligence (AI) is being adopted across various professions, communities, and countries, in this study, Diffusion of Information (DOI) propounded by Rogers (1996) was be adopted as a guide. The comprehensiveness of the DOI compared to other theories and models has allowed researchers to comprehend how innovations diffuse among sets of people from different dimensions. it is clear that integration of AI in academic libraries in Nigeria would be better understood from multiple perspectives, incorporating insights from theory, practice, and scholarly discourse to provide a holistic understanding of the phenomenon.

Methodology

This paper used literature review as methodology. The purpose of adopting literature review is to convey to the readers the knowledge and ideas that have been established, gaps identified as well as strengths and weaknesses of previous studies. The literature review according to Jacobs and Walker (2014) is to show the readers the extent of previous studies and the connection of current and to fill the gap between previous and current studies. The use of literature review is to illustrate how the topic under investigation was previously studied as well as identify the gaps in previous research discover and articulate relationships (similarities

and contradictions) between previous research and the current study (Creswell 2014). Therefore, this paper identified relevant literature on the 5th industrial revolution and the role of Artificial Intelligence in academic libraries with the view to closing gaps identified by the literature for effective information service delivery.

Literature Review

The Concept Artificial Intelligence in Academic Libraries

Despite the growing scholarly interest in the integration AI across various fields, professions, and occupations, perspectives on its implementation still vary among academics, governments, and communities (Kelly, Kaye, & Oviedo-Trespalacios, 2023). As with many complex, interdisciplinary, and multidimensional applied concepts, there is no universally accepted definition of "artificial intelligence." However, as Collins, Dennehy, Conboy, and Mikalef (2021) pointed out, this lack of consensus is not necessarily problematic. That said, efforts to provide a general definition of AI have been made by scholars and within reference works. For instance, the Online Dictionary of Library and Information Science (ODLIS) (2002) defines AI as "mechanical and electronic devices and applications designed to closely mimic the human ability to learn, reason, and make decisions," noting its use in voice recognition, expert systems, natural language processing, and robotics.

AI also refers to the development of computer systems capable of performing tasks that typically require human intelligence, such as learning, reasoning, problem- solving, and understanding natural language. In the context of academic libraries, AI technologies are being leveraged to address longstanding challenges and to unlock new opportunities for libraries to deliver more personalized, efficient, and responsive services to their users (Ajani, Tella, Salawu, & Ajani, 2022). Various scholars have attempted to clarify the concept of AI. For example, Kelly, Kaye, and Oviedo-Trespalacios (2023) proposed a synthesized definition in their systematic review on AI acceptance, describing it as "an unnatural object or entity that possesses the ability and capacity to meet or exceed the requirements of the task it is assigned when considering cultural and demographic circumstances."

The interpretation and application of AI in academic libraries, however, have only recently begun to gain attention. Kramer (2022), referencing Hervieux and Wheatley (2022) in their book The Rise of AI: Implications and Applications of Artificial Intelligence in Academic Libraries, defines AI as "the development of machines to accomplish tasks and reproduce thought processes that are normally seen in humans; this simulation of intelligent behavior is distinct from other forms of automation because it requires the computer to use human reasoning or thinking to perform tasks" (p. 70).

Within the field of library and information science, Asemi and Asemi (2018) define AI as the use of computers and their associated products and services to perform various tasks and deliver services within libraries. Integration of artificial intelligence in library system encompasses descriptive cataloguing, subject indexing, reference services, technical services, collection development, information retrieval system, and information management and information service delivery. These have gone beyond Natural Language Processing (NLP), and knowledge-based services. With the advancement in artificial intelligence programming, creating a smart library is not only a possibility but a matter of time. However, many academic libraries in Nigeria are still lagging behind in integrating Artificial Intelligence (AI) to provides library services due to poor facilities, poor knowledge and competencies and poor digital skills

The 5th Industrial Revolution and Role of Artificial Intelligence (AI) among Librarians in Academic Libraries

The 5th industrial revolution has brought significant transformation with AI in academic libraries to addresses effectiveness of information resource, improves information retrieval, streamlines knowledge organization, personalizes user services, thereby significantly improving library services (Barsha & Munshi 2023). With the advancement in Artificial Intelligence (AI) academic libraries have not demonstrated interaction and communication, exchange ideas and knowledge via email, teleconferencing and chatting to advance information service delivery. However, evidence from literature indicated that not all academic librarians have knowledge of digital competencies to make effective use of digital resources and other related technologies to provide

The justified that artificial intelligence played an important role in assisting academic libraries to develop new thinking and creativity toward digital technologies to support academic activities to achieve functional research, interactions and learning process (Ali, Naeem & Bhatti 2020). However, many academic libraries in developing countries especially in Nigeria still find it difficult to transform digital technologies to advance the library services to meet the dynamic and fast changing information needs of the users (Kaushal & Yadav 2022).

The 5th industrial revolution is contributing to ease societal problems with fast and ease. Artificial intelligence is desirable and currently contributing significantly in global information provision and dissemination as well as changing the information landscape in our society. Wider access: AI can meet simultaneous access requests for a document by easily creating multiple instances or copies of the requested document. It can also meet the requirements of a larger population of users easily. Improved information sharing through the appropriate metadata and information exchange protocols, the digital libraries can easily share information with other similar digital libraries and provide enhanced access to users.

The diverse capabilities of AI, ranging from natural language processing to classifying books to enriching metadata, are redefining traditional library operations (Cox & Mazumdar 2022). By using modern technologies such as natural language processing and machine learning algorithms to automate the indexing and accurate classification of library collections, AI also enables the creation of customized recommendation systems that significantly improve the discoverability and accessibility of resources for library patrons (Suryawanshi 2024). The impact of AI goes beyond mere automation; it frees librarians from mundane tasks, as chatbots serve as a simple platform to reach out to target users such as students and researchers and can help them access the library's databases, allowing librarians to focus on more complex tasks (Aithal & Aithal 2023).

By using AI systems based on radio frequency identification (RFID), libraries optimize the location of resources and work intelligently, enabling autonomous functions (Chhetri & Thakur 2019; Okunlaya, et al., 2022). For users, AI simplifies the search for relevant research materials by using generative AI to streamline search procedures and save valuable time (IFLA 2023a). Librarians are freed from repetitive tasks and can spend their time getting to know and serve their clientele better (Chakarova & Trabert 2017) Innovation through AI extends further, transforming library operations such as self-checkout systems and enabling 24- hour services (IFLA 2023b).

The tireless nature of AI systems ensures continuous library operation, freeing librarians from round-the-clock responsibilities (Omame & Alex-Nmecha 2020). AI-driven virtual reference assistants like Pixel or chatbots constructed using Hypertext Pre-processor (PHP) prove instrumental in delivering consistent and efficient 24/7 services, catering for users' need for instant and personalised information (Gujral, Shivarama & Choukimath 2019; Omame & Alex- Nmecha 2020). Libraries in developed countries, such as the University of Oklahoma Library in North America, Monash University Library in Australia, and San Jose State University Library in North America, are already successfully using these AI chatbots (De Sarkar 2023). However, in developing countries such as India, there are obstacles such as a lack of financial support and infrastructure that hinder the adoption of chatbots in libraries (Kaushal & Yadav 2022).

In an era characterized by information overload, the role of AI in academic libraries becomes indispensable (Hussain 2023). AI technology's ability to analyze extensive metadata associated with scientific collections elevates indexing, reference services and information retrieval (Allal 2022). Ultimately, the integration of AI not only ensures accessibility and availability of library resources, but also equips library staff to adeptly navigate and harness AI's capabilities to address user inquiries (Abayomi et al. 2021)

Application of Artificial Intelligences in Academic Libraries in the Era of 5th Industrial Revolution

Artificial Intelligence (AI) holds immense potential to transform academic libraries by offering innovative solutions for information management, user engagement, and operational efficiency. Ajikaye (2022) provided the artificial intelligence applications in academic libraries as follow's"

1. ***Digital Preservation:*** AI assists in digital preservation efforts by automating processes like content identification, OCR (optical character recognition), and content restoration. This ensures the long-term accessibility and integrity of digital collections.
2. ***Virtual Assistants and Chatbots:*** academic libraries are deploying Al-driven virtual assistants and chatbots to provide instant support to users, answer reference inquiries, assist with circulation services, and offer _serialized recommendations based on user preferences.
3. ***User Analytics and Personalization:*** AI technologies analyze user data to gain insights into user behavior and preferences. This information is then used to personalize services, recommend relevant resources, and enhance overall user satisfaction.
4. ***Information Retrieval:*** academic libraries use artificial intelligence to provide powered search engines and utilize machine learning algorithms to improve the accuracy and relevance of search results. These systems can understand user intent, analyze patterns in search behavior, and adapt over time to deliver more precise information retrieval experiences.
5. ***Cataloging and Metadata Management:*** AI automates cataloging processes by automatically assigning metadata tags, classifications, and keywords to digital resources. This streamlines the organization of library collections and ensures consistency in metadata standards for easy, effective and efficient information search strategy.

6. ***Automation of Routine Tasks:*** AI automates repetitive tasks such as inventory management, interlibrary loan processing, and collection maintenance. By freeing up staff from mundane tasks, libraries can optimize resource allocation and focus on more strategic initiatives.

Benefits of Artificial Intelligence in Academic Libraries

Artificial Intelligence is installed in machines or computers to reduce human casualties in wars, hazardous work environments, car accidents, plane crash, fire explosion or disasters as a result of human error. Furthermore, artificial intelligence facilitates human work with greater speed, efficiency and effectiveness in work environments such as the library. According to Anumula, et al., (2024), artificial intelligence and expert systems are used in classification, cataloging and indexing of library materials. Via the use of optical character recognition and neural network, the system is able to obtain the bibliographic records of books and classify them accordingly. Thus, Artificial Intelligence holds great potentials for library and information service.

The benefits of Artificial Intelligence in academic libraries as summarized by Asim, et al., (2023) are as follows:

1. ***Improved Efficiency***: AI streamlines workflows, reduces manual effort, and optimizes resource allocation, leading to improved operational efficiency within libraries. According to Ex Libris (2019), artificial intelligence in libraries can make research more discoverable which can boost research productivity among faculty members,

2. ***Bridge in Time:*** Round the clock accessibility to information resources and services just in time.

3. ***Bridge in Space:*** The space occupied by piles of books, journals, bound newspapers and other information materials has been reduced by the introduction of digitization, electronic copies and use of robotic cranes that stores and retrieve books from a compact off-site storage location.

4. ***Maximization of Efficiency:*** This refers to efficiency in library operations: selection and acquisition of materials, technical services, circulation services, references services, serial management etc.

5. ***Enhanced User Experience:*** AI-driven personalized services enhance user satisfaction by delivering tailored recommendations and responsive support.

6. ***Data-Driven Decision Making:*** AI analytics provide valuable insights into user needs and behaviors, enabling libraries to make informed decisions about resource acquisition and service improvements.

7. ***Maximization of effectiveness***: AI enhances effectiveness in form of improves services delivery and elimination of human errors in library operations.

8. ***Minimization of Effort***: The effort expended by librarians in technical services, circulation services, references services, serial management etc, can been minimized by the use of artificial intelligence systems in libraries. 7. Enhanced and immersive user experience in library services delivery.

9. ***Innovation and Adaptation:*** AI fosters innovation in LIS by enabling libraries to adopt emerging technologies and respond effectively to changing information demands. AI-powered information retrieval refers to the use of Artificial Intelligence (AI) technologies to enhance the process of accessing and retrieving information from vast collections of data, particularly within the context of academic library

Challenges of Integrating Artificial Intelligence (AI) in Academic Libraries in 5th Industrial Revolution

The literature reveals the major challenges as follows:

1. Lack of technical know-how to use and operate artificial intelligence systems among the library staff.

2. Lack of adequate funding to develop or procure artificial intelligence systems in libraries. Since the budgets for hardware and software are frequently tight, there's always constrain to the type of system the library can purchase or develop.

3. High system development and maintenance cost of artificial intelligence systems in libraries. 4. Erratic power supply to power artificial intelligence systems in libraries especially in developing countries.

5. Inherent complexities of expert/artificial intelligence systems' development.

6. Limited natural language capabilities.

7. Intelligent systems lack that common base of human knowledge, severely constraining the types of functions that they can perform.

8. Level of effort and technical expertise needed to create artificial intelligence systems in libraries. The level and nature of effort that must be invested to develop an intelligent library system is directly proportional to the power and complexity of the system. This implies that, the more intelligent the system is, the more the effort that must be invested therein. Currently, the required skilled personnel with expensive development tools or techniques, needed to develop sophisticated intelligent system in libraries is lacking or costly, hence, the lack of such systems in libraries.

9. Limited amount of artificial intelligence experts among library automation vendors. The field of artificial intelligence is complex and thus, requires a specialized knowledge in that aspect far beyond the development of conventional library automation systems.

Consequently, this will require hiring new personnel in that area before any significant, widespread work can be done in the area of artificial intelligence systems in libraries. T

Opportunities for Artificial Intelligence (AI) in academic libraries

The integration of AI within library system is crucial for increased efficiency in library services. In the contemporary era, academic libraries are positioned to educate library users about modern technologies, ensuring users are well-informed about new technologies and conducting regular orientation programmes to foster appreciation and utilization of these technologies (Kaushal & Yadav 2022; Srikanth & Kumar 2023). Embracing this responsibility by stakeholders enhances effective integration of AI in libraries. While budget considerations

are vital for sustaining resources and services, the cost presents a significant obstacle to AI integration in libraries (Lo 2023; Srikanth & Kumar 2023).

The pursuit of enhanced technology, services and user experiences necessitates libraries to seek additional funding, prompting the need for strategic investments (Onwueme & Nyemezu 2017). Practical solutions for developing countries to implement AI in library services include partnerships and infrastructure investments (Barsha & Munshi 2023). To address this financial challenge, libraries can explore diverse funding opportunities, such as technology grants and establishing partnerships with technology companies. Collaborative endeavors of this nature may present the prospect of reduced or cost-free access to AI tools in exchange for data sharing and cooperation (Lo 2023). Ajani et al. (2022) advocate that funding should ideally originate from government sources or the parent institutions of academic libraries, to prevent the misallocation of funds.

Moreover, the integration of alternative power sources incorporating green technology concepts is essential to enhance AI integration and library usage. Library management plays a pivotal role in ensuring a consistent power supply using alternative sources such as solar energy and generators (Owolabi et al. 2022). Ajani et al. (2022) highlight the challenges developing countries face related to technologies such as electricity supply and recommend that academic libraries tackle this issue by deploying alternative power generation systems like solar energy and biofuels. By collectively addressing challenges associated with AI implementation, such as finance, power and training, there would be a substantial increase in its overall efficacy within academic libraries.

Conclusion

The paper review literature on the 5th industrial revolution and the role of artificial intelligence in academic libraries. Literature identified that AI provides improves relevant research materials, enhance search strategy, promote streamline search procedures and save valuable time with AI in academic libraries. The 5th industrial revolution and the role of AI in academic libraries is a revolutionary change that is redefining the landscape of library services with unprecedented levels of efficiency.

This adoption holds immense potential to improve accessibility, accuracy, and personalized user experience. However, the realization of these promising prospects faces significant challenges; especially in underdeveloped countries where infrastructure, financial resources, expertise, and constant power supply are limited, posing major obstacles to the implementation of AI. To advance the integration of AI into academic library services, a comprehensive approach that considers both the potential and the obstacles is essential.

Addressing these challenges requires a concerted effort to bridge the technology gap and ensure that libraries in developing countries are not left behind. Strategic alliances and partnerships between libraries, technology experts, policy makers and funding agencies can serve as a catalyst for progress. Crucially, the focus should be on knowledge sharing and capacity-building initiatives to equip library professionals with the skills they need to use AI effectively.

In addition, developing adaptable and scalable AI models tailored to different resource environments is critical to promoting inclusivity and equitable access to technological advances. By fostering a collaborative ecosystem and prioritizing adaptable strategies, the integration of AI into academic libraries becomes an achievable reality that enriches global

scholarly work and ensures equitable access to transformative technological innovations in libraries worldwide.

Way Forward

Based on the gaps established from the literature review, the following suggestions on the way forward were made:

1. There is need for technical know-how to use and operate artificial intelligence systems among the library staff.
2. There is need for adequate funding to develop or procure artificial intelligence systems in libraries. Since the budgets for hardware and software
3. There is need for high system development and maintenance of low cost of artificial intelligence systems in libraries.
4. There is need to improve power supply to power artificial intelligence systems in libraries especially in developing countries
5. There is the need for employ capable expert in artificial intelligence systems' development for academic library services.
6. There is the need for enhance natural language capabilities in Artificial intelligence capabilities
7. There is the need for intelligent systems in common base of human knowledge that can perform various functions in the library
8. There is also the need for academic libraries to improve on the AI to enhance search strategy to transform library services as well as widen coverage of AI in effective information service delivery
9. There is need for academic libraries in Nigeria to strategize in the integration of AI to mitigate the challenges of digital transformation and innovations

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THE ROLE OF ARTIFICIAL INTELLIGENCE (AI) ON PROFESSIONAL LIBRARIANS' SERVICE DELIVERY IN TERTIARY INSTITUTIONS OF YOBE STATE

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Abstract

The study examines the roles of artificial intelligence (AI) on professional librarians' service delivery in tertiary institutions of Yobe State. The study was guided by three (3) objectives and three (3) research questions. A survey research design was used for the study targeting a population of sixty-four (64) professional librarians of tertiary institutions in Yobe State. Total enumeration sampling technique was employed to ascertain the target respondents. Questionnaire was the main instrument used for the study. Sixty-four (64) copies of the questionnaire were administered to the respondents, sixty-one (61) copies were retrieved and found usable for analysis. This represents 95% of the response rate. Data were gathered through self-designed questionnaire and were analyzed using descriptive statistics of frequency count, percentages and mean score. The analyses revealed a grand mean of 2.45 indicating that respondents agreed artificial intelligence plays a vital roles in reference services in academic libraries, and the result reports a grand mean of 2.75 indicating lack of sufficient infrastructure to adopt AI in tertiary institution libraries, erratic power supply and low awareness level by librarians on how to apply AI for their service needs indicated severe challenges militating against the adoption of artificial intelligence in academic libraries.

Keywords: Roles, Artificial Intelligence, Professional Librarians', Service Delivery and Tertiary Institution

Introduction

The emergence of Artificial Intelligence (AI) in recent years has had a significant collision on many industries, from the healthcare and financial sectors to education and the entertainment industry. Libraries are no exception, as they have long been a vital source of knowledge and resources to communities, students, researchers as well as for faculty members. However, with the emergence of AI, many libraries are now looking for new ways to improve their services, enhance library activities and meet the changing needs of their patrons.

Integrating AI into library operations significantly transforms how libraries operate and interact with patrons (Abbas, Khan, & Khan, 2020). As libraries work to stay relevant and evolve with the times, AI can help streamline resource management, make information more discoverable and engage with users in new ways. But, like any technology, implementing AI in a library requires careful planning, cooperation and a dedication to preserving the

fundamental principles of accessibility, fairness and intellectual liberty that have defined library services for centuries (Hasan, Saifullah, & Hashmi, 2024).

Artificial Intelligence (AI) can be defined as a human-designed software and hardware system that, in the context of library objectives is to, performs digital circulation, cataloguing, acquisition, indexing and reference operations by perceiving its environment through the acquisition of data, interpreting the data collected, whether structured or non-structured, reasoning on that knowledge, processing the information derived from that data and deciding on the most appropriate action to take to accomplish that objective. AI systems can use symbolic rules, or learn a numerical model. They can also change their behavior by examining how the environment reacts to their previous actions and immediately modify for improvement (Adewojo, & Dunmade, 2024).

Service delivery are those library services (reference, cataloguing and acquisition services) provided to library user in order to support teaching and learning processes. These services will also attract or increase library patronage if effectively discharge by professional librarians. Service delivery can be assessed in terms of both inputs (such as collections, physical environment, staff knowledge and skill) and outputs (efficiency and effectiveness). Khan (2021) stated that the availability of reference, cataloguing and acquisition services in the library will promote and enhance effective service delivery. The rate of quality, user friendly, effectiveness, reliability and regularity of library services can also improve the utilization of these services frequently. To take advantage of the potentials provided by artificial intelligence in improving librarians' service delivery, contemporary librarians have to keep abreast the development in ICT and acquire necessary skills that will enable them make existing information resources more readily available and useful to the users.

Reference services is the process of attending, guiding and directing library users to a particular relevant information resources. Artificial intelligence is playing a significant role in reference services. It is changing the way libraries serve users with information and support them with necessary resources that relate to their choice of interest. AI-powered virtual assistants and Chatbots are increasingly being used to help library users in real-time.

These virtual assistants can answer commonly asked questions; locate resources and direct users to the appropriate library services or resources. Natural Language Processing (NLP) technologies allow libraries to offer more sophisticated search capabilities and to interact with users more in a conversational way (Alam, 2025). NLP technologies can be used to create Chatbots, perform voice-activated searches and analyze the sentiment of user questions and answers. AI-driven question-answering systems, including those based on machine learning or deep learning, can answer complex user queries in more detail. This makes it easier for users to find relevant materials (Hasan, Saifullah, & Hashmi, 2024).

Recognizing the significance of integrating cutting-edge technologies like AI into academic libraries, scholars have emphasized its potential to enhance service accessibility, both on site and online, and optimize operational efficiency, leading to increased engagement among staff and patrons (Pierce, 2022). However, despite the acknowledged necessity and potential advantages, a gap in the realization of AI in libraries persists, calling for urgent measures to promote wider implementation (Farag et al. 2021).

Statement of the Problem

The situational analysis on the role of artificial intelligence (AI) on professional librarians' service delivery in tertiary institutions of Yobe State shows that, professional librarians' seems not to utilize AI for reference services. They mostly support the process of traditional methods and rendering services to users'. In other words, lack of proper utilization of artificial intelligence among professional librarians may lead to low service delivery. With the observed situational analysis, it seems the professional librarians' do not understand the role of artificial intelligence on library service delivery and it is what led the researcher to embark on the study titled; the role of artificial intelligence (AI) on professional librarians' service delivery in tertiary institutions of Yobe State.

The preliminary observation on the role of artificial intelligence (AI) on professional librarians' service delivery in tertiary institutions of Yobe State shows that, professional librarians' do not utilize AI effectively for reference services. They mostly share ideas when it comes to traditional methods of rendering services to users'. In other words, lack of mutual teamwork on artificial intelligence among professional librarians demoralized the effective utilization of AI in academic libraries. With the observed situational analysis, it seems the professional librarians' do not understand the role of artificial intelligence and teamwork on library service delivery and it is what led the researcher to embark on the study titled; the roles of artificial intelligence (AI) on professional librarians' service delivery in tertiary institutions of Yobe State.

Objectives of the Study

The objectives of the study were to determined:

i. the role of artificial intelligence to reference services in academic libraries in tertiary institutions of Yobe State

ii. the challenges militating against the adoption of artificial intelligence in academic libraries tertiary institutions of Yobe State

Literature Review

Study conducted by Wang and Xu (2024) on Application and Frontier Issues of Artificial Intelligence in Library and Information Science revealed that, content analysis was adopted for the study. Interview and secondary sources of information was used as instrument of the study. With the rapid development of information technology, AI has become an important force in driving technological progress, especially in the field of library and information science. The application of AI technology has not only improved work efficiency but also enhanced the intelligence and personalization of information services. The article analyzes topics of AI research in the field of library and information science in China and abroad through content analysis, including information retrieval and recommendation systems, smart library construction, information security and privacy protection, and open science and research data management. These research hotspots reflect the extensive application of AI technology in the field of library and information science and reflect the academic community's pursuit of improving the quality and efficiency of information services.

AI can improve search functionality by understanding user queries and providing search results that are more contextually relevant. AI can improve precision and recall when searching for information. AI can create concise summaries of long documents or articles, so users do

not have to read the whole thing. It can help create citations and bibliographies in different citation styles (such as APA and MLA). AI can extract and format information from sources, making it easier for users to access information. AI-powered content analysis tools can help users assess online information source quality, relevance and reliability. AI-driven services empower libraries to provide more efficient, personalized and easily accessible support to users. This improves the overall user experience and ensures that users have access to the information they need efficiently. However, AI-driven services must be balanced with human expertise to deliver a comprehensive, user-oriented reference experience (Hasan, Saifullah, & Hashmi, 2024).

Study conducted by Tella, Odunola and Lawal (2023) on cataloguing and classification in the era of artificial intelligence, benefits, and challenges from the perspective of cataloguing librarians in Oyo state, Nigeria. The study adopted a purely qualitative method using interviews for data collection. The target population was the cataloguing and classification librarians in academic libraries in Southwest Nigeria. The sample comprised 21 cataloguing and classification librarians working in the cataloguing and classification section of 10 university libraries in Southwest Nigeria. Four research questions were developed and answered. The findings revealed that cataloguing librarians are aware of the application of artificial intelligence for cataloguing and classification.

Artificial intelligence enhances automatic cataloguing and classification using optical character recognition, assists in undertaking stressful work that humans may struggle to do; completes tasks faster than a human being and enables libraries to provide accurate cataloguing and classification services with fewer errors; saving time and money, assisting libraries to create metadata for digital resources and allowing cataloguing to increase the speed of metadata generation. The challenges associated with the application of AI to cataloguing and classification practices from the perspective of cataloguing and classification librarians are funding, irregular power supply and inadequate skilled personnel to handle AI. Currently, there is no strategic plan in place for the implementation of AI for cataloguing and classification in academic libraries in Nigeria. Based on the findings, the study recommends that a strategic plan should be initiated in all academic libraries in Nigeria to allow the real-life practice of using AI for cataloguing and classification.

Research Methodology

Survey research design was used for the study. The target population for this study was sixty-four (64) professional librarians of the three tertiary institutions under study; the institutions are Federal University Gashua, Federal Polytechnic Damaturu and Federal College of Education (Technical) Potiskum. Total enumeration sampling technique was employed to ascertain the target respondents. According to Etikan, Musa and Alkassim (2016) total enumeration sampling is a technique where the entire population that meet the criteria (e.g. specific skill set, experience, etc.) are included in the research being conducted. Total enumeration Sampling is more commonly used where the number of cases being investigated is relatively small and manageable. Therefore, the target population of the study was 64 professional librarians'. The researcher used self-designed questionnaire as the instrument for collecting data. The data collected were analyzed using descriptive statistics of frequency counts, percentages and mean score.

Data Analysis and Interpretation

Sixty-four (64) copies of the questionnaire were administered to the respondents, sixty-one (61) copies were retrieved and found usable for analysis. This represents 95% of the response rate.

Table 1: The Role of Artificial Intelligence for Reference Services in Academic Libraries

S/N	Statement	SA	A	D	SD	Mean
1	AI improve search functionality by understanding user queries and providing search results that are more contextually relevant using Chatbot	2 (3%)	37 (61%)	17 (28%)	5 (8%)	2.59
2	AI can create concise summaries of long documents or articles, so users do not have to read the whole thing	4 (7%)	28 (46%)	21 (34%)	8 (13%)	2.45
3	AI can improve precision and recall when searching for information	11 (18%)	13 (21%)	26 (43%)	11 (18%)	2.39
4	AI can extract and format information from sources, making it easier for users to access information	8 (13%)	17 (28%)	29 (48%)	7 (11%)	2.42
5	AI-powered content analysis tools can help users assess online information source quality, relevance and reliability	2 (3%)	5 (8%)	37 (61%)	17 (28%)	1.86
6	It can provide alternative formats of texts (such as audio versions) and improve user interfaces for people with disabilities	6 (10%)	26 (43%)	19 (31%)	10 (16%)	2.45
7	AI-driven services empower libraries to provide more efficient, personalized and easily accessible support to users	16 (26%)	33 (54%)	8 (13%)	4 (7%)	3.0
	Total	**49**	**159**	**157**	**62**	**Grand Mean** 2.45
	Average	**7 (11%)**	**23 (38%)**	**22 (36%)**	**9 (15%)**	

Keys: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD)

Table 1: shows the role of artificial intelligence for reference services in academic libraries. The result shows that respondents agreed AI improve search functionality by understanding user queries and providing search results that are more contextually relevant using Chatbot (with mean score of 2.59), AI can create concise summaries of long documents or articles, so users do not have to read the whole thing (with a mean score of 2.45), it can provide alternative formats of texts (such as audio versions) and improve user interfaces for people with disabilities (with a mean score of 2.45) and AI-driven services empower libraries to provide more efficient, personalized and easily accessible support to users (with a mean score of 3.0). While respondents disagreed AI can improve precision and recall when searching for information (with a mean score of 2.39), AI can extract and format information from sources, making it easier for users to access information (with a mean score of 2.42) and AI-powered content analysis tools can help users assess online information source quality, relevance and reliability (with a mean score of 1.86). The result reports a grand mean of 2.45 indicating that respondents agreed artificial intelligence plays a vital role in reference services in academic libraries. The result therefore revealed that respondents agreed AI improve search functionality by understanding user queries and providing search results that are more contextually relevant using Chatbot, AI can create concise summaries of long documents or articles, so users do not have to read the whole thing, it can provide alternative formats of texts (such as audio versions) and improve user interfaces for people with disabilities and AI-driven

services empower libraries to provide more efficient, personalized and easily accessible support to users with the highest average of 23(38%).

Table 3: Challenges Militating against the Adoption of Artificial Intelligence in Academic Libraries

S/N	Statement	Not-a-challenge	Minor	Moderate	Severe	Mean
1	Lack of sufficient infrastructure to adopt AI in tertiary institution libraries	11 (18%)	11 (18%)	13 (21%)	26 (43%)	2.88
2	Erratic Power Supply	2 (3%)	3 (5%)	19 (31%)	37 (61%)	3.49
3	Lack of skills and the need for training before the adoption of AI in tertiary institution libraries	7 (11%)	9 (15%)	24 (39%)	21 (34%)	2.96
4	The issue of high privacy intrusion by Chatbots	18 (29%)	26 (43%)	11 (18%)	6 (10%)	2.08
5	Low awareness level by librarians on how to apply AI for their service needs	4 (7%)	9 (15%)	20 (32%)	28 (46%)	3.18
6	AI is perceived as a threat to the job of Librarians	10 (16%)	24 (39%)	19 (31%)	8 (13%)	2.40
7	Technical issues can affect the full adoption of AI in tertiary institution libraries	8 (13%)	29 (47%)	21 (34%)	3 (5%)	2.31
	Total	**60**	**111**	**127**	**129**	**Grand Mean** 2.75
	Average	**9 (15%)**	**16 (26%)**	**18 (29%)**	**18 (29%)**	

Table 3: shows the challenges militating against the adoption of artificial intelligence in academic libraries. The result shows that respondents revealed severe challenges as lack of sufficient infrastructure to adopt AI in tertiary institution libraries (with mean score of 2.88), erratic power supply (with mean score of 3.49) and low awareness level by librarians on how to apply AI for their service needs (with mean score of 3.18). While respondents' revealed moderate challenges with lack of skills and the need for training before the adoption of AI in tertiary institution libraries (with a mean score of 2.96). Respondents revealed minor challenges with The issue of high privacy intrusion by Chatbots (with a mean score of 2.08), AI is perceived as a threat to the job of Librarians (with a mean score of 2.40) and technical issues can affect the full adoption of AI in tertiary institution libraries (with a mean score of 3.31). The result reports a grand mean of 2.75 indicating severe challenges militating against the adoption of artificial intelligence in academic libraries. The result therefore revealed severe challenges as lack of sufficient infrastructure to adopt AI in tertiary institution libraries, erratic power supply and low awareness level by librarians on how to apply AI for their service needs with the highest total of 129 and average of 18(29%).

Discussion

Based on data analysis in research question one, result reports a grand mean of 2.45 indicating that respondents agreed artificial intelligence plays a vital role in reference services in academic libraries. However, the result therefore revealed that respondents agreed AI improve search functionality by understanding user queries and providing search results that are more contextually relevant using Chatbot, AI can create concise summaries of long documents or articles, so users do not have to read the whole thing, it can provide alternative formats of texts (such as audio versions) and improve user interfaces for people with disabilities and AI-driven services empower libraries to provide more efficient, personalized and easily accessible support to users.

The finding of this research question is in agreement with Hotsonyame (2023) and Hasan, Saifullah, & Hashmi (2024) in their separate study who agreed AI-driven virtual assistants and chatbots to provide instant support to users, answer reference inquiries, assist with circulation services, and offer personalized recommendations based on user preferences. The application of AI technology has not only improved work efficiency but also enhanced the intelligence and personalization of information services.

The result of the analysis for research question five shows that a grand mean of 2.75 indicating severe challenges militating against the adoption of artificial intelligence in academic libraries. However, lack of sufficient infrastructure to adopt AI in tertiary institution libraries, erratic power supply and low awareness level by librarians on how to apply AI for their service needs indicated severe challenges militating against the adoption of artificial intelligence in academic libraries.

The finding of this research question is in agreement with Bhui (2024) who reveals that, the implementation of AI in libraries offers numerous benefits, but it also comes with several challenges that need to be addressed for a successful integration. Here are some key challenges libraries may face when implementing AI: Cost considerations, privacy and data security, staff training and expertise, integration with existing systems, data quality and availability, user acceptance, maintenance and updates, limited resources, evaluation and assessment, vendor dependence and resistance to change.

Conclusion

The research findings revealed that respondents agreed artificial intelligence plays a vital role in reference services in academic libraries. It can be concluded that librarians understand the impact of artificial intelligence on reference service but fail to adopt it for service delivery. It can also be concluded that they lack knowledge about artificial intelligence for reference services in academic libraries. The result on extent of artificial intelligence utilization for cataloguing and classification of library resources in academic libraries could be concluded that, professional librarians require more training on how to utilize AI for cataloguing and classification so as to promote service delivery in the libraries. There should be sufficient infrastructure to adopt AI in tertiary institution libraries, erratic power supply and more awareness is need on how to apply AI for effective service delivery.

Recommendations

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

1. Professional librarians should be encouraged to use AI chatbots of digital libraries for reference services such as project Gutenberg, digital public library of America, library of congress, world digital library and many more chatbots for service delivery

2. Tertiary institutions' managements in partnership with their regulatory bodies should provide more sufficient infrastructure to adopt AI in tertiary institution libraries, erratic power supply and awareness to librarians on how to apply AI for their service needs.

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GLOBAL PERSPECTIVE OF HUMAN - AI COLLABORATION IN MODERN LIBRARIES: OPPORTUNITIES AND CHALLENGES

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Abstract

The integration of artificial intelligence (AI) into modern library services is transforming how information is organised, accessed, and delivered. Libraries are increasingly adopting AI-powered tools such as smart cataloguing systems, recommendation algorithms, virtual assistants, and plagiarism detection technologies to enhance efficiency, personalise services, and expand access to resources. These innovations enable librarians to automate routine tasks, provide 24/7 support through chatbots, and improve research assistance through advanced analytics and natural language processing. AI also offers opportunities for inclusivity by supporting assistive technologies such as text-to-speech and translation tools, which benefit diverse user groups and help address resource limitations in developing situations. However, the adoption of AI in libraries is not without significant challenges, such as data privacy, algorithmic bias, misinformation, and the lack of transparency in AI decision-making. Moreso, many libraries, particularly in resource-constrained environments struggle with inadequate infrastructure, insufficient funding, and a shortage of skilled staff capable of managing AI systems. Resistance to change, fears of job displacement, and gaps in digital literacy further complicate successful implementation. This study adopts an opinion review methodology to synthesise insights from scholarly literature, professional commentaries, and expert perspectives on human–AI collaboration in libraries. Guided by the Socio-Technical Systems (STS) framework, it examines opportunities, barriers, and strategies for sustainable integration. The findings highlight the need to position AI as a supportive tool that complements human expertise, ensuring that libraries remain ethical, inclusive, and dynamic knowledge hubs in the digital age.

Keywords: Challenges, Collaboration, Global perspective, Human – AI, Modern library services

Introduction

In today's rapidly changing world, technology advancements are producing significant changes in a wide range of enterprises and societies. This development demonstrates how several sectors of technology are coming together. Such AI technologies are being used in different countries for its benefits. China's AI industry is growing rapidly, maintaining over 20% annual growth. Its generative AI products are being deeply integrated into applications such as education, industrial design, content creation, etc. Likewise, United States as small proportion of businesses that currently use AI to produce goods or services, with higher usage in sectors like information technology. However, AI adoption is increasing. More so, in the UK public sector, use of generative AI is already widespread: about 45% of public service professionals are aware of generative AI usage in their area, and around 22% actively use such systems.

The Internet of Things (IoT), cloud computing, and advanced big data analytics are all merging with emerging fields such as artificial intelligence (AI), biotechnology, nanotechnology, ChatGPT, and quantum computing (Noble *et al*., 2022; de Vries & Kroukamp, 2023). These technologies complement and improve one another, resulting in unprecedented progress and new possibilities. Data is at the heart of this transformation, and it is widely regarded as a critical resource for making sound decisions and coming up with novel ideas. Our connected world of devices and sensors generates significant amounts of data (Sørensen & Lansing, 2023).

Advanced AI and analytics use this data to get insights, make strategic decisions, adjust services to individual needs, and spark new ideas in a variety of fields (Dou *et al*., 2023). This technological advancement is closely related to libraries' current purpose. It has transformed how knowledge is stored, created, accessed, and shared. It transforms the library's mission by leveraging cutting-edge digital tools, new technology, and the power of data-driven operations (Tella & Ajani, 2022). Libraries used to primarily protect static information, but they are now active participants in a shifting information ecosystem driven by AI and digital technologies (Oladokun *et al*., 2024). This shift repositions libraries as interactive hubs where technology, AI algorithms, and new data combine to meet the changing needs of users. This transforms libraries from stagnant locations to vibrant centres of knowledge. They are changing how they work and what services they provide to satisfy the demands of the digital age (Attaran, 2023).

One of the most significant changes in library services is the use of artificial intelligence and collaborative efforts. AI technologies are becoming more prevalent in libraries. They are utilised in applications like as automatic cataloguing and metadata generation, smart search systems, and virtual reference services, as in Automatic Cataloguing and Metadata Generation: AI systems can analyse the content of documents (text, images, audio, or video) and automatically generate descriptive metadata such as author, subject, keywords, and classification codes.

Smart Search Systems: AI-powered search engines in libraries and digital platforms go beyond keyword matching by using semantic search and machine learning ranking algorithms and Virtual Reference Services: AI-driven chatbots and virtual assistants support library patrons by answering common queries, guiding users in database navigation, and offering 24/7 assistance. AI-powered chatbots on library websites can answer basic questions, provide resources, and assist users around the clock. Smart recommendation algorithms consider user behavior and past borrowings, personalising resource discovery and increasing user satisfaction. AI-powered technologies for plagiarism detection, text summarisation, and

language translation are improving research help services in university libraries (Mukherjee & Patra, 2023).

Working with AI offers more benefits than simply helping things function more smoothly. It enables librarians to analyse usage trends and make data-driven decisions to improve their collections. It also makes it easier for consumers to access the collection via assistive technologies such as text-to-speech and speech-to-text. In addition, it facilitates outreach and community participation. AI also offers a lot of potential for libraries in developing countries, since it may help them overcome limited resources and meet the growing demand for high-quality information services (Akinola,2024).

However, these benefits are not without drawbacks. Algorithmic discrimination, misinformation, and a lack of transparency in AI decision-making are all ethical issues that may make people distrust library services (Bubinger & Dinneen, 2021). People are increasingly concerned about their privacy because AI systems frequently exploit personal information to provide customized services. Many libraries, particularly those with limited resources, struggle to adopt and manage AI systems due to a lack of appropriate technology, funding, and experienced staff (Akinola,2024).

Another major issue is that individuals are unwilling to adapt, policies are insufficient, and there is a risk of relying too heavily on automated systems that lack human oversight (Tella & Ajani, 2022). The purpose of this study is to examine the relevant literature and weigh the benefits and drawbacks of incorporating Human - AI into modern library services. It will also investigate new technologies that assist libraries in providing services, as well as the best ways for humans and artificial intelligence to collaborate to improve the quality, availability, and inclusiveness of library services in the twenty-first century. This study aims to provide library executives, lawmakers, and technology developers with relevant knowledge to help them use AI responsibly and effectively in libraries by examining both the positive and negative aspects of the technology.

Statement of Problem

The integration of artificial intelligence (AI) into modern library services presents a transformative opportunity to enhance efficiency, personalisation, and access to information. However, the collaboration between human librarians and AI technologies remains troubled with challenges that hinder its full potential. While AI can automate routine tasks such as cataloging, indexing, and recommendation services, many libraries struggle with the ethical implications, technical limitations, and resistance from staff who fear job displacement or lack the necessary digital skills (Hussain, 2023). These concerns create a gap between technological capability and practical implementation, leaving many institutions unable to fully leverage AI's benefits.

Moreover, the absence of strategic frameworks and adequate funding further complicates the adoption of human–AI collaboration in library settings, in the sense that the absence of strategic frameworks means libraries often lack clear policies, guidelines, and long-term plans for integrating AI into their services. Without such direction, AI adoption can become fragmented, inconsistent, or misaligned with institutional goals. Moreover, inadequate funding limits libraries' ability to invest in the necessary infrastructure, training, and skilled staff to support AI initiatives. This financial shortfall prevents experimentation, innovation, and sustainable implementation of human–AI collaboration.

Libraries must navigate issues such as data privacy, algorithmic bias, and the need for continuous training to ensure that AI complements rather than replaces human expertise

(Winster *et al.*, 2025). Without addressing these foundational challenges, the promise of AI-enhanced library services may remain unrealised, especially in developing contexts where infrastructure and policy support are limited. Therefore, it is essential to critically examine both the opportunities and barriers to human–AI collaboration to guide sustainable innovation in library science.

Objectives of the study

1. To identify the emerging technologies that are transforming modern library services.
2. To examine the role of human–AI collaboration in the application of these emerging technologies.
3. To identify the challenges associated with integrating human–AI collaboration into library service delivery.

Methodology

This study adopts an opinion review methodology to explore the perceptions, experiences, and expert insights surrounding human–AI collaboration in modern library services. The method involves systematically collecting and analyzing qualitative data from published opinion pieces, editorials, professional commentaries, and expert interviews in the fields of library science, information technology, and AI ethics. Sources include peer-reviewed journals, conference proceedings, blogs by library professionals, and institutional reports that reflect diverse viewpoints on the integration of AI into library workflows.

The review focuses on identifying recurring themes such as perceived benefits, ethical concerns, implementation barriers, and future prospects. Content analysis is employed to categorise opinions on how human librarians and AI systems can co-exist and complement each other. This methodology is particularly suitable for emerging topics where empirical data may be limited but expert discourse is rich and evolving. By synthesising these perspectives, the study aims to provide a grounded basis for guiding policy, training, and strategic planning in library innovation.

Emerging Technologies in Library Services

Emerging technologies are reshaping library services by enhancing operational efficiency, improving user engagement, and expanding access to resources. Among these technologies, artificial intelligence (AI) is playing a transformative role in modern library operations. AI-powered tools such as chatbots, machine learning algorithms, and natural language processing (NLP) enhance information retrieval, automate administrative processes, and improve user experiences (Akinyemi, 2023). Through AI-enabled virtual assistants, libraries can provide round-the-clock support, guiding patrons through research navigation and responding to queries in real time, thereby increasing engagement and resource utilisation. AI also advances digital cataloging and metadata management by automating classification and indexing, resulting in greater search accuracy and accessibility. Moreover, AI supports the development of personalised recommendation systems, which analyse user preferences and borrowing patterns to deliver tailored suggestions, optimise resource allocation, and increase user satisfaction (Satheesh et al., 2024). Additionally, AI-driven plagiarism detection and research integrity tools help uphold academic honesty and credibility. Nonetheless, as AI evolves, libraries must address ethical issues, data privacy concerns, and the need for continuous staff training to fully maximise its benefits.

Closely related, machine learning (ML) is revolutionizing library services by enabling predictive analytics, personalised recommendations, and streamlined cataloging. ML

algorithms can analyse user behavior, search histories, and borrowing patterns to suggest relevant resources, much like the recommendation systems used by streaming platforms (Alam, 2025). Libraries are using ML to automate metadata creation, classify books, and assign subject headings with minimal human intervention, significantly reducing processing time and labor demands. Furthermore, ML-powered chatbots and virtual assistants offer instant, accurate support by directing patrons to appropriate resources and answering their questions in real time.

Another notable development is the integration of robotics into library services. Robots are increasingly employed for tasks such as book retrieval, shelving, inventory management, and guiding patrons within library spaces. By automating these repetitive tasks, robotics free librarians to focus on higher-value responsibilities such as research assistance and information literacy training (Indraji, Satishkumar, & Dominic, 2024). Some robots, equipped with machine learning capabilities, can navigate library layouts, assist in locating materials, and even recommend resources based on user queries. Beyond physical tasks, robotic process automation (RPA) is being applied to administrative functions like cataloging, indexing, and interlibrary loan management (Lanre & Omeiza, 2020). Certain libraries have even implemented robotic book sorters that use barcode scanning and AI algorithms to efficiently organise and transport materials.

In addition, virtual reality (VR) is enhancing library services by creating immersive learning experiences and improving access to cultural heritage. Libraries employ VR for interactive education, including virtual tours, STEM-related simulations, and 3D visualisations (Lund & Wang, 2019). This technology also allows remote users to explore collections virtually and supports the preservation of rare materials through digital 3D renderings, which safeguard originals while increasing accessibility. However, challenges such as high implementation costs, technical expertise requirements, and limited user familiarity hinder broader adoption, necessitating investment in infrastructure and training.

Similarly, augmented reality (AR) overlays digital content onto the physical library environment, enhancing both learning and navigation. AR tools enable interactive resource discovery, immersive educational experiences, and improved accessibility. For instance, AR-assisted library maps can guide patrons to specific collections, study spaces, or facilities, while overlays provide additional information about rare or fragile materials without requiring direct handling (Agwuna, Ejezie, & Nwankwo, 2024). The technology's tracking mechanisms, which may include sensors and GPS, provide spatial awareness and location-based services. AR is accessible through handheld devices or wearable AR glasses, making it a flexible tool for enhancing user engagement.

Emerging technologies such as AI, ML, robotics, VR, AR, and blockchain each bring transformative potential to library services, offering enhanced efficiency, improved user engagement, and expanded access. However, successful integration requires addressing challenges related to infrastructure, staff training, ethical considerations, and resource allocation to fully realise the benefits of these emerging technologies.

Lastly, blockchain technology is emerging as a powerful tool for securing and managing library data. Its decentralised, tamper-proof structure ensures the integrity of digital records, facilitates copyright protection, and provides a transparent framework for managing digital rights (Fasola, Oyadeyi, & Iyoro, 2024). Blockchain supports long-term digital preservation by safeguarding data authenticity and permanence, ensuring that resources remain accessible for future generations. While its adoption faces challenges such as high costs, technical

complexity, and energy demands, blockchain holds significant potential for improving transparency, efficiency, and security in library operations.

The Role of Human–AI Collaboration in Library Services

The adoption of Artificial Intelligence (AI) in library services has transformed information management, reference assistance, and user engagement. AI-driven innovations have introduced new possibilities for organising information, enhancing user interaction, and improving operational efficiency. Existing literature provides insights into AI's functions and challenges in libraries. Hanson and Okorie (2024) examined how AI automates library operations, highlighting applications such as virtual assistants, automated cataloging, and content digitisation. They found that AI significantly improves metadata management, recommendation systems, and decision-making processes, while also raising ethical concerns related to data privacy and algorithmic bias. They emphasised the need for training programmes to equip library professionals with AI literacy so they can effectively address these challenges. AI-powered cataloging and classification systems, in particular, have streamlined resource organisation and retrieval.

Similarly, Tawalbeh (2024) explored AI applications in digital archives, noting that machine learning algorithms enhance metadata accuracy and retrieval efficiency. Rahman *et al.* (2025) also demonstrated the effectiveness of AI-assisted indexing and classification in processing large volumes of information with minimal human intervention. AI technologies, including automated metadata generation and predictive analytics, are now widely used for collection management (Gbadebo, 2024). AI-powered virtual assistants further enhance user interactions. For instance, Wagwu *et al*. (2024) found that AI chatbots in university libraries significantly reduce response times for routine inquiries, though their limitations in handling complex research queries underscore the continued importance of human librarians for knowledge-intensive tasks.

AI-driven recommendation systems are reshaping library operations by personalising content discovery and streamlining classification and tagging processes, thereby reducing the manual workload of librarians. These systems suggest relevant materials based on users' reading histories and search behaviors. According to Al-Aamri and Osman (2022), AI also integrates physical and digital collections, strengthens search capabilities, and connects video assistance with text-based materials. Chatbots are increasingly deployed to provide immediate answers, improving accessibility and reducing wait times (Yoon, Andrews, & Ward, 2021).

Virtual reference services powered by AI have made remote assistance more efficient. Technologies such as voice recognition and natural language processing enable seamless communication between users and library systems. Ankamah, Vidza, and Addo (2024) showed that AI-enhanced search engines deliver more relevant and context-sensitive results than traditional keyword searches. Nevertheless, concerns about data security and potential job displacement highlight the importance of establishing ethical frameworks and policies for AI implementation (Enakrire & Oladokun, 2024).

Suleiman, Akanbi, and Ibidunni (2024) found that AI can simplify research services, automate repetitive functions, and improve knowledge management in university libraries. However, barriers such as resistance to change, lack of technical expertise, and job security fears hinder adoption. Despite recognising AI's benefits, many librarians face challenges due to insufficient training and institutional support.

Focusing on African university libraries, Ankamah et al. (2024) analysed 616 Scopus datasets using tools such as MS Excel, Harzing's Publish or Perish, and VOSviewer. Their findings revealed a rise in AI-related publications, with Nigeria, India, China, and the United States leading in contributions. AI was identified as a valuable tool for cataloging, digital resource management, user engagement, predictive analytics, and broader library services. However, the study noted constraints like limited resources and inconsistent implementation, recommending policy action and increased research to improve AI use across Africa.

Subaveerapandiyan (2023) stressed the importance of librarians actively engaging in the development of AI solutions that align with library values and user needs, ensuring that AI applications enhance rather than replace library services. AI holds significant potential to make library services more accessible, efficient, and personalised. Yet, its successful integration depends on overcoming barriers such as user resistance, readiness gaps, and ethical issues. Akinola (2024) suggested that by collaborating with AI and positioning it as a supplement rather than a substitute for human expertise, libraries can maintain services that are both user-centered and ethically sound. Future research should examine the long-term implications of AI for library service delivery and explore strategies to strengthen librarians' AI competencies.

Challenges of Libraries and Librarians in Adapting to the emerging technologies

At the core of this transformation is the adoption of advanced technologies, including artificial intelligence (AI) and machine learning. Although these advancements offer the potential for improved service provision and enriched user experiences, they often function under differing standards, data structures, and communication protocols. Such variations present significant technical challenges in achieving seamless integration with current library systems and maintaining uniformity across a complex and varied technological landscape (Taherdoost *et al*., 2023).

Closely linked to technological integration is the issue of digital skills and competency gaps among library professionals. As AI systems increasingly automate routine tasks, librarians are expected to focus on more specialised, user-centered services. This evolution demands ongoing professional growth and the acquisition of new technical and analytical skills to meet the complex needs of modern information users (Sousa-Zomer, 2020).

Another pressing concern involves data privacy and security. AI-powered algorithms in intelligent libraries are often used to curate content, recommend resources, and personalise user interactions. While beneficial, these processes raise ethical questions regarding user data protection and the potential biases embedded in AI systems (Budhwar *et al*., 2023). Given that libraries store significant amounts of sensitive patron information, they become attractive targets for cyberattacks. Ensuring the safety of such data is crucial for maintaining patron trust and preserving the operational integrity of library systems (Bareh, 2022).

Equally important is the need for cultural adaptation and alignment with evolving user expectations. The implementation of intelligent library services often requires both staff and users to undergo a cultural shift, embracing new digital tools and processes. Successful adoption depends on fostering openness, adaptability, and a shared vision of how technology can enhance library services in the digital era (Gupta & Gupta, 2023).

In addition, libraries face the challenge of balancing traditional and modern roles. Singh (2024) highlights the role of Virtual Library Systems (VLS) in connecting traditional and digital services by integrating advanced technologies that offer seamless user experiences. These systems include functionalities such as online cataloging, digital resource management,

secure user authentication, and collaborative tools addressing contemporary demands while preserving the core values of library service.

However, funding and resource limitations remain a persistent constraint. Implementing and maintaining intelligent library systems requires significant investment in technology acquisition, infrastructure, and continuous staff training. Given that most libraries operate within limited financial means, effective resource allocation and careful fiscal planning are essential for sustainable innovation (Berman *et al*., 2021).

Resistance to change poses a major barrier to the adoption of AI in libraries. Such resistance often stems from fear of job displacement, insufficient technical skills, ethical concerns, and organisational inertia (Rahman *et al*., 2025). Lapointe and Rivard (2005) emphasise that fear of the unknown and perceived threats to job security are common drivers of resistance. In the context of libraries, this reluctance may also relate to the steep learning curve associated with mastering AI-driven systems (Hanson & Okorie, 2024). Addressing these concerns requires targeted change management strategies and inclusive training programmes to foster acceptance and engagement.

Theoretical Framework

Socio-Technical Systems (STS) Model

The Socio-Technical Systems (STS) Model offers a robust theoretical framework for exploring the integration of artificial intelligence into contemporary library services. Developed by researchers at the Tavistock Institute in the 1950s (Trist & Bamforth, 1951), the model conceptualises organisations as comprising two interdependent subsystems: the social subsystem, which encompasses people, roles, relationships, cultural values, and institutional practices, and the technical subsystem, which includes tools, workflows, and technological infrastructures. Central to the STS model is the principle of joint optimisation, which posits that sustainable effectiveness is achieved when both subsystems are designed and managed in harmony, rather than one being subordinated to the other (Emery & Trist, 1960).

In the context of human–AI collaboration in libraries, the STS framework emphasises the need to balance technological innovation with the preservation of human expertise, professional ethics, and user engagement. The social subsystem in this setting includes librarians, library users, community stakeholders, and the ethical standards of the profession. The technical subsystem comprises AI-powered cataloging tools, metadata generators, recommender systems, virtual reference assistants, and predictive analytics platforms. The interface between these two subsystems where human judgment interacts with algorithmic outputs becomes a critical zone for decision-making, service personalisation, and ethical oversight.

By adopting an STS perspective, libraries can approach AI as a means of augmentation rather than replacement, ensuring that implementation strategies are both technologically efficient and socially responsive. This approach helps safeguard the relational, ethical, and user-centered values that are fundamental to librarianship, while also enabling libraries to harness the scalability, precision, and analytical capabilities of AI. In doing so, the STS model provides a balanced and adaptable pathway for addressing the opportunities and challenges inherent in integrating AI into library services.

Conclusion

Introducing human-AI collaboration into current library services is a significant step towards reimagining what libraries do in the digital age. Libraries can now provide more personalised, efficient, and cutting-edge services thanks to new technologies such as artificial intelligence, big data analytics, cloud computing, and the Internet of Things. AI-powered solutions can improve cataloguing, automate repetitive tasks, improve smart search engine performance, and increase user involvement. However, for these technologies to perform well, individuals must be able to make judgements based on context, ethics, and a user-centred approach.

There are many opportunities, but there are also numerous challenges, such as infrastructure and financial issues, ethical concerns, data privacy issues, and the need for workers to continue receiving training. To make the best use of human skills and AI capabilities, you must prepare ahead of time, ensure everyone's inclusion, and build strong capacity. Finally, human-AI collaboration should not replace the human touch in librarianship. Instead, it should be a tool to empower information professionals while also improving the entire user experience.

Way forward

1. Libraries should strategically adopt and integrate emerging technologies; such as AI-driven cataloguing, smart search systems, cloud-based repositories, and IoT-enabled user tracking to modernise service delivery. Investment should also extend to developing robust digital infrastructure (e.g., high-speed internet, secure cloud storage, and scalable data systems), especially in developing countries, to ensure libraries can fully leverage these technologies for knowledge preservation, access, and dissemination.

2. AI should be positioned as a supportive tool rather than a replacement for librarians. Libraries should encourage hybrid models where AI handles repetitive or data-intensive tasks (metadata generation, trend analysis, virtual queries), while librarians focus on higher-order functions such as information literacy instruction, ethical curation, and user support. Regular training and upskilling programmes will empower librarians to work effectively alongside AI systems and maintain the human values central to librarianship. Libraries should harness AI's potential to improve accessibility and inclusiveness by deploying assistive technologies (e.g., speech-to-text, text-to-speech, and language translation tools). Personalised recommendation systems should be used to tailor user experiences while promoting equitable access to resources. Additionally, libraries should explore collaborative partnerships with technology developers, academic institutions, and governments to co-create innovative, user-centered solutions that expand knowledge access across diverse populations.

3. To address challenges such as algorithmic bias, misinformation, privacy concerns, and overreliance on automation, libraries must implement robust ethical guidelines and governance frameworks for AI use. This includes transparent AI decision-making processes, strong data protection policies, and mechanisms for human oversight to build user trust. Policymakers and library executives should collaborate to establish standards that balance technological innovation with ethical responsibility, ensuring AI integration aligns with core library values of equity, inclusivity, and intellectual freedom.

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EXAMINING THE EXTENSION SERVICES AND INFORMATION UTILIZATION IN AKWA IBOM STATE PUBLIC LIBRARY

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Abstract

The research investigated the impact of extension services and information utilization in the Akwa Ibom State Public Library. A descriptive survey research design was used. Three research questions guided the study. Literature was reviewed. The study population was 85 users of the public library. For the fact that the study population is small, the researchers adopted a census or total enumeration technique that enabled the adoption of the entire population as a sample of the study. The instrument used was a questionnaire titled "Examining Extension Services and Information Utilization Questionnaire" (EESIUQ). A four-point modified Likert rating scale, known as a checklist, was adopted, and the data collected was computed using Mean and Standard deviation to answer the research questions. The findings reveal that extension services influence information utilization. Additionally, the outreach programme has a significant influence on information utilisation, as community partnerships substantially enhance information access in public libraries, particularly through collaborations with other libraries. It was concluded that library management should focus on creating and implementing targeted digital inclusion literacy programs in public libraries to meet community demands and enhance information utilisation. It was recommended that the government should prioritize the development and implementation of targeted digital inclusion literacy programmes to address the specific needs of the community and enhance effective information utilization in the Akwa Ibom State Public Library.

Keywords: Extension services, information utilization, public library. Outreach initiative, community partnership.

Introduction

Libraries have long been recognized as primary institutions for information resource dissemination and usage. They are repositories of intellectual knowledge, providing access to a wide range of resources, including books, periodicals, newspapers, journals, digital media, and more. (Aina, 2019). Access to electronic information has become as important as physical access. They are crucial in developing information literacy, which enables users to effectively utilize technology, such as computer programs and internet services. (Burdi, 2023). Digital inclusion is bridging the gap into the online universe, ensuring that all members of society have an opportunity to be part of the wealth of internet information resources. The library's extension services program is a deliberate way of broadening the use of library resources and services beyond the library building. The extension service is a philosophy that encompasses activities and programs dedicated to bringing the educational, informational, and cultural services of the library into the community to foster community development. (Egwuonwu, Obiekwe, & Ekpehe, 2022).

Information utilization is the ability to apply information obtained from various sources for the purpose of making decisions, solving educational problems, and achieving specific objectives. (Inyang & Ekeng, 2023). The determinants that influence information utilization are the availability and accessibility of information resources, and the ability to apply them is a key aspect of the library model. The Information utilization in the context of library extension services is not just about accessing the resources but also empowering individuals to make meaningful use of the resources provided to them in the library to meet the patron demands.

A public library is a library that is accessible to all citizens, offering a diverse and comprehensive selection of materials and services to people of all ages. It was established in the 19th century to promote reading literacy, support education, and provide access to information, knowledge, and lifelong learning within the community. Libraries began to offer new services such as interlibrary loans, online catalogues, and access to digital archives, significantly enhancing their utility and reach (Udeme & Anaehobe, 2020).

Extension services in libraries represent a strategic approach to broadening the reach and impact of library resources and services beyond the confines of the physical library building. These services are designed to cater to the diverse needs of communities, particularly those of underserved and remote populations who may not have easy access to library facilities (Sarkar, 2019). The concept of extension services encompasses a variety of programs and initiatives aimed at extending the library's educational, informational, and cultural offerings to the broader community (Egwuonwu, et al., 2022).

The outreach program, according to Udeme & Anaehobe (2020), is a program designed to foster a stronger sense of community within a public library. In today's life, these kinds of partnerships not only enhance library services but also strengthen social connections within the community and foster a sense of belonging among its inhabitants. Library outreach indicates that the community needs building and technology development (Borgohain & Nath, 2020). Outreach programs are most effective and cost-efficient when they bring work to where people are, either in person or online.

Community partnership refers to collaborations between libraries and other organizations, groups, or stakeholders within the community to improve and expand library services, programs, and resources. It is responding to the specific needs and challenges of various groups within the community, libraries can further establish themselves as welcoming and inclusive community spaces. Community partnership and collaboration are at the heart of

making library services more relevant and effective. Ambali & Araba, (2020) inferred that community partnership aims to share resources and expertise to respond more effectively to community needs and provide more integrated support and services to the patron. On these premises, there is a need to examine extension service and information utilization in Akwa Ibom State public libraries for community usage.

Statement of the Problem

Traditional library services face several challenges in meeting the evolving needs of diverse communities. This outdated model is insufficient in the age of digital technology, when information is abundant and readily available on numerous websites. Perhaps the most fundamental challenge is that digital access within most neighbourhoods, especially for rural and disenfranchised populations, is limited due to a lack of reliable internet access and digital tools.

Libraries face budget constraints and fund availability, which hinder their ability to buy new collections, maintain buildings, and expand services in an effort to keep up with the growing demand of the public, as in streaming media and online stores, that offer convenient access to digital content by enhancing the potential of libraries to respond to the needs of marginalized groups and their particular demands, this study aimed to contribute to the general well-being of communities and learning outcomes in Akwa Ibom State Public Library.

Objectives of the Study

The general objective of this study was to investigate the influence of extension services on the information utilization in public libraries in Akwa Ibom State. Specifically, to:

1. Determine the influence of the digital inclusion literacy program on information utilization in the public library in Akwa Ibom State.

2. Ascertain the influence of the outreach program on information utilization in public libraries in Akwa Ibom State.

3. Find out the influence of community partnerships on information utilization in public libraries in Akwa Ibom State

Research Questions

The following research questions were formulated to guide the study.

1. What is the influence of the digital inclusion literacy programme on information utilization in the public library in Akwa Ibom State?

2. How does the outreach programme influence information utilization in public libraries in Akwa Ibom State?

3. To what extent do community partnerships influence information utilization in public libraries in Akwa Ibom State?

Literature Review

Extension services can be achieved through outreach programs, community partnerships, outreach programme, and the digital Literacy programme. It plays a vital role in promoting information utilization in public libraries. Borgohain and Nath (2020) define extension services as organized efforts that take library resources to people where they are, rather than waiting for them to come to the library.

Egwuonwu et al *(*2022) inferred that investments in technology infrastructure are crucial to support digital literacy and online service delivery, especially in areas with poor internet access and low electricity supply. Also, Udeme and Anaehobi (2020) observed that information utilization is the strategic use of knowledge to enhance productivity, learning, or decision-making. This means that people don't just passively consume information but apply it in a way that leads to real-world outcomes of their demand.

Nwoye et al. (2022) describe community partnership as a strategic alliance where parties work together to solve specific problems or advance common interests. This alliance involves sharing resources, expertise, and collaboration with other organizations for the community's benefit.

Ambali and Araba (2020) maintain that successful community partnerships require clear roles and responsibilities. Each partner must understand their contributions and how they fit into the overall strategy. This clarity helps prevent overlap and ensures that each partner's resources and efforts are used effectively.

Burdi (2023) describes a literacy programme as efforts to improve information literacy, which involves the ability to find, evaluate, and use information effectively. These programs help individuals become more skilled in navigating various sources of information, such as books, websites, and databases, and applying this knowledge in practical ways. As community-based educational activities, it is designed to promote lifelong learning and intellectual growth of the community

Methodology

The descriptive survey research design was adopted in the study. The study population was 85 users of the public library. For the fact that the study population is small, the researchers adopted a census or total enumeration technique that enabled the adoption of the entire population as a sample of the study. The instrument was titled "Examining Extension Services and Information Utilization Questionnaire" (EESIUQ), was used. A four-point Likert rating scale was the instrument for data collection. On Strongly agree (4 points), Agree (3 points), Disagree (2 points), Strongly Disagree (1 point), and data collected were analysed using Mean and standard deviation to answer the research questions. The result is presented in Table 1

Results and Discussions of Findings

Research Question One: What is the influence of the digital inclusion literacy programme on the information utilization in public libraries in Akwa Ibom state?

Table 1: Mean and Standard Deviation on the Influence of Digital Inclusion Literacy Programme on information utilization in public library (n=48)

S/N	Digital Inclusion Literacy Programme	SA	A	D	SD	$\bar{x}$	SD	Remark
1.	The library offers programmes to improve my reading and writing skills.	18	12	10	8	2.7	0.85	Agree
2.	The library's digital inclusion literacy programmes are relevant to my needs.	6	20	18	6	2.1	0.75	Agree
3.	I have benefited from the library's literacy programmes.	22	8	6	12	3.0	0.90	Agree
4.	The library's digital inclusion literacy programmes are well-structured and effective.	10	16	14	10	2.4	0.80	Agree
5.	The library's digital inclusion literacy programmes have improved my ability to access information.	25	5	5	15	2.9	0.95	Agree
	Grand Mean					**2.62**	**0.83**	**Agree**

The results presented in Table 1 reveal the responses to the influence of digital inclusion literacy programmes on information utilization in the Akwa Ibom State Public Library. The summary of the results in the Table indicates that respondents agree with the statements provided regarding the library's digital inclusion literacy programmes and information utilization in the Akwa Ibom State Public Library.

The grand mean score is 2.62 with a standard deviation of 0.83 based on the data presented in the Table. The implication of this finding shows that digital inclusion literacy programmes have a moderate influence on information utilization in the library. The finding agrees with (Burdi, 2023). who stated that digital inclusion is bridging the gap into the online universe, ensuring that all members of society have an opportunity to be part of the wealth of internet information resources

Research question two: How does the outreach programme influence information utilization in public libraries in Akwa Ibom State?

Table 2: Mean and Standard Deviation Scores on how Outreach Programme Influences information utilization in the library (n=48)

S/N	Outreach Programmes	SA	A	D	SD	$\bar{x}$	SD	Remark
1.	I am aware of the library's efforts to reach out to the community.	18	15	10	5	2.9	0.9	Agree
2.	The library's outreach efforts have helped me access information.	15	18	12	3	2.8	0.8	Agree
3.	The library's outreach efforts are relevant to my needs.	12	20	14	2	2.7	0.8	Agree
4.	I have benefited from the library's outreach efforts.	19	14	10	5	2.9	0.9	Agree
4.	I have benefited from the library's outreach efforts.	19	14	10	5	2.9	0.9	Agree
5.	The library's outreach efforts are well-publicised.	15	18	12	3	2.8	0.8	Agree
	Grand Mean					**2.76**	**0.86**	**Agree**

The results presented in Table 2 reveal the responses on how outreach programmes influence information utilization at the Akwa Ibom State Public Library. The result revealed no significant influence of outreach programmes on information utilization in the library. This contradicts Nwoye et al (2022) findings that outreach programmes, particularly mobile libraries and community workshops, significantly improved information access in rural areas.

The grand mean score is 2.76 with a standard deviation of 0.86, as presented in Table 2. The implication of the finding indicates that the outreach programme has a strong influence on information utilization

Research question three: What is the influence of community partnerships on the utilization of information in public libraries in Akwa Ibom State?

Table 3: Mean and Standard Deviation on the Influence of community partnerships on utilization of information in the library (n=48)

S/N	Community Partnership	SA	A	D	SD	$\bar{x}$	SD	Remark
1.	The library collaborates with local organizations to deliver enhanced services.	22	12	8	6	2.9	0.9	Agree
2.	Community organizations have helped the library improve its services.	19	15	10	4	2.8	0.8	Agree
3.	I have benefited from the library's partnerships with community organizations.	17	18	12	3	2.7	0.8	Agree
4.	The library's partnerships have increased my access to information.	24	10	8	6	2.9	0.9	Agree
5.	The library's partnerships are well-publicised.	20	14	10	4	2.8	0.8	Agree
	Grand Mean					**2.82**	**0.87**	**Agree**

The results presented in Table 3 reveal the responses to the influence of community partnerships on information utilization in the Akwa Ibom State Public Library. The summary of the results in Table 3 indicates moderate agreement, with a grand mean score is 2.82 and a standard deviation of 0.87. Based on the data presented in the Table, this shows that community partnerships have a strong influence on information utilization.

This agrees with Adaobi, et al *(*2022) who averred that community partnerships foster engagement with library resources. By hosting joint events or workshops, libraries increase opportunities for people to interact and utilize available information resources for effective utilization in public libraries.

Conclusion

Based on findings, the researchers concluded that extension services, comprising outreach programmes, community partnerships, and literacy programmes, have varying levels of influence on information utilization in Akwa Ibom State Public Library. As such, the management should prioritize the development and implementation of targeted literacy programmes, addressing the specific needs of the community, to enhance information utilization in the library.

Recommendations

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

1. The library management should prioritize the development and implementation of targeted digital inclusion literacy programmes, addressing the specific needs of the community, to enhance information utilization in the Akwa Ibom State Public Library.

2. The library management should re-evaluate and strengthen outreach programmes and community partnerships to ensure effective collaboration and engagement with the community, ultimately promoting information utilization and access.

3. The library management should provide training and awareness programs for library staff on the effective implementation and promotion of extension services, including outreach programmes, community partnerships, and literacy programmes.

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LEVERAGING OPEN EDUCATION AND LIBRARY INFORMATION RESOURCES FOR SUSTAINABLE DEVELOPMENT IN NIGERIA

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Abstract

In Nigeria, there are available human and materials resource yet, the country is faced with numerous challenges which manifest in poor political leadership, deprived economic growth, decayed infrastructural structures as well as deficit and inherited educational system that has been unable to produce desired results. This paper therefore views education as one of the most valuable assets that drives the country toward achieving the United Nations Sustainable Development Goals. The paper critically assesses open education as a system that removes the barriers to education opportunities, increase inclusiveness and access to quality learning opportunity, in addition, to how the Library provides the key information resources that supports and sustains open education aimed at promoting sustainable development. The paper concludes and recommends for investment in infrastructure development, regular training and retraining, formulation and implementation of wide-ranging educational policies among others.

Keyword: Open education, Library resource, Sustainable development, Leveraging, Nigeria

Introduction:

Open education and library information resources are among the most considered valuable tools that support individual and societal growth as well as provides pathway to achieving the United Nations' Sustainable Development Goals (SDG) in Nigeria. Iroka and Ndulaka (2018) maintain that Libraries of all kinds/types (library resources) are educational tool in developing individual and society at large and through their services contribution to education via encouraging reading habit, expanding learning process and development of critical thinking minds, thereby enabling the citizenry live responsibly.

It can be ascertained that globalisation and the enhanced technological development has influenced the trend in which library services support the equally changing drift in teaching and learning nowadays. In the same vein, Ayedele, Oke and Okere (nd) support this fact by highlighting the factors that characterised today's library services to include; no physical boundary, which indicate that the user of a digital library most often does not need to go to the library physically to access and use information resources; people from all over the world can gain access to the same information if an Internet connection is available, providing 24/7 access to library information resources and well as giving multiple access which allows same resources to be used simultaneously by several institutions and users at different locations thereby collaborating open education resources (OER).

According to Hewlett Foundation (2016), the purpose of OER is to remove unnecessary barriers to access knowledge and equalize access to education by making high quality educational materials and opportunities more broadly available. In other word, OER has

become a vital element of inclusive education that resides in the public domain under open license that allowed the access, usage, dissemination and adaptation of teaching and learning as well as providing research resources/materials at no cost. The University of Adelaide (2025) further highlights the reason for OER to include providing immediate and continued access, enhancement of regular course contents, adaptability, increase diversity and continual improvement of teaching and learning education.

Conceivably, Open education and library information resources should provide the synergy for enhancing education and the potential in making teaching and learning more flexible and accessible. Perhaps, the dual offers unrestricted and open access to educational materials, aiding inclusive education and digital equity, ICT literary, in addition to supporting reading programs, innovative research activities that could transform and position Nigeria towards achieving the sustainable development goals. Hence, through the of review of scholarly literature as a methodology, this paper therefore, assessed open education and library information resources provision for transformation and sustainable development in Nigeria.

Open Education Resources (OER)

The concept of Open Education Resources, though relatively new, yet has become widely acceptable mode of fostering education globally. It has also become part of the solution to limited access, rigid and high cost of education. So many narratives have been used by scholars to make known of this new phenomenon. According to Karitu and Kimani (2022) OER provides access through free web-based digital platforms for research, teaching, and learning. UNESCO (2016) maintain that OER are teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions.

Furthermore, IFLA (2019) recognizes OER as the teaching, learning and research materials made available for free, and with no or only limited restrictions, to support access to knowledge. Hence, OER provides freely available and openly licensed teaching, learning and research materials or resources that support education and these include resources like audio/videos, textbooks, e-courseware assessments, in addition to MIT OpenCourseWare, OpenLearn of The Open University, UNESCO and Commonwealth of Learning (COL) among others.

Historically, among the first universities to release OER were the University of Tubingen, Germany and The Open University, UK in 1999. Later in 2001, the Massachusetts Institute of Technology, USA released 32 courses with open licenses and established a model in terms of openness of university courseware (Butcher & Moore, 2015). Interestingly, OERs are stored in repositories that are accessed through websites and are categorized based on the type of resource and repository it contained (Allen & Seaman, 2016).

In Africa, studies have shown that embracing of OER have been implemented in certain regions. For instance, The National Open University of Nigeria (NOUN) established in 2001 has been at the forefront of OER adoption in the West African sub-region and Africa at large through its NOUN-OER unit which was established in August 2014 (NOUN, 2016). Besides, the unit later became operational in 2015 with the aim of promoting awareness of Open Educational Resources within NOUN and beyond, also establish an open licensing framework

within NOUN, contribute to global OER repositories, foster research and collaboration in OER, provide capacity building in OER practices, offer high-quality open licensed Massive Open Online Courses (MOOCs) globally, and collaborate with national and international organizations on OER initiatives (NOUN, 2016; NOUN, 2023).

According to NOUN (2016), publications released on the NOUN-OER website are available under the Attribution-ShareAlike 4.0 (CC-BY-SA 4.0) license. Users are required to adhere to the terms of use specified in the NOUN-OER repository, which are provided in various formats for easy accessibility: Open Document Text (ODT) for immediate reuse by students and academics outside NOUN, Portable Document Format (PDF) for computer use and self-printing, and ePub format for reading on tablets and smartphones (NOUN, 2016; Ekong, Essien, & George, 2024).

Open Education Resources and Sustainable Development in Nigeria

Unfortunately, Nigeria and most other Third World Countries universities have not been able to key into the mainstream of sustainable development goals in their curriculum and programmes. However, in a bit to attain the United Nations Sustainable Development Goals (SDG), these countries including Nigeria mapped out policies and strategies that would enhance improved educational provision to the citizenries. At different stages of educational support policies, the Federal Government of Nigeria through the Ministry of Education initiates some moves such as the National Open University of Nigeria (NOUN) as a single mode that promote and support Open and Distance Learning (ODL) educational system in Nigeria and also the Nigerian Higher Education Open Educational Resources (NgHEOER) initiative among others (FGN, 2017; Itasanmi, 2020; Olaiya & Umar, 2023).

According to the study by Ekong, Essien, & George, (2024), part of the Federal Government initiative to support inclusive education include the policy that mandated the higher institutions to create institutional repositories to disseminate teaching, learning, and research materials online, aimed at broadening access and supporting high-quality education and research as well as promoting the adoption of Open Educational Resources (OER). The policy led to the establishment of the Nigeria University System Open Education Resources (NUSOER) website (www.nusoer.org) which became mandatory for all universities nationwide to link to. The initiative is also aimed at achieving the United Nation Sustainable Development Goals-4, 9, 10 and 17, created provide Quality Education (SDG 4); Industry, Innovation and Infrastructure (SDG 9); Reduced Inequalities (SDG 10) and Partnership for the Goals (SDG 17) respectively (Commonwealth of Learning, 2017; NUC, 2017; Ojo et al., 2020; OER Policy, 2017; FGN, 2017)

Studies have shown that OERs can sustain sustainable development in Nigeria through:

1. **Providing and Promoting quality education (SDG 4):** The United Nations SDG 4 is designed to ensuring inclusiveness and equitability in quality education provision and equal access to education from primary to tertiary and the gaining of knowledge and/or skills that will promote the attainment of sustainable development goals. Aliyu (2023), maintain that once quality education is assured, the outcome of it is development goals.
2. **Improve Access:** Free teaching, learning and research materials that are beneficial to the rural and undeserved areas are freely and easily access and used via the OER platforms.

3. **As a tool for capacity building and teachers training mechanism:** OER prepares teachers to excel in teaching profession. It also supports teachers to develop a number of competencies and practices for the benefits of teaching and learning and train them to use and produce OER. Capacity building enhances professionalism, betterment of teaching and learning process and updating teachers' knowledge and skills about OER (Misra, 2012).
4. **Expanding access to education:** OERs support distance and lifelong learning as well as breaks down cost barriers through the provision of free access to learning materials. For instance the National Open University of Nigeria (NOUN) adopted OER platform in expanding access to education even to the rural areas no matter the distance and location.
5. **Enhancing the local content development:** Arguably, local content development can spur the growth and development of the society, therefore, educators may adapt OER to reflect education curriculum to improve relevance as well as teaching and learning outcomes For instance, it ensures the use of local people in executing certain assignment where they possess the required competence, knowledge and expertise in the area such as ICT, Oil and Gas, architecture, aviation, engineering, private security, broadcasting etc. (Okoro & Oko 2022).
6. **Promoting Lifelong Learning (LLL)**: Studies have shown that maintaining education for Sustainable Development (ESD) in African RCEs is being implemented within a perspective of lifelong learning by engaging all possible learning spaces, formal, non-formal and informal, from early childhood to adult life. For example, the TETFund-sponsored open educational resources repositories and National Open University of Nigeria (a mono mode lifelong learning institution) that engage in Adult basic education, Community/citizenship education programmes, Workplace learning, Media education programmes and other social learning systems and Informal ICT enhanced learning environments (Atiti, 2016; Okoro & Oko 2022)
7. **Bridging and reducing educational gap and inequality**: Education is one of the fundamental human rights as it is enshrined in the United Nations Charter of Universal Declaration of Human Rights in 1948. Regrettably, the attainment of this goal has become a big challenge especially among the developing countries. Therefore, the use OER has come to play a role in achieving Education for All (EFA) programme which is an international initiative launched in Jomtien, Thailand, in 1990. It is aimed at bring the benefits of education to "every citizen in every society which being carried out by a broad coalition of national governments, civil society groups, and development agencies such as UNESCO and the World Bank who are committed to achieving the six specific education goals (D'Antoni, 2013),
8. **Stimulating innovation through research and development:** Research, innovation and development are imperative to the achievement of Sustainable Development Goals. But, research ideas and knowledge that lead to innovation is among the leading unrealized opportunities in Nigeria, nevertheless, OER facilitates research, innovation and development via providing free access to research materials, harnessing pool of existing knowledge/studies and nurturing collaboration among scholars/researchers

Challenges of OERs in Nigeria

Despite the perceived supports OER offers towards education and sustainable development. OER is still being faced with a number of challenges namely:

1. **Ineffective national policy framework on OER:** Zaid and Alabi (2020) maintain that a framework that is directed towards the sustainability of OER needs to be developed. Based on this, the absence of formidable policy to support OER is glaring; on the other hand, some of the existing policies appear to be ineffective in their operations thereby creating a visible gap for OER creations and integrations.
2. **Inadequate infrastructural base:** The basic infrastructure such as electricity, computers, internet connectivity and other technological devices are either lacking or in short supply thereby impeding the operations, workability and use of OER. In fact, electricity/power supply in Nigeria has become a nightmare particularly to educational development over the years.
3. **Inadequate funding:** Despite the United Nations' directive of allocating at least 26% benchmark of a country's annual budget to education, funding for education in Nigeria has remain laughable. Disappointingly, Nigeria has never surpassed a 10% allocation in this sector (Odigwe & Owan, 2019). And this has affected the smooth running of OER in particular and education in general in Nigeria.
4. **Low level of digital literacy:** In Nigeria, like some other developing nations, the level of digital literacy among educators and students can impede their ability to effectively use of OERs and the contribution to OER repositories.
5. **Low Institutional support:** The present institutional structures that support faculty to create and share OER are still in clumsy situation nowadays.
6. **Lack of awareness and skills:** Most teachers and learners lack the essential skills to create and use OER effectively; on the other hand, some are not even aware of OERs existence and mode of its operations.
7. **Licensing Copyrights and Intellectual Property Rights Issues:** The Copyrights and Intellectual Property rights stipulate that work(s) belong to the creator(s), therefore, using or going through such work(s) requires careful consideration and understanding, hence in OER, set of codes and licenses always accompany the creation, use and dissemination of information resources. It is also concerned over quality assurance and strict adherence to copyrights. Violation of any of such rights often leads to litigation. There may also be legal issues for platforms hosting OER, which in some circumstances may be made liable for the actions of uploaders (IFLA, 2019)

Libraries/Librarians and support for OERs and SDGs

According to Kalu (2020) libraries play significant and positive role in fostering knowledge sharing culture and innovation initiatives which are considered principal elements of sustainable development. In other words, libraries have become the community hub for information dissemination, supporting lifelong learning and providing digital access. The roles of the library include:

1. **Providing community access point**: Libraries especially academic and public provides free access to information resources to the community of scholars and learners.
2. **Supporting research and literacy:** Libraries provide direct and precise information to researchers as well as encourages literacy by inculcating reading/study habit to the clients.

3. **Partnership and Collaboration:** This provides the opportunity for a library to work together with other libraries through information resources sharing, join project and expanding a wider audience that create enabling platform to aid education in achieving the sustainable development goals According to Dlamini, Mlambo and Msaenya (2021) collaboration provides the opportunity for experts and researchers to partner and fine-tune thoughts and develop strategies for multi-dimensional thinking towards achieving common and uniform practice.
4. **Encouraging OER creation and use:** Libraries contributes to educational enhancement by creating OERs platforms and giving access to users. Studies have shown that the libraries/Librarians are the best support structure for OER in providing educational information resources. According to Kolawole and Bulor (2023) librarians are professionals at locating and sharing materials, and their knowledge of OER is easily transferable. They argued that the future of OER will probably depend on how librarians encourage its uses.
5. **Ensuring OERs availability, accessibility and visibility:** The Library and Librarians work to support education world over. For instance, NOUN created a number of initiatives, platforms and structures aimed at making the institution's virtual library, e-courseware that contains OERs resources available and accessible at the NOUN website.
6. **Advising on copyright matters**: Issues concerning Copyrights and Intellectual Property Rights (IPR) in digital age have been on the increase. Hence the library strives not to be cut in the web of flawing copyrights law in the context of users' generated content. Based on this, the library is also saddled with the responsibility of creating awareness of copyrights laws to protect both users and authors.
7. The Library helps in the digital divide gap bridging through providing information access and capacity building and digital literacy

The Library, Open Education Resources and Sustainable Development

Evidences through the literatures indicate that OERs are becoming more and more vital in the educational sector nowadays. OERs have demonstrated their importance by providing free and equitable access to knowledge, supporting life-long and informal learning, and offering diversified sources of knowledge. According to the William and Flora Hewlett Foundation (2016), OERs include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge. Observably, while a lot of OERs exist, they may not easily be found by teachers, learners or researchers that may have need of them. Hence the Libraries and Librarians then come to bridge the gap by helping to make OERs a reality by making them available, accessible and use in addition to encouraging their production and dissemination.

Challenges of Library in sustaining OER and Sustainable Development Goals in Nigeria

Behind the huge supports provided by the library in achieving SDG lays some barriers restraining its full workability:

1. ***Absence of sustainable strategies***: According to Igbuzor (2011) there is the need to formulate and implement policies and strategies that will promote SDGs which is lacking in the library and other institutions designed to support SDGs
2. ***Incessant adherence to old library tradition:*** Challenges to adaptation are compounded by clinging to old traditions and resistance to change which limit the ability of the libraries to have a long-term planning that could boost SDGs. More importantly, the

rapid digital and technological advances have made some libraries' current equipment irrelevant casting a large carbon footprint on the globe (Khali, Malik & Mahmood 2020).

3. ***Lack of fund:*** Fund is a life wire of any organization, but libraries in Nigeria are continually starved of fund, making it difficult for them to function effectively. According to Ogunmodede, Adio, Aboyade, Ebijuwa, & Oyetola (2023) the 10% grant of the recurrent university budget for the university supposed to go to the development of the library. This is often appearing only on paper, but when it comes to practice, it is far from reality.
4. ***Lack of human capacity building:*** There are shortage and/or inadequate trained Librarians in digital expertise in most libraries in Nigeria
5. Non-inclusion of sustainable education in the curriculum of Library and Information Science school and in its operations and services provision by the Librarians in the field of librarianship.

Prospects for OERs and Library in supporting SDGs in Nigeria

Despite the challenges and loophole facing the SDGs, scholars have suggested some ways through which the Library and the operation of OERs can support speedy attainment of SDGs in Nigeria thus:

1. Enhanced Capacity building for teachers/researchers
2. Enriched strategic policy formulation and implementation
3. Constant monitoring and evaluation of educational development level
4. Increase Investment and development in overall educational infrastructure
5. Encouragement of Public-Private partnership (PPP) in education sector

Conclusion

Open education and libraries resources are foundational for transforming Nigeria's educational landscape to achieving sustainable development goals. While open education resources offer free and open use of materials adapted for teaching, learning, and research, the library forms formidable tool for supporting general educational attainment, growth and sustainable development through the dissemination of information resources to clients. Despite some perceived challenges, this study has shown that open education and library resources have given succor to the provision and promotion of quality education which have in turn support the United Nations' SDG 4 agenda in sustainable development in Nigeria among others.

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INFLUENCE OF UTILISATION OF SCHOOL LIBRARY RESOURCES ON LIFELONG LEARNING OF SECONDARY SCHOOL STUDENTS IN KARU LOCAL GOVERNMENT AREA, NASARAWA STATE

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Abstract

This paper examined the influence of utilisation of school library resources on lifelong learning of secondary school students in Karu Local Government Area, Nasarawa State. *The study was guided by three objectives and three corresponding research questions. Among the objectives of the study was to: determine the level of utilisation of school library resources for lifelong learning in the study areas. Descriptive survey research design was adopted for the study. The population of this study was 1,736 which comprised secondary school students in Karu Local Government Area, Nasarawa State as at May 2025. The sample size of this study was 315. This sample size was obtained by subjecting the target population of 1,736 to Krejcie and Morgan 1970 recommended table for determining sample size of a population. Questionnaire was used as instrument for data collection. Descriptive statistics, such as frequencies, means and standard deviation were used as method of data analysis. The findings of the study revealed among others that lack of a library policy, poor staffing practices, lack of adequate funding; poor ICT infrastructure, poor library facilities, lack of awareness, power outage, lack of current relevant books and lack of interest were seen as challenges that hinder the effective utilisation of school library resources for lifelong learning among students. The study concluded that information resources are in short supply in secondary school libraries in Karu Local Government Area of Nasarawa State. The secondary school students revealed that they use information resources such as textbooks, reports, Internet, dictionaries, radio, television, video tapes and folklore for their lifelong learning. The study recommended among others that the management of school libraries in Karu Local Government Area of Nasarawa State should encourage teachers and school librarians by giving them special incentives that will motivate them to create necessary awareness on the use of information resources to the students. This will change the students' impression as regards the use of the school libraries.*

Keywords: Lifelong Learning, School Library Resources, Utilisation

Introduction

Learning is popularly said to be beginning from cradle to the grave. The phenomenon called life is too broad to be completely learnt in a single phase. Before we were yet conscious of the world we live in, we were enrolled in crèches. From there, we built up till we reach the desired apex of educational attainment. Education definitely goes beyond the teaching and learning that takes place within the four walls of the classroom (Speranza, 2015). Learning as an exercise takes place in the presence of teachers. We learn also when we read books and when we interact with our immediate family and people around. Furthermore, we learn by listening and through technology.

Knowledge can be acquired and developed anywhere, learning is unavoidable and happens all the time (Kelly, 2016). Lifelong learning is about creating and maintaining a positive attitude towards learning, for both personal and professional development. Lau (2017) defined lifelong learning as the provision or use of both formal and informal learning opportunities throughout people's lives in order to foster the continuous development and improvement of knowledge and skills needed for employment and personal life fulfilment. Lifelong learning is an essential skill to be developed in every learner and to achieve this, the learner must be committed to learn the rapidly changing information and developments over time. This not only creates an environment of learning but also brings forth the abilities to teach others and contribute to a knowledgeable society.

Lifelong learning is a key for updating knowledge and skills, in that, people can learn if they are continuously in need of learning (Colakoglu, 2013). The school library can provide information resources needed for students to update their skills and knowledge to enable them become independent lifelong learners.

According to Oyedum and Babalola (2014), libraries from the modern conception of the world, are no passive repositories of artifacts and documents of the past, but are today seen as living agencies of intellectual enrichment. Consequently, a library is an organised collection of various sources of information resources made accessible to a defined community for reference or consultation providing physical or digital access to the user community. According to Agbo (2015), school libraries are libraries attached or found in the pre-tertiary institutions such as nursery, primary and secondary schools with the mission of contributing to the intellectual development of pupils and students. The school library is the part and parcel of the school where collection of books, periodicals, magazines, newspapers, films, computers, filmstrip, videotapes, recording of all types are kept for use by the students and teachers.

School libraries are established to provide educational information resources, which communicate experiences and ideas to students and make them easily and freely available through some service-oriented efforts to make them independent lifelong learners. School libraries deliver its services with the aid of different forms of information resources, and these resources are utilised in order to provide good learning environment for students and teachers so as to be able to achieve educational goals (Anete et al., 2020).

Library resources are library materials that preserve and disseminate information and knowledge for study and reference purpose(s). According to Ntui and Udah (2015), library resources are the raw materials that provide vital services in the teaching and learning process. Furthermore, Ntui and Udah (2015) asserted that library resources contain information in both print and non-print formats such as textbooks, journals, indexes, newspapers and magazines,

reports, Internet, video tapes, diskettes, and microforms. Library resources are the equipment, printed and non-printed materials meant to promote teaching and lifelong learning among both teachers and students.

It is important to note that the value of any library lies on the stock of necessary information and the effectiveness of utlisation of its available information resources to the community of users it serves. The term 'use' in this study involves getting information from the library mostly with the help or aid of a librarian which satisfies the information need of the user. Anyaoku (2015) stated that library use involves the consulting, reading and borrowing of library resources. The use of school library by students involves reading and borrowing of library information resources for their assignments, tests and examinations. The school libraries and its information resources are used by students to prepare for their next class period, examination, general education, information, competitions, recreation and inspiration (Chukwueke *et al.*, 2019).

These reasons, therefore, make it a thing of uttermost importance for the school libraries to judiciously select and procure the prescribed or recommended textbooks worth studying and other reading materials from different sources, technically process them by making use of a standard scheme of classification and cataloguing them to provide various access point bearing in mind the manner most convenient for the student and teachers. The dwindling economy due to a result of shortage of fund needed to acquire necessary library information resources to enhance effective use among students for their academic activities is invariably being affected thereby altering the importance attached to school librarianship. It is against this backdrop that this study will examine the utilisation of school library resources on lifelong learning among students in Karu Local Government Area, Nasarawa State.

Statement of the Problem

The school library is a repository of knowledge which aids in producing, nurturing and ultimate development of students that are well informed and are prepared for gainful lifelong education. The whole range of information resources are necessary to enable the school library fulfill its function which include, help children develop the habit of reading, increase the reading skills and learning habits of pupils (Ogugua et al., 2019). Library facilities contains information in both print and non-print formats such as textbooks, journals, indexes, newspapers and magazines, reports, Internet, video tapes and diskettes.

In an era of ubiquitous information dissemination, the need for lifelong learning cannot be overemphasised as it significantly enhances performance. Given the importance of lifelong learning in today's rapidly changing world, it is crucial to understand how school libraries can support this process among students. The researcher has observed challenges such as poor performance, inadequate research habits, and underdeveloped reading and learning skills among students in the Karu Local Government Area of Nasarawa State. Interestingly, while libraries, which should contribute to the intellectual development of these students, are present in the schools under study, it raises these questions: Are these libraries adequately resourced, and are the students' utilising these resources effectively? This study aims to explore these questions, seeking to understand the role of library resources in supporting lifelong learning among students.

In view of the above narration this study investigated the influence utilisation of school library resources on lifelong learning of secondary school students in Karu Local Government Area, Nasarawa State.

Objectives of the Study

The aim of this study is to investigate the influence of utilisation of school library resources on lifelong learning of secondary school students in Karu Local Government Area, Nasarawa State. To achieve this aim, the following objectives were set.

1. determine the level of utilisation of school library resources for lifelong learning in the study areas;
2. influence of utilisation of school library resources for lifelong learning in Karu Local Government Area, Nasarawa State;
3. investigate the challenges that hinder the effective utilisation of school library resources for lifelong learning among students in the study areas.

Literature Review

School Library Resources

The main aim of establishing school library is to provide free access to educational information to support learning and school curriculum. In other to achieve this purpose, the school library should provide access to varieties of information resources in different physical format. Salisu (2016) opined that the extent at which children and young people of today will be creative, informed and knowledgeable will be shape of the boundaries of the content of the library resources available within the schools. However, resources in school libraries are made up of print and non-printed media and they are the information carrier.

Egesimba *et al.* (2015) highlighted that the resources in school library usually come in varied forms; book, picture book with word picture book without words, non-book material which includes charts, slides, types, transparencies, models, magazines and newspapers. The variety of library resources that can be acquired and stocked in school library to enhance continuous education and lifelong learning. These include: fiction materials, reference materials, graphics, microfilm, vertical file material, audio-visual materials, serial publication and textbooks.

Purpose of Use of School Library Resources

According to Morris (2013), the school library exists to provide a range of learning opportunities for both large and small groups as well as individuals with a focus on intellectual content, information literacy and the learner. The school library provides avenue for independent work for the student. It enables them gain access to equipment, including computers, literacy books and a host of educational materials. The school library resources equip students with life- long learning skills and develop their imagination thus enabling them to live as responsible children and citizens. Adomi (2016) stressed the importance of adequate collections, which forms the basis for adequacy. School libraries help children to discover for themselves by independent study and learning how to ask questions. Ogugua et al. (2019) asserted that libraries provide resources for knowledge acquisition, recreation, personal interest, and interpersonal relationship for all categories of users.

Use of School Library Resources for Enhance Lifelong Learning

The extent to which the students use school library resources matters a lot in their academic learning and good pursuing. It is necessary to adequately utilise school library resources for improved academic performance. According to Asuata and Emasealu (2022), the

main purpose of modern school library is to support the educational aim of the school through support to ensure the goals are achieved.

Asuata and Emasealu (2022) argued further that proper use of the school library resources will train pupils to read fast without losing comprehension, this could be achieved if the subject teacher uses the school library effectively by taking the students to the library often and guiding them on how to read on their own. This will inculcate in the students the habit of going to the library and making adequate use of these library resources. However, the effective use of the library resources widens the students' knowledge in different subject areas thereby making them well informed and well-adjusted to learning generally.

Challenges confronting the use of School library resources

Lack of a library policy

A library policy serves as a roadmap for the management and operation of a school library. It defines the visions, role, aims, and objectives for the whole school community and is underpinned by good practice (Chukwueke, 2018). The policy should make reference to the library's status as a learning environment in the school and its role in raising achievement (Danladi & Yohanna, 2018).

However, the absence of a well-defined library policy can lead to inconsistencies and inefficiencies in the management of the library. Without written guidelines, it becomes difficult to have effective school library programs, which can negatively impact the learning outcomes of students. Furthermore, a lack of library policy can lead to financial implications for schools as there may be no dedicated funding to create or maintain libraries (Shonhe, 2019).

Poor staffing practices

Staffing is a critical component of any library's operations, and this is particularly true for school libraries. The presence of qualified and dedicated staff is essential for the effective functioning of a library. However, many school libraries face the challenge of poor staffing practices (Shonhe, 2019). In many cases, school libraries are run by staff who lack professional librarianship qualifications (Shonhe, 2019). This can lead to a number of issues, including irrelevant library collections, uncatalogued and poorly organized books, and a lack of information literacy among students. Furthermore, unprofessional staff may not be able to adequately market library services or raise awareness about the library's role in the school community.

Lack of adequate funding

Adequate funding is another critical factor for the successful operation of school libraries. However, many school libraries face the challenge of insufficient funding.

In a study conducted by the National Literacy Trust and Penguin Random House UK, it was revealed that four out of ten primary schools in the UK have no dedicated library budget (Robertson & McMenemy, 2020). In some cases, teachers are forced to buy reading materials for children with their own money due to the lack of funding. The lack of funding can lead to inadequate resources and poor staffing, hindering the development and maintenance of functional school libraries (Mojapelo, 2018). The issue of school library budget and funding needs to be addressed within the school library policy and the National school library policy within the Ministry of Education.

Methodology

The study adopted survey research design method. According to Oyedem *et al.* (2015), a survey study is used to assess a situation with a view to correcting inadequacies to effect improvement The population of this study was 1,736 which comprised secondary school students in Karu Local Government Area, Nasarawa State as at May 2025. These were secondary schools with school libraries. Questionnaire was used as instrument for data collection. The research instrument was validated by experts in the Department of Library and Information Science, Nasarawa State University, Keffi. Errors pointed out were effected by the researcher. Descriptive statistics involving statistical tool (SPSS) version 23 was used in analysing the data.

Results and Discussion of Findings

Table 1: Level of Utilisation of School library resources for Lifelong Learning among Secondary School Students

S/N	Statements	VO	O	NO	NU	FX	$\bar{x}$	STD	Decision
		4	3	2	1				
1	I use handbills for lifelong learning	37	36	91	105	543	2.01	0.48	Never used
2	I use newspapers for lifelong learning	85	7	73	104	611	2.27	0.23	Never used
3	I use magazines for lifelong learning	27	58	85	99	551	2.05	0.45	Never used
4	I use maps for lifelong learning	39	106	33	91	631	2.35	0.15	Never used
5	I use globes for lifelong learning	44	50	70	105	571	2.12	0.37	Never used
6	I use textbooks for lifelong learning	124	103	26	16	873	3.25	0.75	Very often
7	I use reports for lifelong learning	73	111	43	42	753	2.79	0.29	Very often
8	I use Internet for lifelong learning	100	99	49	21	816	3.03	0.53	Very often
9	I use video tapes for lifelong learning	91	98	43	37	781	2.90	0.40	Very often
10	I use folklore for lifelong learning	79	88	52	50	734	2.73	0.23	Very often
11	I use dictionaries for lifelong learning	88	120	47	14	820	3.05	0.55	Very often

12	I use radio for lifelong learning	98	110	47	14	830	3.09	0.59	Very often
13	I use television for lifelong learning	110	102	47	10	850	3.16	0.66	Very often
14	I use pamphlets for lifelong learning	13	33	101	122	475	1.77	0.73	Never used
15	I use brochures for lifelong learning	20	33	116	100	511	1.89	0.60	Never used
	Weighted mean						**2.42**		

Key: Very Often (VO), Often (O), Not Often (NO), Never Used (NU)

Table 1 showed the responses of secondary school students on their level of utilisation of school library resources for lifelong learning. Out of the fifteen items listed, eight items produced high mean scores, which were above the average bench mark of 2.50. These items include item 6: I use textbooks for lifelong learning ($\bar{x}$=3.25; SD=0.75), item 13: I use television for lifelong learning ($\bar{x}$=3.16; SD=0.66), item 12: I use radio for lifelong learning ($\bar{x}$=3.09; SD=0.59), item 11: I use dictionaries for lifelong learning ($\bar{x}$=3.05; SD=0.55), item 8: I use Internet for lifelong learning ($\bar{x}$=3.03; SD=0.53), item 9: I use video tapes for lifelong learning ($\bar{x}$=2.90; SD=0.40), item 7: I use reports for lifelong learning ($\bar{x}$=2.79; SD=0.29) and item 10: I use folklore for lifelong learning ($\bar{x}$=2.73; SD=0.23). On the other hand, seven items produced low mean scores which were below the average benchmark of 2.50. These items include item 4: I use maps for lifelong learning ($\bar{x}$=2.35; SD=0.15), item 2: I use newspapers for lifelong learning ($\bar{x}$=2.27; SD=0.23), item 5: I use globes for lifelong learning ($\bar{x}$=2.12; SD=0.37), item 3: I use magazines for lifelong learning ($\bar{x}$=2.05; SD=0.45), item 1: I use handbills for lifelong learning ($\bar{x}$=2.01; SD=0.48), item 15: I use brochures for lifelong learning ($\bar{x}$=1.77; SD=0.73) and item 14: I use pamphlets for lifelong learning ($\bar{x}$=1.77; SD=0.73).

The decision mean of 2.50 and above is considered as the level secondary school students utilised school library resources, while the mean of below 2.50 indicate the school library resources not utilised among secondary school students. Consequently, the weighted mean of 2.42 shows that the level secondary school students utilised school library resources for their lifelong learning is very low.

Table 2: Influence of Utilisation of School library resources for Lifelong Learning among Secondary School Students

S/N	Statements	SA	A	D	SD	N	FX	$\bar{x}$	STD	Decision
		4	**3**	**2**	**1**	**269**				
1	The use of school library resources has influenced the writing of my assignments	112	117	32	8	269	875	3.25	0.75	Agreed
2	The use of school library resources has influenced my preparation for tests	101	95	50	23	269	812	3.01	0.52	Agreed
3	The use of school library resources has influenced my preparation for examinations	116	142	7	4	269	908	3.38	0.88	Agreed
4	The use of school library resources has enabled me know more about what is happening in my environment	98	110	47	14	269	830	3.09	0.59	Agreed
5	The use of school library resources has influenced my knowledge on general education	95	99	54	21	269	806	2.99	0.49	Agreed
6	The use of school library resources has enabled me obtain current and up-to-date information	91	95	60	23	269	792	2.94	0.44	Agreed
7	The use of school library resources has influenced my competitions	80	99	59	31	269	766	2.85	0.35	Agreed
	Weighted mean							**3.07**		

Key: Strongly Agreed (SA), Agreed (A), Disagreed (D), Strongly Disagreed (SD)

Table 2 showed the responses of secondary school students on the influence of utilisation of school library resources for their lifelong learning. All the seven items listed produced high mean scores, which were above the average bench mark of 2.50. These items include item 3: The use of school library resources has influenced my preparation for examinations ($\bar{x}$=3.38; SD=0.88), item 1: The use of school library resources has influenced the writing of my assignments ($\bar{x}$=3.25; SD=0.75), item 4: The use of school library resources has enabled me know more about what is happening in my environment ($\bar{x}$=3.09; SD=0.59), item 2: The use of school library resources has influenced my preparation for tests ($\bar{x}$=3.01; SD=0.52), item 5: The use of school library resources has influenced my knowledge on general education ($\bar{x}$=2.99; SD=0.49), item 6: The use of school library resources has enabled me obtain current and up-to-date information ($\bar{x}$=2.94; SD=0.44) and item 7: The use of school library resources has influenced my competitions ($\bar{x}$=2.85; SD=0.35). The decision mean of 2.50 and

above is considered as the influence of school library information resource on secondary school students' lifelong learning and vice versa. Above all, the highest mean score was discovered from item 3 which is on the use of school library resources influenced the preparation for examinations. This is not far from the fact that secondary school students use school library resources more when it comes to examination particularly when it comes to West African Examinations Council (WAEC), National Examination Council (NECO). Consequently, the weighted mean of 3.07 shows that school library resources influence lifelong learning among secondary school students.

Table 3: Challenges that Hinder Effective Utilisation of School library resources for Lifelong Learning among Secondary School Students

S/N	Statements	SA	A	D	SD	N	FX	$\bar{x}$	STD	Decision
		4	**3**	**2**	**1**	**269**				
1	Lack of a library policy affects utilisation of school library resources for lifelong learning	92	104	56	17	269	809	3.02	0.51	Agreed
2	Poor staffing practices affects utilisation of school library resources for lifelong learning	73	80	67	49	269	715	2.66	0.16	Agreed
3	Lack of adequate funding	116	142	7	4	269	908	3.38	0.88	Agreed
4	Poor ICT infrastructure affects utilisation of school library resources for lifelong learning	101	95	50	23	269	812	3.01	0.52	Agreed
5	Poor library facilities affects utilisation of school library resources for lifelong learning	92	99	45	33	269	788	2.93	0.43	Agreed
6	Lack of awareness affects utilisation of school library resources for lifelong learning	84	99	57	29	269	776	2.88	0.38	Agreed
7	Restricted library hour affects utilisation of school library resources for lifelong learning	39	42	97	91	269	567	2.11	0.39	Disagreed
8	Power outage affects utilisation of school library resources for lifelong learning	112	130	19	8	269	884	3.29	0.79	Agreed
9	Lack of current relevant books affects utilisation of school library resources for lifelong learning	97	118	39	15	269	835	3.10	0.60	Agreed
10	Lack of interest affects utilisation of school library resources for lifelong learning	85	123	47	14	269	817	3.04	0.54	Agreed
	Weighted mean							**2.94**		

Key: Strongly Agreed (SA), Agreed (A), Disagreed (D), Strongly Disagreed (SD)

Table 3 showed the responses of secondary school students on the challenges that hinder their effective utilisation of school library resources for lifelong learning. Out of ten items listed, nine items produced high mean scores which were above the average bench mark

of 2.50. These items include item 3: Lack of adequate funding ($\bar{x}$=3.38; SD=0.88), item 8: Power outage affects utilisation of school library resources for lifelong learning ($\bar{x}$=3.29; SD=0.79), item 9: Lack of current relevant books affects utilisation of school library resources for lifelong learning ($\bar{x}$=3.10; SD=0.60), item 10: Lack of interest affects utilisation of school library resources for lifelong learning ($\bar{x}$=3.04; SD=0.54), item 1: Lack of a library policy affects utilisation of school library resources for lifelong learning ($\bar{x}$=3.01; SD=0.52), item 4: Poor ICT infrastructure affects utilisation of school library resources for lifelong learning ($\bar{x}$=3.01; SD=0.52), item 5: Poor library facilities affects utilisation of school library resources for lifelong learning ($\bar{x}$=2.93; SD=0.43), item 6: Lack of awareness affects utilisation of school library resources for lifelong learning ($\bar{x}$=2.88; SD=0.38) and item 2: Poor staffing practices affects utilisation of school library resources for lifelong learning ($\bar{x}$=2.66; SD=0.16). On the other hand, one item produced low mean score below the benchmark of 2.50 which is item 7: Restricted library hour affects utilisation of school library resources for lifelong learning ($\bar{x}$=2.11; SD=0.39). The nine items that have high mean scores show that these challenges mainly hinder the effective utilisation of school library resources for lifelong learning among secondary school students.

Discussion

As regards to research question 1, level of utilisation of school library resources for lifelong learning among secondary school students is moderate. The secondary school students revealed that they use textbooks, reports, Internet, dictionaries, radio, television, video tapes and folklore for lifelong learning. The use of these information resources provide good learning environment for students to achieve academic excellence. This is in line with the findings of Anete et al. (2020) that school libraries deliver its services with the aid of different forms of information resources, and these resources are utilised in order to provide good learning environment for students and teachers so as to be able to achieve educational goals.

In response to research question 2, the study showed that influence of utilisation of school library information resources for lifelong learning among secondary school students is high. The secondary school students indicated that use of school library resources has influenced the writing of assignments, preparation for tests, preparation for examinations, knowledge on general education, know more about what is happening in the environment, obtain current and up-to-date information and influenced their competitions. The use of library resources broaden the knowledge scope of students and make them read ahead towards preparing for tests and examinations. This is in line with the findings of Chukwueke *et al.* (2019) that the school libraries and its information resources are used by students to prepare for their next class period, examination, general education, information, competitions, recreation and inspiration.

The findings from research question three equally revealed that the respondents agreed with all the challenges that hinder the effective utilisation of school library resources for lifelong learning among students with the exception of item 7 as seen in Table 4.7. These challenges especially on poor library facilities, lack of current relevant books and lack of interest can affect students use of information resources in the library and invariably their lifelong learning. This is in line with the findings of Mojapelo (2018) that the lack of funding can lead to inadequate resources and poor staffing, hindering the development and maintenance of functional school libraries.

Conclusion

In conclusion, the findings of the study revealed that information resources are inadequate. The secondary school students revealed that they use information resources such as textbooks, reports, Internet, dictionaries, radio, television, video tapes and folklore for their lifelong learning. The study revealed that lack of a library policy, poor staffing practices, lack of adequate funding; poor ICT infrastructure, poor library facilities, lack of awareness, power outage, lack of current relevant books and lack of interest were challenges that hinder their effective utilisation of school library information resources for lifelong learning.

Recommendations

1. The management of school libraries in Karu Local Government Area of Nasarawa State should encourage teachers and school librarians by giving them special incentives that will motivate them to create necessary awareness on the use of information resources to the students. This will change the students' impression as regards the use of the school.

2. The management of school libraries in Karu Local Government Area of Nasarawa State should regularly organise workshops and seminars where students would be trained the use of modern method that promotes higher achievement and interest in use of information resources for lifelong learning.

3. The management of school libraries in Karu Local Government Area of Nasarawa State should put more priority on adequate provision of fund necessary and alternative source(s) of power supply by making provision for state of the art modern technologies that will facilitate learning activities to the students and also for the employment of qualified and trained teacher-librarian.

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DESIGNING FOR INCLUSION: LIBRARY PROGRAMMES AND SPACES FOR NEURODIVERSE USERS

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Abstract

Supporting neurodiverse individuals in library environments requires more than superficial or occasional accommodations; it necessitates a fundamental rethinking of what accessibility means within public and academic library contexts. Neurodivergence which includes conditions such as autism, attention-deficit/hyperactivity disorder (ADHD), dyslexia, and other neurological variations significantly influences how individuals interact with information, spaces, and services. Traditional, one-size-fits-all library programming and design often fail to meet these diverse cognitive and sensory needs. To ensure equitable access, libraries must adopt more flexible, user-centered strategies that accommodate different ways of thinking, learning, and engaging. These may include creating low-stimulation, quiet zones, offering programming in multiple formats, and designing intuitive, customizable digital interfaces. Moreover, involving neurodivergent individuals directly in the planning, evaluation, and delivery of library services helps ensure that those services are truly inclusive and responsive. While these changes aim to support neurodiverse users, the principles of inclusive design benefit the broader user community by enhancing accessibility and usability for all. Positioned as inclusive spaces for learning, connection, and civic engagement, libraries have both the opportunity and the responsibility to lead in fostering inclusive environments that prioritize empathy, equity, and meaningful participation across all user demographics.

Keywords: Inclusive Programming, Library Design, Neurodiversity, Sensory Processing, Universal Design

Introduction

Neurodiversity is a framework that acknowledges natural variations in human cognition, learning styles, and social interactions as valuable aspects of diversity rather than deficits. It encompasses a wide range of conditions, including autism spectrum disorder, ADHD, dyslexia, dyspraxia, Tourette's syndrome, and other neurological differences that influence how individuals perceive and process the world around them. Armstrong (2010) emphasises that this perspective moves away from deficit-based views, encouraging instead a strengths-focused understanding of these differences as alternative but equally valid ways of experiencing life. Within this paradigm, those whose cognitive processes deviate from conventional expectations are described as neurodivergent. Importantly, their brain function is not flawed but simply distinct.

Historically, libraries have invested considerable effort in addressing physical accessibility, often through features such as ramps, elevators, or assistive reading devices. These adjustments were largely driven by legislation, including the Americans with Disabilities Act in the United States and the Equality Act in the United Kingdom. However, Bittner (2021) argues that true accessibility must extend beyond physical infrastructure to include cognitive and sensory dimensions, particularly as many challenges faced by neurodivergent individuals remain invisible. For instance, brightly lit environments, constant background noise, and rigid behavioural norms may leave some users feeling overwhelmed or excluded.

Research highlights that sensory overload is a common barrier for neurodivergent patrons. Bodison (2015) observes that individuals with autism or heightened sensory sensitivities may experience distress when confronted with harsh lighting, cluttered layouts, or loud spaces. Similarly, some neurodivergent users struggle with unspoken social rules or expectations within public spaces, which can foster discomfort and social withdrawal. In response, libraries worldwide have begun reimagining their roles. Samuels (2021) documents examples such as McMaster University and UC Berkeley, both of which have introduced quiet areas, staff training on neurodiversity, and inclusive service models shaped by community feedback. The San Francisco Public Library has also developed sensory-friendly programmes, offered adaptive resources like fidget tools, and invested in staff training initiatives (SFPL, 2019). Meanwhile, the Brooklyn Public Library has pioneered outreach and education efforts through projects such as "MyLibraryNYC" (BPL, 2020).

Inclusive library spaces require more than physical redesign. Henry et al. (2014) suggest that thoughtful planning such as integrating calming spaces, using visual cues like maps or pictorial signage, and arranging seating to allow personal comfort can significantly enhance accessibility. Technology is also central to inclusion. Al-Azawei, Serenelli, and Lundqvist (2016) demonstrate how accessible websites, customisable interfaces, and assistive digital tools enable neurodivergent users to interact independently with library resources. Programmes tailored to varied learning needs further strengthen inclusivity. Harpin (2019) notes that initiatives such as sensory-friendly story hours, low-stimulation events, and flexible workshops create welcoming environments, while well-trained staff play a vital role in connecting with patrons more effectively.

As open, non-clinical community hubs, libraries are uniquely positioned to advance neurodiversity inclusion. Yet, achieving this goal requires more than surface-level modifications; it calls for a cultural transformation that views neurodiversity as an essential part of the human experience. By embedding this perspective into their environments, services,

and professional practices, libraries can move beyond accommodation to foster respect, empowerment, and genuine participation for neurodivergent individuals.

Understanding Neurodiversity in Library Contexts

Neurodiversity refers to the natural variations in how individuals think, learn, and interact with their surroundings. It encompasses a wide range of conditions, including autism spectrum disorder, attention-deficit/hyperactivity disorder (ADHD), dyslexia, Tourette syndrome, and other neurological differences. Rather than being viewed as deficits, these traits reflect diverse ways of experiencing and processing the world. For instance, Baron-Cohen (2017) explains that people on the autism spectrum may experience sensory challenges such as heightened sensitivity to sound, lighting, or spatial crowding, which can lead to sensory overload. In contrast, Kofler and colleagues (2019) observe that individuals with ADHD often encounter obstacles in sustaining attention, regulating impulses, and managing tasks, particularly within structured educational or institutional settings. Recognising these variations is central to fostering inclusive and compassionate communities.

Libraries, as shared public and educational spaces, have an important role to play in meeting the needs of neurodiverse populations. They are traditionally seen as gateways to knowledge and community engagement, yet their physical, sensory, and social environments can sometimes pose challenges. Hollins (2022) highlights that features such as clearly designated quiet areas may provide comfort for users who are prone to overstimulation. However, other design elements like disorganised layouts or unclear navigational signs may increase stress or disorientation. The American Library Association (2020) and the National Center on Universal Design for Learning (2019) have recommended frameworks that support more inclusive planning, ensuring that spaces and services are intentionally designed to accommodate users with varied ways of processing information.

Principles of Inclusive Library Design

One key aspect of inclusive design is acknowledging neurodiversity as a valuable dimension of human difference. People whose neurological functioning diverges from conventional norms often engage with spaces differently. Kapp (2020), for example, notes that individuals on the autism spectrum may react strongly to sensory stimuli, finding harsh lighting, persistent background noise, or crowded environments uncomfortable. Similarly, Gordon et al.(2021) point out that people with ADHD may find it difficult to focus in visually disordered or overly stimulating settings. Acknowledging these differences is not about reducing library services to the lowest common denominator; rather, it is about ensuring that flexibility and choice are built into the design.

Today's libraries are no longer limited to being silent reading rooms. They serve as multipurpose hubs that provide access to digital resources, collaborative spaces, and social interaction opportunities. While this multifunctionality enhances their social value, it can inadvertently create barriers for neurodivergent users if not carefully managed. For instance, although sensory-friendly areas may help reduce overstimulation, visually complex displays or crowded floorplans may still leave certain patrons disoriented or anxious. Because neurodiversity covers a broad spectrum of needs and experiences, there is no single formula for inclusivity. Cox et al. (2017) argue that adaptive strategies such as offering flexible seating, adjustable lighting, and quiet breakout areas to help make library environments more accessible to diverse users. Staff training also plays a vital role, as it equips librarians with the skills to recognise and respond to the needs of neurodivergent patrons in empathetic ways. In this sense,

inclusive design is both a physical and cultural practice: it ensures accessibility while reaffirming the library's role as a community institution committed to equity, belonging, and respect for difference.

Creating Sensory-Friendly Library Spaces

Traditional library environments can present challenges for individuals with sensory sensitivities, particularly those associated with autism, attention-deficit/hyperactivity disorder ADHD, or other sensory processing differences. Bright fluorescent lighting, background noise from ventilation systems, and visually crowded layouts often trigger discomfort or stress for these users. Anderson, Stephenson, and Carter (2019) highlight that such features may act as barriers to engagement, reducing the inclusivity of library spaces. To address this concern, libraries are increasingly incorporating sensory-friendly practices. For example, dimmable or warm-toned lighting, soundproofed areas, and the provision of noise-cancelling headphones have proven effective in creating a more welcoming atmosphere (Anderson et al., 2019). Additionally, the introduction of scheduled "quiet hours," where noise and lighting levels are intentionally moderated, has been particularly beneficial in fostering a calmer and more accessible environment.

Libraries that have embraced these measures are beginning to receive recognition from advocacy groups. The Toronto Public Library, for instance, has been praised for its commitment to creating sensory-friendly spaces, demonstrating the broader societal value of universal design principles (Toronto Public Library [TPL], 2022). Such practices not only enhance access for neurodivergent communities but also improve the overall experience for all patrons, reinforcing the importance of equity and inclusivity in public service delivery.

Improving Navigation and Layout for Neurodivergent Users

The organisation and layout of a library are equally significant in shaping user experience. Poorly arranged spaces can intensify feelings of disorientation or sensory overload, particularly among those with heightened sensitivities or spatial awareness difficulties. Scott (2009) stresses that clear and consistent design features, such as straightforward pathways, uncluttered shelving, and visible signage, can ease navigation and reduce stress. Complementing these structural adjustments with visual supports such as pictograms, maps, or illustrated instructions provides additional clarity and direction. Gould (2020) notes that these visual tools are especially helpful for individuals on the autism spectrum, who often rely more heavily on pictorial cues to interpret their surroundings.

Colour coding is another strategy that can aid with orientation and memory, while maintaining open and tidy shelving contributes to reducing visual clutter. Savio and D'Alonzo (2019) argue that such thoughtful design choices promote independence, minimise cognitive load, and communicate a clear message of belonging. By integrating these approaches, libraries can transform themselves into inclusive environments that affirm the diverse needs of all users while enhancing overall accessibility.

Inclusive Programming for Neurodivergent Users

1. **Supporting Young Neurodiverse Learners through Inclusive Storytime**

Contemporary libraries are becoming more intentional about meeting the developmental needs of children with diverse cognitive and sensory profiles. One practical example of this inclusivity is the implementation of sensory-friendly storytime sessions. Anderson and Emmons (2017) emphasise that such sessions are particularly beneficial for children on the autism spectrum or those with sensory processing challenges. Rather than replicating conventional formats, these programmes are carefully adapted to provide a predictable and calming atmosphere. Adjustments may include smaller audience sizes, visual cues for transitions, subdued lighting, and flexible seating that accommodates movement or stillness depending on a child's comfort level (Croland & Gavigan, 2018).

Sensory activities and opportunities for physical interaction are often integrated, ensuring that children remain engaged without being overwhelmed. Research has demonstrated that these inclusive practices enhance children's communication skills, foster problem-solving and thinking abilities, and promote both social interaction and emotional growth (Knapczyk & Rodes, 2018). In this way, libraries reinforce their commitment to equity by ensuring that literacy initiatives are not limited to neurotypical children but are accessible to all.

2. Expanding Inclusive Services for Neurodivergent Teens and Adults

Inclusivity within libraries extends beyond early childhood initiatives to embrace adolescents and adults with neurodivergent needs. Accardo and Malachowski (2017) argue that structured programmes, such as robotics or coding clubs, are particularly valuable for teenagers who thrive in environments that highlight logic, structure, and predictability. Alongside these, creative and calming pursuits like knitting groups or adult colouring sessions provide low-pressure opportunities for social engagement, allowing participants to interact in ways that respect their comfort zones. Regular book clubs, when supported with clear rules and structured dialogue, can similarly create environments of stability that encourage active participation.

The academic library sector has also responded to this demand for inclusivity. At institutions such as the University of Michigan, quiet study zones and alternative test-taking arrangements have been established to support students with different cognitive needs (Wong et al., 2020). These measures illustrate a growing recognition that learning environments must accommodate varied modes of engagement. By doing so, libraries create welcoming spaces in which neurodivergent individuals can participate fully and confidently.

3. Ensuring Accessibility in Online Library Services

As libraries increasingly transition to virtual platforms, accessibility in digital services has become a central consideration. One important strategy is the provision of recorded sessions with captions, enabling users to learn at their own pace. This flexibility is particularly useful for those who process information differently (CAST, 2018). Similarly, substituting live voice communication with text-based chat can reduce anxiety for users who find synchronous discussions overwhelming (Burgstahler, 2015). Providing detailed information in advance about online sessions including format, duration, and participation requirements—can also lessen uncertainty, thereby increasing confidence in participation.

These approaches reflect the core principles of Universal Design for Learning (UDL), which encourage multiple pathways for access, engagement, and expression (CAST, 2018). By integrating such strategies, libraries ensure that their online environments are as inclusive and supportive as their physical counterparts. This intentional design demonstrates an ongoing

commitment to equity in both physical and digital spaces, affirming the role of libraries as inclusive, community-oriented institutions.

4. Building Staff Awareness of Neurodiversity

Creating an inclusive library begins with equipping staff with both knowledge and sensitivity regarding the diverse needs of users. Neurodiversity, which refers to variations in neurological functioning such as autism, attention-deficit/hyperactivity disorder (ADHD), dyslexia, among others, highlights that these differences are not merely deficits but represent unique ways of perceiving and engaging with the world (Austin & Pisano, 2017). Recognising this perspective allows library professionals to move beyond deficit-based thinking and embrace strategies that respect different cognitive styles.

Staff development initiatives should therefore go beyond surface-level awareness. As Rao and Goh (2018), emphasised, training that incorporates hands-on practice and scenario-based learning better prepares frontline employees to respond to real-life challenges. For example, when a library user becomes distressed due to environmental triggers such as excessive lighting, loud background noise, or crowded spaces, staff who have undergone experiential training are more likely to respond calmly and effectively. Equally critical is the manner in which staff communicate. O'Rourke (2020) points out that simplifying language, avoiding jargon, and providing instructions in clear, direct terms can minimise misunderstandings and create smoother interactions. Attention to non-verbal behaviours is also necessary.

Robertson (2015) observes that cues such as restlessness, withdrawal, or visible discomfort often provide early indications of distress, and staff who can recognise these signals are better positioned to offer empathetic support. Professional learning, however, should not be viewed as a one-time intervention but as an ongoing process. As staff continually deepen their understanding of the lived realities of neurodiverse individuals, they become more adept at fostering environments that feel safe, respectful, and inclusive (Agran, 2020). In this way, libraries can evolve into spaces where diversity is not only accommodated but actively embraced.

Steps for Effective Implementation

Creating inclusive environments for neurodiverse users requires intentional design and structured strategies rather than ad hoc adjustments. Scholars suggest several practical measures that can guide this process.

1. Conduct an Environmental Audit

The first step is to systematically review the physical environment. Factors such as lighting, sound intensity, signage, and spatial arrangement should be assessed with neurodiversity-sensitive tools. As Kinnaird and Parson (2020) emphasise, this type of audit helps uncover hidden barriers—such as sensory overstimulation or spatial disorientation—that may hinder accessibility for neurodivergent individuals.

2. Build Partnerships with Experts and the Community

Libraries benefit significantly when they collaborate with occupational therapists, educators, and, importantly, neurodivergent individuals themselves. Higgins (2021) notes that such partnerships blend lived experiences with professional expertise, ensuring that initiatives are both practical and meaningful. By engaging directly with the community, libraries can avoid assumptions and design services that reflect authentic needs.

3. Pilot Interventions and Make Adjustments

Instead of attempting sweeping reforms at once, a more effective approach is to begin with small-scale modifications such as redesigning a program format or reconfiguring a reading space. Feedback from users should then be collected and analysed to inform further adjustments. Gould and colleagues (2020) highlight that iterative piloting not only reduces risks but also ensures that changes are data-driven and responsive to real user experiences.

4. Centre Neurodivergent Perspectives

A consistent theme in the literature is the importance of including neurodiverse voices in the design process. Beresford (2018) argues that planning without active participation from neurodivergent individuals often leads to solutions that overlook or misinterpret their needs. Co-design approaches, therefore, provide a foundation for developing more relevant and inclusive services.

5. Secure Long-Term Funding

No initiative is sustainable without adequate resources. Rumbold et al. (2020) stress the importance of securing grants and funding streams dedicated to accessibility and equity. Ongoing investment not only sustains existing programmes but also enables their expansion, ensuring that inclusivity is not treated as a temporary project but as an enduring institutional commitment.

Conclusion

Fostering genuine inclusion for neurodivergent users requires moving beyond minimal modifications towards a fundamental rethinking of what accessibility entails. Neurodivergence including conditions such as autism, ADHD, and dyslexia affects how individuals process information, interact socially, and navigate environments. Uniform solutions, therefore, are inadequate. Instead, libraries must adopt flexible approaches that account for diverse cognitive and sensory styles.

This might involve developing quiet, low-stimulation areas for users who require calm environments, offering alternative formats for programmes to cater to varied sensory or social preferences, and designing digital platforms that allow users to engage independently and comfortably. Involving neurodivergent individuals in both planning and evaluation ensures that services are not only inclusive in principle but also effective in practice. Importantly, designing with neurodiverse needs in mind extends benefits beyond this group. Inclusive design principles enhance accessibility for all users, creating more welcoming and adaptable spaces. As community-centred institutions, libraries are uniquely positioned to lead this cultural shift by fostering environments where every patron feels recognised, respected, and supported. In doing so, libraries strengthen their role as vital spaces for learning, social connection, and equitable participation.

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APPLICATION OF ARTIFICIAL INTELLIGENCE FOR LIBRARY SERVICES IN FEDERAL UNIVERSITY OF EDUCATION LIBRARY, ZARIA

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Abstract

The study investigated the application of Artificial Intelligence for library services at the Federal University of Education Library, Zaria. Two research questions were formulated, focusing on AI awareness and application within the library. A quantitative methodology with a survey research design was employed, targeting a sample of 82 professional librarians. Data collected were analysed descriptively. The findings indicated a high level of awareness of AI applications for research integrity, cataloguing, and resource discovery among library staff. However, knowledge of AI-driven automation, security, and multilingual accessibility remains limited. Additionally, AI-assisted cataloguing and digital preservation emerged as the most widely implemented applications, while research support, predictive analytics, and automated circulation systems remain underutilised due to infrastructural and technical constraints. It was concluded that although awareness of Artificial Intelligence (AI) in library services at the Federal University of Education Library, Zaria, is generally encouraging, particularly in areas like research integrity, cataloguing, and resource discovery, the overall application of AI remains limited. The study recommends that the library implement targeted training programmes for staff. Institutional support through workshops, AI literacy initiatives, and collaborations with technology experts can enhance awareness and ensure effective utilisation of AI applications. The library should also prioritise investment in the necessary infrastructure and technical resources. Additionally, partnerships with AI solution providers and academic institutions can help integrate these technologies more effectively.

Keywords: Applications, Artificial Intelligence (AI), Awareness, Library Services, Federal University of Education Library, Zaria

Introduction

The integration of Artificial Intelligence (AI) in academic libraries has emerged as a transformative development, reshaping how information is organised, accessed, and delivered. Globally, AI is enhancing library operations through automation, personalised services, and data-driven decision-making (Jayavadivel et al., 2024; Subaveerapandiyan, 2023). In the context of developing countries, however, the pace of adoption and practical utilisation of AI remains irregular, often influenced by institutional capacity, awareness levels, and infrastructural limitations (Barsha & Munshi, 2023; CLN, 2023).

In Nigeria, the academic library landscape is increasingly being influenced by technological innovations, including AI tools such as chatbots, predictive analytics, automated cataloguing, and machine translation (Aminu, 2024; Emumejakpor et al., 2024). Yet, the extent of awareness among library personnel and the actual deployment of these tools in library environments remain underexplored. As highlighted by Gupta and Gupta (2023), the successful implementation of AI requires not only technological readiness but also staff engagement and a shared understanding of its value and implications. This is particularly vital in university libraries, where service quality and user satisfaction hinge on timely access to information resources.

Despite AI's promising role in enhancing library efficiency and responsiveness, studies have reported gaps in adoption driven by a lack of technical expertise, insufficient training, and unclear implementation policies (Jha, 2023; Chhetri, 2023). Furthermore, concerns around ethics, data privacy, and algorithmic accountability continue to pose challenges to widespread and responsible adoption (Mannheimer et al., 2024; Murdoch, 2021).

Within this evolving discourse, understanding what AI technologies library staff are aware of, and identifying the current areas of application, becomes essential for framing the next steps in institutional digital transformation. At the Federal University of Education Library, Zaria, there is a growing interest in modernising library services through AI. However, empirical data are needed to assess both the awareness level of staff and the application of AI tools within the library setting.

Statement of the Problem

Ideally, academic libraries worldwide are leveraging Artificial Intelligence (AI) technologies to optimise operations, enhance user experience, and deliver personalised services. In developed countries, libraries have successfully adopted AI applications such as chatbots for reference services, automated cataloguing, AI-driven recommendation systems, and predictive analytics for collection development and user behaviour analysis (Jayavadivel et al., 2024; Jha, 2023; Mannheimer et al., 2024).

These technologies have significantly improved the speed, accuracy, and efficiency of library services, contributing to the broader digital transformation of educational institutions (Okunlaya, Syed Abdullah, & Alias, 2022; Subaveerapandiyan, 2023).
Similarly, several academic libraries in other parts of Nigeria, especially in the southern region, have begun integrating AI in core library functions. For instance, CLN (2023) reported noticeable awareness and utilisation of AI tools among librarians in Southern Nigerian universities, facilitated by staff training, better infrastructure, and institutional support. Aminu (2024) also highlighted various successful use cases of AI in Nigerian university libraries, including the use of AI-powered search engines, automated referencing tools, and speech-to-

text systems. These developments reflect an increasing recognition of AI as a catalyst for innovation and service improvement in the information sector.

However, this promising narrative is not uniformly reflected across all regions of Nigeria. There remains a significant empirical gap in studies focusing on the northern part of the country, particularly in institutions such as the Federal University of Education, Zaria. Despite the growing discourse on AI integration in libraries, little is known about the actual level of awareness among staff or the extent to which these technologies are being applied in this institution. The absence of such localised empirical data hampers strategic planning, capacity building, and policy formulation necessary for digital transformation in northern academic libraries (Emumejakpor et al., 2024; Masinde, Mugambi, & Wambiri, 2024). Therefore, this study seeks to bridge the knowledge gap by investigating the awareness and application of Artificial Intelligence in library services at the Federal University of Education Library, Zaria. Addressing this gap is crucial for understanding regional disparities, identifying challenges, and formulating appropriate interventions to foster AI-driven innovation in academic libraries across Nigeria.

Research Questions

The following research question guided the study:

1. What types of Artificial Intelligence technologies are library staff aware of for enhancing library operations at the Federal University of Education Library, Zaria?

2. What are the existing applications of Artificial Intelligence in library services at the Federal University of Education Library, Zaria?

Literature Review

Awareness of AI Tools in Library Operations

Artificial Intelligence (AI) has significantly transformed library operations, enabling more efficient services, improved resource management, and enhanced user experiences. The awareness and adoption of AI technologies in libraries vary, with several key AI-driven tools and applications playing crucial roles in modern library functions. Below is an expanded discussion of various AI types commonly recognized in library operations.

AI-powered chatbots have become essential tools in libraries for providing automated assistance to users. These chatbots, equipped with natural language processing (NLP), can answer frequently asked questions, guide users in finding resources, and offer 24/7 support. According to Aminu (2024), chatbots improve library accessibility by reducing response time and increasing engagement with library users. Advanced AI search engines enhance information retrieval by understanding user queries and providing relevant recommendations.

These systems leverage machine learning algorithms to analyze user behavior and suggest materials based on previous searches and preferences. Okunlaya et al. (2022) noted that AI-driven search and recommendation systems enhance information discovery, making it easier for users to locate relevant academic materials. OCR technology is widely used in libraries to convert printed and handwritten documents into digital formats. This facilitates better archiving, retrieval, and accessibility of library materials. Subaveerapandiyan (2023) highlighted the role of OCR in digitizing rare and historical documents, ensuring their preservation for future generations.

AI-driven tools help in cataloging new library acquisitions by automatically extracting metadata, classifying materials, and assigning keywords. This automation reduces human effort and enhances accuracy in library databases. Mannheimer et al. (2024) emphasised that AI in cataloging significantly reduces processing time and improves consistency in metadata records. Voice-activated assistants, powered by AI, are being integrated into library systems to support hands-free interactions. These tools help users navigate library catalogs, request information, and interact with digital resources through voice commands. Jha (2023) stated that speech recognition technology fosters inclusivity by aiding visually impaired users in accessing library resources more effectively. Libraries and academic institutions rely on AI-powered plagiarism detection software to ensure the originality of research and academic writings. These tools analyze vast amounts of digital content to identify instances of plagiarism, helping maintain academic integrity. Barsha and Munshi (2023) highlighted the growing importance of AI-driven plagiarism detection in academic libraries as a means to uphold ethical research standards.

AI-driven predictive analytics help libraries anticipate user needs and optimize resource allocation. By analyzing borrowing patterns and usage trends, libraries can make data-driven decisions regarding acquisitions and resource distribution. Mutia et al. (2024) found that predictive analytics enhances service efficiency by aligning resources with user demands. Libraries employ AI-based facial recognition systems for enhanced security and user authentication. These systems restrict unauthorized access and improve safety within library premises. Murdoch (2021) pointed out that while facial recognition enhances security, it also raises ethical concerns regarding user privacy.

Multilingual AI-powered translation tools enable libraries to cater to diverse linguistic groups. These tools help users access resources in different languages, breaking language barriers in research and learning. Li (2024) observed that AI-driven translation services promote inclusivity and global knowledge sharing in library environments. AI-powered robotic systems assist in automating book sorting, shelf management, and inventory tracking. These robots enhance efficiency by reducing manual workload and ensuring accurate organization of materials. Chhetri (2023) reported that AI-driven robotics significantly streamline library operations, allowing staff to focus on more user-centered services.

The integration of AI technologies in library operations offers numerous benefits, ranging from improved user experience to enhanced resource management. While the awareness and adoption of AI tools in libraries continue to grow, challenges such as ethical concerns, privacy issues, and infrastructure limitations must be addressed to maximize AI's potential in library services. The increasing reliance on AI in libraries underscores the need for continuous research, staff training, and policy development to ensure effective implementation.

Applications of Artificial Intelligence in Library Services

Artificial Intelligence (AI) is revolutionizing library services by automating processes, enhancing user experience, and improving efficiency. This section reviews related literature on various AI applications in libraries, highlighting their benefits and challenges.

AI facilitates the cataloging and classification of library resources by automating metadata generation and subject classification. According to Okunlaya, Syed Abdullah, and Alias (2022), AI-driven cataloging systems enhance accuracy and efficiency in resource organization, reducing the manual workload of librarians. Automated classification algorithms

analyze content, assign subject headings, and standardize metadata formats, ensuring consistency across library collections (Subaveerapandiyan, 2023). AI-powered chatbots provide instant reference assistance to library users, improving service availability.

Chhetri (2023) notes that AI-driven virtual assistants help users navigate digital collections, locate books, and answer frequently asked questions. These chatbots utilize natural language processing (NLP) to understand queries and deliver relevant responses, reducing wait times and enhancing user satisfaction (Mannheimer et al., 2024). AI-driven recommendation systems analyze user preferences, borrowing history, and reading patterns to suggest relevant books. As noted by Aminu (2024), machine learning algorithms enable libraries to provide tailored recommendations, increasing user engagement. Mutia et al. (2024) emphasize the role of AI in fostering lifelong learning by guiding users toward relevant academic and leisure reading materials.

Academic integrity is a key concern in libraries, and AI-driven plagiarism detection tools play a crucial role in maintaining originality in research. Jha (2023) highlights that AI-based systems analyze textual content, compare it with extensive databases, and identify similarities, ensuring academic honesty. These tools support researchers, educators, and students in producing original and credible work (Gupta & Gupta, 2023). Preserving digital archives and fragile historical documents is a significant challenge for libraries. AI-driven restoration tools enhance digital preservation efforts by repairing degraded texts and images.

Murdoch (2021) discusses the role of AI in restoring damaged manuscripts, improving readability, and extending the lifespan of valuable resources. AI models trained in pattern recognition reconstruct missing content and enhance digitized materials (Jayavadivel et al., 2024). AI-powered speech-to-text and text-to-speech technologies enhance accessibility for visually impaired and differently-abled users. Barsha and Munshi (2023) highlight that libraries employ AI tools to convert spoken words into text and vice versa, facilitating access to books, research papers, and other materials. AI-driven accessibility features ensure inclusivity and equal information access for all users (Molaudzi & Marutha, 2024).

AI-driven circulation and self-checkout systems streamline book lending and return processes, reducing human intervention. As noted by Li (2024), RFID technology and AI-powered kiosks enhance user autonomy, allowing patrons to borrow and return books independently. These systems improve efficiency, reduce queues, and optimize library staff workload (Masinde, Mugambi, & Wambiri, 2024). AI facilitates knowledge discovery by analyzing large datasets, identifying trends, and providing insights for researchers. Lund et al. (2020) discuss AI's role in enhancing research analytics by automating literature reviews, summarizing key findings, and detecting research gaps. AI-driven data mining tools assist scholars in exploring relevant academic resources efficiently (Nugroho, Anna, & Ismail, 2023).

Libraries utilize AI-powered predictive analytics to forecast user demand and optimize book acquisitions. Mannheimer et al. (2024) highlight that machine learning models analyze borrowing patterns, publication trends, and user preferences to inform acquisition decisions. This data-driven approach ensures that libraries invest in high-demand resources, improving collection relevance (Chhetri, 2023). Linguistic diversity in libraries necessitates AI-based translation tools to support multilingual users. Aminu (2024) emphasizes the role of AI in breaking language barriers by providing real-time translation for research materials and library catalogs. AI-driven translation services enable non-native speakers to access information in

their preferred language, fostering inclusivity and global knowledge exchange (Mutia et al., 2024).

The integration of AI in library services has transformed traditional operations, enhancing efficiency, accessibility, and user engagement. From automated cataloging and reference services to predictive analytics and digital preservation, AI applications continue to redefine modern libraries. However, challenges such as data privacy concerns, technological costs, and staff training need to be addressed to maximize AI's potential in library environments. Further empirical studies are essential to evaluate the long-term impact of AI adoption in library services.

Methodology

The research adopted a quantitative approach and a survey research design. The population consisted of all 82 librarians at the Federal University of Education, Zaria. A structured questionnaire served as the instrument for data collection. The instrument was reviewed by academic professionals and experienced librarians to ensure it accurately measured the intended constructs. Questionnaires were distributed both physically and electronically, which helped achieve a high response rate. Out of the 82 distributed copies, 62 were successfully retrieved, representing a response rate of 76%. the high response suggests a high interest in the subject been investigated. The collected data were analysed using descriptive statistics, specifically frequency counts and percentages. A benchmark of 50% and above was used to indicate a positive response, while any result below 50% was considered a negative response. This threshold is commonly employed in social science research, as it represents the point at which the majority of respondents indicate agreement or affirmation, thereby signifying a meaningful consensus (Nworgu, 2015; Kothari, 2014).

Result and discussions

Artificial Intelligence Awareness

The respondents were asked to indicate the types of Artificial Intelligence technologies they are aware of for enhancing library operations at the Federal University of Education Library, Zaria. A list of items was provided for them to tick as applicable. This is presented in table 1 as follow:

Table 1 Artificial Intelligence Awareness

S/NO.	Artificial Intelligence Awareness	Frequency	percentage
1	Chatbots for user assistance	33	53.23%
2	AI-powered search and recommendation systems	38	61.29%
3	Optical Character Recognition (OCR) for digitisation	42	67.74%
4	Automated cataloging and metadata generation	42	67.74%
5	Speech recognition and voice assistants	22	35.48%
6	AI-driven plagiarism detection tools	44	70.97%
7	Predictive analytics for user behavior and resource demand	18	29.03%
8	Facial recognition for access control and security	11	17.74%
9	AI-based language translation tools	12	19.35%
10	Robotics for book sorting and inventory management	15	24.19%

Source: Field Survey, 2025

The findings reveal that more than half of the respondents (50% and above) are aware of several Artificial Intelligence (AI) applications in library operations at the Federal University of Education Library, Zaria. Specifically, AI-driven plagiarism detection tools had

the highest awareness at 70.97%, followed by Optical Character Recognition (OCR) for digitisation and Automated cataloging and metadata generation, both at 67.74%. Awareness of AI-powered search and recommendation systems was 61.29%, while chatbots for user assistance were recognized by 53.23% of the respondents.

On the other hand, AI technologies with awareness levels below 50% indicate areas where knowledge and exposure remain limited. Speech recognition and voice assistants had an awareness level of 35.48%, while predictive analytics for user behaviour and resource demand was known by 29.03% of respondents. Awareness of AI-based language translation tools and robotics for book sorting and inventory management stood at 19.35% and 24.19%, respectively, whereas facial recognition for access control and security had the lowest awareness at 17.74%.

The findings indicate that there is a significant level of awareness of Artificial Intelligence (AI) applications among library staff at the Federal University of Education Library, Zaria. Notably, AI tools that enhance research integrity, cataloguing, and resource discovery, such as plagiarism detection tools, Optical Character Recognition (OCR), and automated cataloguing, received higher recognition.

This aligns with existing literature, which emphasises that libraries are increasingly leveraging AI-driven tools to improve metadata accuracy, streamline classification, and support research activities (Aminu, 2024; Chhetri, 2023). The awareness of AI-powered search and recommendation systems also suggests that library staff recognise the potential of AI in enhancing information retrieval and personalised services (Mutia et al., 2024). However, while chatbots were acknowledged by a fair number of respondents, their full potential in improving user engagement and virtual assistance remains an area that may require further exploration (Okunlaya, Syed Abdullah, & Alias, 2022).

On the other hand, the relatively low awareness of AI technologies related to automation, security, and multilingual accessibility suggests gaps in knowledge and exposure. Previous studies have noted that speech recognition, predictive analytics, and robotics are emerging trends in library operations but are not yet widely implemented in many institutions, particularly in developing countries (Masinde, Mugambi, & Wambiri, 2024; Li, 2024). The limited awareness of facial recognition for access control and security further highlights the slow adoption of AI-driven security measures in libraries, which could be attributed to ethical concerns, privacy issues, or lack of institutional policies (Molaudzi & Marutha, 2024).

The implications of these findings suggest that while some AI applications are becoming more integrated into library operations, others require targeted awareness campaigns, staff training, and institutional support for successful adoption. Additionally, libraries must address infrastructural, financial, and policy-related challenges to fully harness AI's potential in improving efficiency and service delivery. The findings reveal a high awareness of AI applications for research integrity, cataloguing, and resource discovery among library staff, while knowledge of AI-driven automation, security, and multilingual accessibility remains limited, highlighting the need for targeted training and institutional support.

Existing Applications of Artificial Intelligence in library services

The respondents were asked to indicate existing applications of Artificial Intelligence in library services at the Federal University of Education Library, Zaria. A list of items was provided for them to tick as applicable. This is presented in table 2 as follow:

Table 2 Existing Applications of Artificial Intelligence in library services

S/No.	Existing Applications of Artificial Intelligence in library services	Frequency	percentage
1	AI-assisted cataloguing and classification of resources	33	53.23
2	Automated reference services (e.g., AI chatbots)	18	29.03
3	Personalised book recommendations for users	22	35.48
4	AI-driven plagiarism detection for research support	12	19.35
5	Digital preservation using AI-enhanced restoration tools	22	35.48
6	Speech-to-text and text-to-speech conversion for accessibility	14	22.58
7	Automated circulation and self-checkout systems	11	17.74
8	AI-supported knowledge discovery and research analytics	15	24.19
9	Predictive analytics for book acquisitions and demand forecasting	17	27.42
10	AI-based translation services for multilingual users	19	30.65

Source: Field Survey, 2025

The findings reveal that AI-assisted cataloguing and classification of resources is the most widely applied Artificial Intelligence technology in library services at the Federal University of Education Library, Zaria, with 53.23% of respondents acknowledging its use. On the other hand, other AI applications recorded adoption rates below 50%, indicating areas with lower levels of implementation. Personalised book recommendations and digital preservation using AI-enhanced restoration tools were both acknowledged by 35.48% of respondents, while 30.65% recognised the use of AI-based translation services. Automated reference services (29.03%), predictive analytics for book acquisitions (27.42%), AI-supported knowledge discovery (24.19%), speech-to-text conversion (22.58%), AI-driven plagiarism detection (19.35%), and automated circulation systems (17.74%) reflect relatively limited adoption.

The findings indicate that AI-assisted cataloguing and classification of resources is the most widely implemented Artificial Intelligence technology in library services at the Federal University of Education Library, Zaria. This aligns with studies by Li (2024) and Nugroho, Anna, & Ismail (2023), which emphasise the role of AI in streamlining cataloguing processes, improving metadata accuracy, and enhancing information retrieval. Automated cataloguing not only reduces human error but also expedites the classification of large volumes of resources, thereby enhancing operational efficiency.

Similarly, the adoption of AI for digital preservation and personalised book recommendations reflects growing efforts to improve access to resources and deliver user-centred services, as supported by Mannheimer et al. (2024). These technologies contribute both to service personalisation and the long-term sustainability of digital collections. However, the study also reveals limited adoption of AI-driven research support tools, predictive analytics, automated reference services, and circulation systems, which corresponds with the challenges identified by Chhetri (2023) and Subaveerapandiyan (2023) notably, inadequate technical expertise, infrastructure limitations, and funding constraints.

Moreover, the minimal use of AI-supported knowledge discovery and AI-based translation services suggests that advanced capabilities such as multilingual accessibility and analytical research tools are yet to be fully harnessed. It's interesting that the library staff are aware of AI tools for plagiarism checks but have not adopted its use in the library. Could it be because the library staff are not carrying out research support services even though they are involved in research? If they were carrying out research support services, they would most likely use the awareness of AI plagiarism detection tools to assist students and researchers with plagiarism checks. These gaps underscore the urgent need for capacity building, targeted investments, and strategic policy development to support broader and more effective AI adoption in library services.

Conclusion

The study concludes that while the awareness of Artificial Intelligence (AI) in library services at the Federal University of Education Library, Zaria, is generally encouraging, particularly in areas like research integrity, cataloging, and resource discovery, the overall application of AI remains limited. Key technologies such as AI-assisted cataloging and digital preservation are being implemented, yet crucial areas like predictive analytics, research support, multilingual access, and automated circulation systems are underutilized due to infrastructural and technical constraints.

Recommendations

1. The library should implement targeted training programs for staff. Institutional support through workshops, AI literacy initiatives, and collaborations with technology experts can enhance awareness and ensure effective utilization of AI applications.

2. The library should introduce services and use AI tools for efficiency. Additionally, partnerships with AI solution providers and academic institutions can help integrate these technologies more effectively.

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UTILIZATION OF ARTIFICIAL INTELLIGENCE IN LIBRARY AND INFORMATION SERVICES FOR EFFECTIVE TEACHING, LEARNING AND RESEARCH IN ACADEMIC LIBRARIES

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Abstract

Artificial Intelligence (AI) is revolutionizing Library and Information Services (LIS), offering transformative potential for effective teaching, learning, and research. This abstract explores the integration of AI technologies in LIS, highlighting their impact on the academic ecosystem. AI-driven tools such as intelligent search engines, chatbots, recommendation systems, and automated indexing are enhancing the discoverability and accessibility of educational and scholarly resources. These tools support personalized learning experiences, streamline administrative tasks, and enable data-driven decision-making for educators and researchers. Libraries are evolving into smart learning environments, where AI facilitates real-time assistance, predictive analytics for user behavior, and advanced content curation. Furthermore, AI empowers research through semantic search capabilities, citation analysis, and automated summarization of large datasets. The paper also addresses challenges such as data privacy, ethical concerns, and the need for digital literacy among library professionals. It concludes that there is need for institutional librarians to engage their institutional management to intensify strategies of building collaboration and partnerships with policy makers, philanthropists, stakeholders, non-governmental organisations and international organisations to source for grants for integration and implementation of Artificial Intelligence technology in Academic Libraries for fostering innovation, improving users' engagement and significantly contributing to the advancement of educational and scholarly communication.

Keywords: Academic Libraries, Artificial Intelligence, Information Services, Library, Teaching, Learning and Research

Introduction

In the rapidly evolving digital age, artificial intelligence (AI) has emerged as a transformative force across various sectors, including education, research, and library and information services. Libraries, once solely custodians of physical materials, are now at the forefront of digital transformation, leveraging AI technologies to enhance information retrieval, streamline knowledge organization, and support academic excellence. AI-driven systems such as intelligent search engines, conversational chatbots, recommendation algorithms, automated indexing and classification tools, and research analytics platforms are fundamentally reshaping how information is accessed, managed, and utilized in academic environments (Wu, 2015).

The integration of AI in library and information services directly contributes to more effective teaching, learning, and research processes. Intelligent search engines utilize Natural Language Processing (NLP) and machine learning to improve search accuracy and relevance, enabling students and researchers to access critical resources more efficiently (Bawack *et al.*, 2021). Chatbots, equipped with AI capabilities, provide 24/7 user assistance, guiding users through complex databases and library catalogs, thus enhancing user experience and reducing the workload on library personnel (Lau *et al.*, 2019). Furthermore, AI-powered recommendation systems personalize content delivery, suggesting books, articles, and resources based on user behavior and preferences, thereby fostering deeper engagement with scholarly materials (Beel *et al.*, 2016).

Automated indexing and classification systems have revolutionized the way academic resources are organized and retrieved. These systems not only accelerate metadata generation but also improve the accuracy and consistency of resource categorization, enhancing discoverability across digital libraries (Singh & Kumar, 2020). In the context of scholarly resources and research analytics, AI tools offer sophisticated data mining and visualization capabilities, supporting bibliometric analysis, citation tracking, and trend identification. This enables researchers and educators to make data-driven decisions, monitor research impact, and identify emerging fields of inquiry (Tsai *et al.*, 2020).

The implementation of AI technologies in library and information services aligns with the increasing demand for digital literacy, open access, and personalized learning experiences. As educational institutions transition toward smart learning environments, libraries play a critical role in ensuring seamless access to information and promoting a culture of inquiry and innovation (Bawock *et al.*, 2021). Therefore, the adoption and integration of Artificial Intelligence (AI) in libraries will allow for better information processing, and at the same time, better information search that will excite both library personnel and users since there will be easier and faster access to information for teaching, learning and research.

Artificial Intelligence (AI) refers to the branch of computer science that is concerned with building systems capable of performing tasks that normally require human intelligence. These tasks include reasoning, learning from experience, understanding natural language, recognizing patterns, and making decisions (Russell & Norvig, 2021). AI is categorized into two broad types: narrow AI, which is designed for a specific task (e.g., voice assistants like Siri or image recognition software), and general AI, which aims to replicate the broad cognitive abilities of a human being. AI systems typically rely on algorithms and models that enable machines to simulate aspects of human intelligence. A key component of modern AI is machine learning (ML), a subset of AI that focuses on developing algorithms that allow computers to

learn from and make predictions or decisions based on data (Goodfellow, Bengio, & Courville, 2016). Deep learning, a specialized form of ML using neural networks with many layers, has advanced capabilities in fields like speech recognition and computer vision.

Library and Information Services (LIS) refer to the organized provision of access to information resources, including printed materials, digital content, and various information tools and technologies. These services are essential for facilitating learning, teaching, research, and informed decision-making in diverse environments such as academic institutions, public libraries, corporate organizations, and government agencies IFLA, 2019). According to the International Federation of Library Associations and Institutions (IFLA), Library and Information Services (LIS) are "designed to meet the information, educational, cultural, and recreational needs of users by ensuring equitable access to knowledge" (IFLA, 2019). Library and Information Services (LIS) play a critical role in ensuring equitable access to knowledge, supporting lifelong learning, promoting digital inclusion, and fostering innovation. They empower communities, support research and scholarship, and uphold the freedom of information.

Academic libraries are specialised information institutions that support the teaching, learning and research activities of higher educational institutions such as universities, polytechnics, colleges and research institutes. Their primary role is to collect, organise, preserve, and provide access to scholarly information resources in various formats, being it print, digital, and multimedia, to meet the academic and research needs of students, faculties and researchers (Afolabi, 2020). The academic libraries play a critical role in formation literacy instruction, helping users to develop skills to locate, evaluate, and ethically use information (Owusu-Ansah, 2015). To remain relevant, the academic libraries must continually innovate by integrating digital tools, promoting open access initiatives, and aligning their services with institutional goals (Tenopir, et al., 2019).

Thus, the study Utilisation of Artificial Intelligence (AI) in Library and Information Services for Effective Teaching, Learning, and Research in Academic Libraries required to reveal how Artifice Intelligence has become a transformative force in modern library operations, services and academic support, the integration of Artificial Intelligence (AI) into library and information services enhances the teaching and learning process by enabling personalised learning experiences, facilitating quick access to relevant academic resources, and also assist librarians in managing large volumes of data, automating repetitive tasks, and making data-driven decision that improve service delivery and resource utilisation.

Literature Review

The concept of Artificial Intelligence (AI) in the context of library and information services refers to a variety of technologies such as machine learning, natural language proceeding, robotics, chatbots, recommendation systems, big data analytics and smart systems that can enhance library operations and support user services. Marasinghe, Gunasekera & Senevirathne (2024) conducted a systematic literature review and found that AI's potential in libraries includes automating many operations and providing 24/7 assistance to library users. In the academic library context, AI offers possibilities to enhance teaching, learning and research by improving resource discovery, customizing user-experience, automating routine tasks, and enabling data-driven decision-making.

Studies show that academic libraries are increasingly adopting AI technologies to streamline operations. For instance, Akinola (2023) discusses tools such as natural language recognition, robotics, big data and machine learning in Nigerian academic libraries, noting that AI can revolutionize library services and enhance productivity. In a study of African University libraries, Abba reports that few libraries have adopted AI technologies such as chatbots, robots, RFID, and systems like LibKey, being used in directional and ready-reference questions, self-checkout, marketing, cataloguing, statistics and recommendations. Mandal (2024) also reviewed applications an impact of AI in academic libraries, finding advantages such as increased effectiveness, better accessibility and customized user experiences.

Although many studies focus on library operations, there is growing literature on how AI supports teaching, learning and research. For example, Steiger's literature review discusses how AI can assist students and librarians, but also raises concerns (e.g. plagiarism, misinformation) that impact higher-education and academic libraries. Thus, AI's role in academic libraries extends to influencing how teaching and research are supported-through smarter discovery tools, recommending resources, tailoring services to researcher/learner needs, and managing large-data/information flows. Lack of librarian expertise in AI, absence of policy frameworks, and low awareness of AI's potential. Igbo et al. (2024) discusses prerequisites such as digital infrastructure, skilled staff, policy and data for training. Suleimn, Akanbi & Ibidunni (2024) highlight issues of data privacy, algorithmic bias, unequal access to AI-driven services in Nigerian university libraries. Zondi et al (2024) in South Africa note that success of AI implementation depends on planning, collaboration, funding and promotion, and that librarians' attitudes vary.

May studies focus on operations (cataloguing, circulating, reference) rather than linking AI utilization directly to teaching and learning outcomes or research productivity. For example, the systematic review by Marasinghe et al. argues that while many services are identified, deeper studies on AI for personalized learning and participatory library services are lacking. Empirical evidence on how AI-enabled library services improve student learning outcomes or support faculty research is research is relatively scarce. Contextual studies in developing countries (Africa, Asia) are fewer, especially exploring how local constraints affect teaching, learning and research support via AI.

Ethical, equity, access and diversity issues specific to AI in libraries supporting academic research, learning are under-explored. For example, the work by Berendit et al. (2023) on bias and fairness in AI in libraries suggests broader issues, though not always specific to academic-library teaching and learning contexts. Longitudinal and comparative studies across institutions, or linking AI utilization in libraries to measurable research metrics (publication output, citation, user satisfaction, learning retention) are limited.

The literature shows that AI has substantial potential to transform library and information services in academic settings, and by extension to support teaching, learning and research. However, many libraries (especially in developing countries) are still at early stages of adoption. Key challenges persist, externally (funding, infrastructure) and internally (skills, policy, culture).

Utilization of Artificial Intelligence in Library and Information Services for Effective Teaching, Learning and Research in Academic Libraries

The integration of Artificial Intelligence (AI) in Library and Information Services (LIS) is transforming traditional academic support systems into intelligence platforms that enhance teaching, learning, and research. Technological such as intelligent search engines, AI-power chatbots, recommendation systems, automated indexing, and the management of scholarly resources are reshaping hos users interact with information (Tanzi, 2023). These technologies promise not only improved efficiency but also personalization and contextual relevance in academic environments as follows:

i. Intelligent Search Engines

AI-driven search engines enhance information retrieval by understanding natural language queries, analyzing context, and ranking results based on relevance. Unlike traditional keyword-based systems, AI systems leverage machine learning and semantic analysis to improve the precision and recall of search results. Semantic Scholar and Google Scholar use AI to understand the context of academic queries, highlighting influential citations and summarizing research findings (Ammar *et al.*, 2018). These tools facilitate deeper research exploration, particularly beneficial for students and scholars who need to navigate vast volumes of scholarly content.

ii. Chatbots in Libraries

AI-powered chatbots provide 24/7 assistance to library users by answering queries, guiding searches, and supporting resource discovery. These systems use Natural Language Processing (NLP) to stimulate human-like conversation. The University of Pretoria implemented a chatbot to assist students with library services, achieving increased engagement and accessibility (Both *et al.*, 2020). It enhances user support services, particularly for distance learning and during off-hours.

iii. AI-Powered Recommendation Systems

Recommendation systems in academic libraries suggest books, articles, and databases based on user behavior, preferences, and scholarly trends. These systems apply collaborative filtering, content-based filtering, and deep learning algorithms. AI in platforms like Mendeley and Zotero offers research recommendations based on user libraries and citation behavior. Improves user discovery of relevant materials, supports curriculum development, and aids in interdisciplinary research. (Lu & Zhang, 2019).

iv. Automated-Indexing and Classification

AI tools can automate the cataloging of resources by extracting metadata, keywords, and subject classifications using NLP and deep learning techniques. OCLC's WorldCat uses machine learning algorithms to auto-classify and enrich bibliographic records. Reduces the workload of catalogers, speeds up the processing of new materials, and enhances the consistency of metadata (Wang & Zhang, 2021).

v. Scholarly Recourses and Research Analytics

AI helps manage scholarly resources through predictive analytics, citation analysis, plagiarism detection, and trend forecasting. Tools like Scopus and Dimensions use AI to track research impact and map scholarly networks. Supports institutional research strategies, publication planning, and academic performance assessment (Thelwall & Wilson, 2016).

Challenges

Despite these advancements, the integration of Artificial Intelligence in Library and Information Services also presents challenges such as:

i. Infrastructure and Technological Limitations

In many regions, particularly in developing countries, inadequate infrastructure hampers the effective deployment of AI in libraries. Challenges such as unstable power supply, limited internet connectivity, and outdated hardware impede the seamless integration of AI technologies. For instance, studies have highlighted that insufficient ICT infrastructure in Nigerian university libraries limits the adoption of AI tools, affecting service delivery and user satisfaction (Ajani, 2022).

ii. Financial Constraints

Implementing AI solutions requires significant financial investment in both hardware and software. Many libraries, especially in resource-constrained settings, struggle to allocate funds for such technologies. The high costs associated with AI systems, including licensing fees, maintenance, and staff training, pose substantial barriers to adoption (Ali *et al.*, 2020).

iii. Skill Gaps and Training Deficiencies

The successful integration of AI in LIS necessitates a workforce equipped with the requisite skills. However, there is often a lack of adequate training programs for library staff. Research indicates that many librarians have not received formal training in AI technologies, leading to underutilization of available tools and resistance to adopting new systems Hervieux & Wheattey, 2021).

iv. Ethical and Privacy Concerns

The use of AI in libraries raises significant ethical issues, particularly concerning data privacy and security. Libraries collect vast amounts of personal data from users, and the deployment of AI systems must ensure compliance with data protection regulations. There is a need for clear policies and guidelines to address these concerns and maintain user trust (Ajani, 2022).

v. Resistance to Change

Cultural and organizational resistance to adopting AI technologies can impede progress. Some library staff may perceive AI as a threat to their roles or may be hesitant to embrace new technologies due to unfamiliarity or fear of obsolescence. Overcoming this resistance requires leadership, clear communication, and involvement of staff in the change process (Echedom & Okuonghae, 2021).

vi. Impact on Teaching and Learning

While AI has the potential to personalize learning and provide tailored resources, its misuse can lead to issues such as academic dishonesty. The ease of generating content using AI tools may encourage students to bypass critical thinking and original work, undermining the educational process. Educators must find a balance between leveraging AI for enhancement and maintaining academic integrity (Imoisili, 2023).

Conclusion

The integration of Artificial Intelligence (AI) into library and information services has significantly transformed the landscape of teaching, learning and research in academic libraries holds great promise for redefining the roles of libraries in higher education. As academic institutions and research environments become increasingly digital and data-driven, AI tools have emerged as powerful enablers that enhance access to information, streamline knowledge discovery, and personalize educational experiences. By embracing IA-driven innovations, academic libraries can evolve into intelligent knowledge hub that not only support but also enrich teaching, learning and research activities in the digital age.

Sustainability investment, policy development, and capacity building are essential for maximizing the benefits of Artificial Intelligence (AI) and ensuring its long-term impact on academic excellence and information service delivery. Therefore, there is the need institutional librarians to engage their institutional management to intensify strategies of building collaboration and partnerships with policy makers, philanthropies, stakeholders, non-governmental organizations and international organizations to source for grants for integration and implementation of Artificial Intelligence technologies in academic libraries in fostering innovation, improving users engagement, and significantly contributing to the advancement of education and scholarly communication.

Way Forward

i. **Adequate Institutional Management Support:**

Institutional Management should provide adequate support to libraries to meet up with their aims and objectives in attaining the mission of the parent institution for the sustainability of teaching, learning and research.

ii. Adequate Funding of Libraries:

The institutional management should provide adequate capital in funding the library facilities especially the recommended UNESCO requirement of providing 15% true of the institute budget to the library so that the library will meet up with its responsibilities in providing the required facilities and providing effective library and information services.

iii. Adequate Technological Facilities:

There is the need for management to provide adequate technological facilities for the libraries to enable them upgrade with the current trends and provide competitive high-speed internet and computing resources and integration platforms with compatible Artificial Intelligence tools.

iv. Collaboration and Partnerships:

There is the need for Academic Library Management to collaborate and partner with other Academic institutions libraries, technological firms for co-developing AI solutions and share AI resources and digital library networking to explore AI impact with best practices and expertise.

v. Building Capacity and Digital Library:

There is the need for regular training of librarians and library officers on digital literacy and Artificial Intelligence tools to have more knowledge and digital skills on algorithms and ethical handling of Ai system in providing library and information services.

vi. Regular Power Supply:

It is expected that in any functional library to operate effectively, there is the need to have regular power supply especially with the current trend of information and communication technologies, internet connectivity, digital libraries and Artificial Intelligence. To this effect, Academic libraries are expected to provide alternative power supply to meet the information needs of their users.

vii. Monitoring, Evaluation and Reporting:

The essence of monitoring, evaluation and reporting is to provide quality control and maintenance of the libraries and its facilities to avoid breakdown and enhance the maintenance of these facilities so that they can be in good condition. To this extent, there is the need to set up a monitoring framework to evaluate the impact of these facilities.

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IMPACT OF LIBRARY STATISTICAL RECORDS ON MANAGEMENT OF UNIVERSITY LIBRARIES IN NASARAWA STATE, NIGERIA

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Abstract

The study investigated the impact of library statistical records on the management of university libraries in Nasarawa State, Nigeria. Some of the objectives of the study are to ascertain the impact of library statistical records on the management of university libraries in Nasarawa State, Nigeria, identify the methods employed by university libraries for generating library statistical records in Nasarawa State, Nigeria. The study adopted a survey design. The population of the study comprised 169 library staff in the three 3 university libraries studied. The study adopted a total enumeration sampling. Hence, 169 library staff constituted the sample size. A total of 158 (90%) copies of the questionnaire were filled and returned. The instruments used for data collection were a structured questionnaire, and the data collected were analyzed using frequency and percentages to answer the research questions. While chi-square was used to test the two null hypotheses. Findings revealed that library statistical records have a high impact on the management of university libraries studied. Both manual and electronic methods are employed in generating library statistical records. Library statistical records are utilized to a high extent in the management of university libraries studied. Based on the available literature and from the findings of this study, library statistical records have been veritable tools for efficient and effective management of university libraries in Nigeria and the world at large. The study has established that library statistical records have significantly impacted the ten managerial items highlighted in the study. Several methods, such as manual, electronic combination of manual and electronic methods, were employed in generating library statistical records for the management of the university studied. Some recommendations have been made in order to enhance the effective use of statistical records for the management of university libraries in the universities studied. Based on the findings, the study recommends the statistical-driven management of universities and the need to have a backup of records in order to guard against natural and manmade disasters.

Key words: Impact, Library Statistics, Records, Management, University Libraries

Introduction

Globally, library Statistical records have been a veritable tool for managing university libraries. Library statistics involve the collections, classification, tabulation, presentation, and established relationship of records of services (routing activities) in the university libraries so that the pre-determined aims may be achieved. Library statistical records are a compilation of routine activities in the library in textual or numerical form. Statistical records provide objective data, which can serve as hard evidence of the operation, efficiency, and accomplishments of institutional objectives (Ugah, 2016).

Specifically, library statistical records stand the test of evidence in providing effective management in university libraries. In other words, library statistics are records of library services generated, maintained, or managed through the daily operations of the library, through which appropriate decisions can be taken for effective library service delivery that will enhance the management of university libraries. Buttressing the importance of library statistical records, Uwakwe and Onyeneke (2018) stress that "library statistics are effective tools for management appraisal of library services and activities, usually in numeric form, on events that take place in the library to ensure proper management".

Library statistics have been used as a medium for supporting the management of libraries by providing sufficient information for decision-making. Thus, the university library is a basic tool that helps towards academic attainment of students, scholars, and researchers of any knowledge-giving industries, because it is set with the responsibilities of collecting, processing, storing, and disseminating information and information resources to the user community. Okiki (2013) posit that "the library is a vital facility for enhancing learning, teaching and research. Therefore, library enhanced learning, teaching and research through accessibility and usability of its resources and services to the user community under the control of good management.

Management is the art of bringing together human and material resources through planning, organizing, controlling, directing and coordinating the library service delivery towards accomplishing its institutional goal. Hymavathi (2016) viewed "management as the use of statistical sampling and combinatorial optimization methods to solve problems in quality control, allocation of resources, logistics, project scheduling, labor and machine scheduling, to assembly line balancing".

Management is the process of bringing together human and material resources for effective service delivery to achieve the library objectives. No meaningful results can be achieved from the records of statistics of university library that are not properly planned, organized, directed or controlled by professionals like cataloguers, classifiers, computer analysts, reference or serial librarians, and seasoned administrators. When statistical records are properly generated, coordinated, controlled and managed by professionals, authorities of university libraries will confidently be used in presentations in managing the entire university libraries.

University libraries are libraries attached to university, and their main purpose is to support the objectives of the university in the areas of teaching, learning, research, and community services. It is the brain and the center point of intellectual activities in the university community. Mostly, users of the university library are students, researchers, lecturers, non-teaching staff. In effect, university libraries are mandated to support teaching, research, and

publication, conservation of knowledge, and interpretation of knowledge. The services university libraries provide to their users. These services include but not limited to: current awareness services, selective and dissemination of information, acquisition, resource processing, lending, reference, referral, reserved, instructional services, literature search, readers' advisory services, compilation of bibliographies, indexing and abstracting services, and maintenance of the file containing clippings and pamphlets. If all these statistical records are generated for the purpose of managing university libraries.

Statistical records generated are means for effective management in university libraries. Library statistical records is the most common means of evaluating operation and the progress of the library, through analyzing the library's Strengths, Weaknesses, Opportunities, and Threats (SWOT analysis) (Ugah, 2006). University libraries are to be managed with a tool for evaluating and enhancing the library's service delivery, such as properly generated library statistical records for decision-making. It is against this backdrop of the important role statistical records play in the management of university libraries in Nasrawa State that the study seeks to find out its impact.

Statement of the Problem

Statistical records are used in university libraries in order to enhance effective and efficient management of library operations and services. Ideally, library statistical records should be the building blocks for planning and execution of policies. However, Scholars have expressed concern over the dearth of statistical records in most university libraries despite their importance.

Based on preliminary observation, there are indications that library statistical records are not adequately utilized for the management of university libraries, resulting to low productivity and poor library services. Despite the observed availability of library statistical records, it seems that many university libraries are without the requisite facilities to generate and manage statistical records that could enhances effective and efficient management of libraries.

Also, experience shown that many university libraries have been battling with array of challenges that hampered effective generation of statistical records. These may include poor record management, inadequate records management facilities, and absence of records management policies. That is why this study seeks to investigate impact of library statistical records on management of university libraries in Nasarawa State, Nigeria. The Problem of this study posed as a question is, what is the impact of library statistical records on management of university libraries in Nasarawa State, Nigeria?

Objectives of the Study

The main objective of the study is to investigate the impact of library statistical records on the management of university libraries in Nasarawa State, Nigeria. Specifically, the study seeks to:

i. Ascertain the impact of library statistical records on the management of university libraries in Nasarawa State, Nigeria.
ii. Identify the methods employed by university libraries for generating library statistical records in Nasarawa State, Nigeria.
iii. determine the extent to which library statistical records are generated for the management of university libraries in Nasarawa State, Nigeria.

Hypotheses

Two null hypotheses were formulated to guide the study

Ho1 Methods of generating library statistical records do not significantly influence management of university libraries in Nasarawa state Nigeria.
Ho2 Extent of generating library statistical records does not significantly influence management of university libraries in Nasarawa state Nigeria.

Literature Review

Library statistics is an evaluation tool for measuring the library strength and weaknesses in terms of resource and services which will help management decision making in university libraries.

Eiriemiokhal, Rhoda, and Ishola, (2016) conducted a study on the Use of Statistical Records for Library Management at the university of Ilorin, the study revealed among others that library statistical records are helpful not only for researchers but also to library administrators in managing the libraries. In the same vein, Salawu (2016) asserted that library statistics is the scientific method of collecting, organizing, summarizing, presenting and analyzing data as well as drawing valid conclusion and making reasonable decision based on such analysis. Library statistics is a scientific method of collecting, data of resources and services collected, presented and analyze the data as well as drawing valid conclusion that will make reasonable decision on management of university libraries. Uwakwe and Njoku (2012) noted that library statistics are a veritable instrument for management used to generate information for decision-making on library issues. Library statistics help in determine library effectiveness in terms of services, resources and sound decision making for managing university libraries.

In addition, Aloysius and Torosco (2022) conducted a study "Library Usage Statistics (2018-2020) the study revealed among others, that library statistical records are generated and utilized for management of library. Similarly, IFLA (2020) affirmed that library statistics are necessary for the effective management of libraries. Library statistics is a tool that measured different resources and services provides by university libraries and identify the categories of its users for proper management.

Moreover, Akporhonor, (2011) conducted a study on the Management of Records in University Libraries in the South-South Zone of Nigeria the pin-point that most created in both state and Federal University libraries for the purpose of management on decision making. The major purpose of computing, analyzing and interpreting statistical records is to take informed decisions on how to improve the services in university libraries. Library statistic is a tool for drawing qualitative records of library operations in the area of technical service, lending service, inter-library loan among others, for management purpose.

Furthermore, Hymavathi, (2016) view management as the use of statistical sampling and combinatorial optimization methods to solve problems in quality control, allocation of resources, logistics, project scheduling, labor and machine scheduling, to assembly line balancing. Management is the process of bringing together human and material resources for effective service delivery to achieve the library objectives. Management is the process of achieving organizational objectives, within a changing environment, by balancing efficiency, effectiveness in an organization including libraries. Hameed (2004) says that management is a

specialized work of planning, organizing, directing, coordinating and controlling activities in order to achieve the desired goals. No meaningful results can be achieved from the records of statistics of a university library that are not properly planned, organizing, directed or controlled by professionals like cataloguers, classifiers, computer analysts, reference or serial librarians, and seasoned administrators.

It is also the process of utilizing material and human resources to accomplish designated objectives, which involve the organization, direction, coordination, and evaluation of people to achieve organizational goals (Afolayan, 2021). Management is the process of utilizing material and human resources to accomplish the university libraries objectives, which involve the organization, direction, coordination, and evaluation of the services provided by the university libraries.

Similarly, IFLA (2020) affirmed that library statistics are necessary for the effective management of libraries. Statistics help to determine the growth of the library by controlling library activities, evaluating staff performance, and planning. They give librarians an idea of how a particular resource is used, what time it is used, and where users prefer to access. Seemingly, libraries have assumed new responsibilities in a changing information world. They need library statistics for managing and promoting these new tasks (IFLA, 2020). Librarians assumed a new trend in developing strategies that will determine the growth of university libraries by controlling library activities, evaluating the staff performance, and planning to enhance the new tasks in a changing information world.

Methodology

Quantitative research method was used, while a survey design was adopted for the study. The population of the study comprised 169 library staff in the three 3 university libraries in Nasarawa State, Nigeria. A breakdown of the respondents from each of the university libraries under study is presented here in a table.

S/N	Name of University Library	Status	Professional	Non-professional	Total
1.	Federal University of Lafia Library, Lafia	Federal	11	49	**60**
2.	Nasarawa State University Library, Keffi	State	15	53	**68**
3.	Bingham University Library, Karu	Private	9	32	**41**
Total			**33**	**136**	**169**

Nasarawa State University (2024). *Official Bulletin pp 39-41*
Federal University Lafia (2024). *Special Bulletin pp 56-57*
Bingham University Library, Karu (2024). *Special Bulletin pp 36-37*

The entire 169 library staff constituted the sample size for the study. The decision to use the entire population is guided by the position of Bernard (2012), who stated that if the population of the study is less than two hundred (200), the entire population should be used for the study. The questionnaire was the instrument used for the data collection. Mean score, standard deviation, Frequency score, and percentages were used to analyze data related to the research objectives. While chi-square was used to analyze the two null hypotheses formulated to guide the study.

Results and Discussions of Findings

Research Question 1: What is the impact of library statistical records on the management of university libraries in Nasarawa State, Nigeria?

To answer this research question, data on the impact of library statistical records on the management of university libraries in Nasarawa State, Nigeria, were collected and analyzed using Mean and Standard deviation as presented in Table 1.

Table 1: Mean and Standard deviation of the impact did the library statistical records had on the management of university libraries in Nasarawa State, Nigeria.

Table 1

S/No	Items	Mean	SD	Remark
1	Continuity and advancement in-service delivery	3.78	0.46	High Impact
2	Actualizing library objectives	3.75	0.53	High Impact
3	Improve productivity	3.79	0.52	High Impact
4	Effective planning	3.82	0.42	High Impact
5	Improve library funding	3.81	0.47	High Impact
6	Prudent financial management	3.84	0.39	High Impact
7	Improve Budgeting performance	3.82	0.52	High Impact
8	Improve research activities	3.85	0.44	High Impact
9	Sublimated institution linkages	3.08	0.80	High Impact
10	Promote Library visibility	3.15	0.81	High Impact
	Cluster Mean	**3.66**	**0.53**	**High Impact**

Key VHI = Very High Impact, HI = High Impact, LI = Low Impact, NI = NO Impact

Table 1 presents findings on the impact of library statistical records on the management of university libraries studied. The findings indicated that statistical records had the highest impact on improving research activities, with a mean score of 3.85%. Thus, it is followed by its impact on prudent financial management with a mean score of 3.84 %. Similarly, the respondents admitted that statistical records had an impact on improving budget performance and effective planning, with the mean rating of 3.82% respectively.

They also affirmed that statistical records had a significant impact on the other 6 items highlighted, with a mean score ranging from 3.81-3.08. From the findings, the overall cluster mean score of 3.66 and standard deviation of 0.53 indicated that statistical records had a high impact on the management of university libraries in the university libraries studied. The study corroborated with Liu and Douglas (2010) study on the "Use of Library Statistics by Public Library Directors". Who findings, revealed among others that library statistical records are utilized and helpful not only for researchers but also for library administrators in decision-making processes like improving budget performance and effective planning.

Research Questions Two: What are the methods employed in generating library statistical records for management of university libraries in Nasarawa State, Nigeria.

To answer this research question, data on the methods employed for generating library statistical records for management of university libraries in Nasarawa State were collected and analyzed using Frequency and Percentage, as presented in Table 2

Table 2: Frequency and Percentage of methods employed for generating library statistics records for the management of university libraries in Nasarawa State, Nigeria
Table 2

S/N	Questionnaire Item	M%	E%	M&E%	Remark
1	Book selected Records	21(12.4)	47(27.8)	101(59.8)	M/E
2	Orders placed with the vendors	27(16.0)	55(32.5)	87(51.5)	M/E
3	Books slip prepared, checked, and filled	1(0.6)	94(55.9)	74(43.8)	M/E
4	Billed processed and passed for payment	1(0.6)	60(35.5)	108(63.9)	M/E
5	Book that accession	17(10.1)	82(48.4)	69(40.8)	E
6	Books with catalogue (CIPD)	24(14.2)	90(53.3)	55(32.5)	E
7	Titles of Book classified Records	45(26.6)	76(45.0)	48(28.40	E
8	Books catalogued Records	73(43.2)	32(18.9)	64(37.9)	M
9	Number of catalogued cards filled	54(32.0)	57(33.7)	58(34.3)	M/E
10	Books prepared for processing past due, data book slip, tag, library label	58(34.3)	71(42.0)	40(23.7)	E
11	Books prepared for release/writing call numbers at various places in books and in catalogue cards	35(20.7)	102(60.4)	32(18.9)	E
	Cluster mean	**19.3%**	**41.2%**	**39.5%**	

Key, M = Manual, E = Electronic, M & E = Manual and Electronic
Key: Manual = M, Electronic = E, Manual and Electronic = M&E

Table 2 shows that 2 methods are employed for the generation of the data which are M, E and M&E. M 19.3%, E 41.2% and M&E 39.5%.

Table 2 presents responses on methods employed for the generating library statistical records for management of university libraries in the universities studies. The findings revealed that bill processed and passed for payment is carried out by manual and electronic methods, with the highest frequency score of 108 (63.9). This is followed by book selection records also done both manually and electronically, with a frequency score of 101(59.8). Similarly, the

respondents indicated that order placement with the vendor is also carried out using manual and electronic system with a frequency score of 87(51.1). The findings also revealed that 5 items outlined in the table were carried out using an electronic method with frequency scores ranging from 102(60.4) to 32(18.9). The findings corroborated with Aziagba and Umeozor's (2013) study on "Library Services and Generated Data: Using Available Statistics to Improve the Library Services". Who findings revealed among others that libraries collected data daily in both manual and electronic forms, utilized to improve service delivery.

Research Question Three: What is the extent to which generated library statistical records are utilized for the management of university libraries in Nasarawa State, Nigeria?

To answer this research question, data on the extent to which generated library statistical records are utilized for management of university libraries in Nasarawa State, Nigeria, were collected and analyzed using Mean and Standard deviation as presented on Table 3.

Table 3: Mean and Standard deviation of extent to which generated library statistical records are utilized for the management of university libraries in Nasarawa State, Nigeria.

Table 3

S/No	Items	Mean	SD	Remark
1	Book selected Records	2.82	0.78	High extent
2	Orders placed with the vendors	3.32	0.66	VHE
3	Books slip prepared, checked and filled	2.80	1.00	High extent
4	Billed processed and pass for payment	3.02	0.99	VHE
5	Book that accession	2.84	0.76	High extent
6	Books with catalogue (CIPD)	2.78	1.00	High extent
7	Titles of Book classified Records	3.14	0.81	VHE
8	Books catalogued Records	2.93	0.99	High extent
9	Number of catalogued cards filled	2.69	0.96	High extent
10	Books prepared for processing past due, data book slip, tag, library label	2.27	0.83	High extent
11	Books prepared for release/writing call members at various places in books and in catalogue cards	3.27	0.27	VHE
	Cluster Mean	**2.98**	**0.82**	**High extent**

Key VHE = Very High Extent, HE = High Extent, LE = Low Extent, VLE = Very Low Extent

Table 3 highlighted the extent to which generated library statistical records are utilized for management of university libraries in the universities studied. The findings revealed library statistical records are utilized the most in order placed with vendors with, mean scores of 3.32% and standard deviation of 0.66%. Furthermore, the findings indicated library statistical records are utilized to a very high extent in preparing books for release/writing call numbers at various places in books and in catalogue cards with a mean score of 3.27% and standard deviation of 0.2.

This is followed by the use of library statistical records for title of books classified having a mean score of 3.14 and standard deviation of 0.81. From the findings, library statistical records are utilized the least in processing past due date, book slips, tag, library label with mean score of 2.27% and standard deviation of 0.2. With cluster mean score of 2.98% and standard deviation of 0.8. The respondents agreed that to a high extent the generated library statistical records are utilized for management of university libraries in the universities studied. This finding corroborated with Aloysius and Torosco (2022) study on "Library Usage Statistics (2018-2020): A Prerequisite for Evaluating Information Service Delivery in Nyong Essien Library, University of Uyo, Nigeria. Findings of the study revealed among others, that library statistical records are generated and utilized.

Hypotheses Testing

Hypothesis Ho1: Methods of generating library statistical records do not significantly influence management of university libraries in Nasarawa state Nigeria.

Table 4: **chi-square test of significance of Methods of generating library statistical records on management of university libraries in Nasarawa state Nigeria.**

Table 9

	Df	x^2	P	Sig level	Decision
Chi-square	2	336.69	0.00	0.05	Rejected
No valid Cases	169				

P<0.05

Table 4 shows that the P- value of 0.00 is less than alpha-value of 0.05 (P<0.05) at df =2. Therefore, the null hypothesis, which states that Methods of generating library statistical records do not significantly influence management of university libraries in Nasarawa state Nigeria, is therefore rejected.

Ho2: Extent of generating library statistical records does not significantly influence management of university libraries in Nasarawa state Nigeria.

Table 5: **chi-square test of significance of extent of generating library statistical records on management of university libraries in Nasarawa state Nigeria.**

Table 4

	Df	x^2	P	Sig level	Decision
Chi-square	3	211.165	0.00	0.05	Rejected
No valid Cases	169				

P<0.05

Table 5 shows that the P- value of 0.00 is less than alpha-value of 0.05 (P<0.05) at df =3. Therefore, the null hypothesis which states that Extent of generating library statistical records does not significantly influence management of university libraries in Nasarawa state Nigeria is therefore rejected.

Conclusion

Based on the available literatures and from the findings of this study, library statistical records have been veritable tools for efficient and effective management of university libraries in Nigeria and the world at large. Therefore, library statistical records are useful tools for planning and management of university libraries. The study has established that library statistical records have significantly impacted the ten managerial items highlighted in the study. Several methods such as manual, electronic combination of manual and electronic methods were employed in generating library statistical records for management of university studied. The study further established that library statistical records generated are to a high extent utilized for the management of university libraries studied. Some recommendations have been made in order to enhance the effective use of statistical records for the management of university libraries in the universities studied.

Recommendations

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

1. Research activities, financial management, budget implementation, library funding, and effective planning in the university libraries studied should be carried out based on statistical records generated.
2. Back up of library statistical records generated either manually, electronically or both manually and electronically (hybrid) should be well archived using the latest and state-of-the-art storage facilities in order to guard against natural or man-made disasters.
3. The management of the university libraries studied should sustain the utilization of library statistical records generated from an array of services outlined in order to enhance effective and efficient management.
4. Types of statistical records generated should be as guide in order to improve library service delivery
5. It should be encouraged to emphasis on generating statistical records that has impact and direct bearing to managing of university libraries for effective service delivery.

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COLLABORATION AMONG FINAL YEAR LIBRARY AND INFORMATION SCIENCE STUDENTS FOR ENHANCING AWARENESS AND UTILIZATION OF OPEN EDUCATION RESOURCES IN AWKA STUDY CENTRE, NATIONAL OPEN UNIVERSITY OF NIGERIA

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Abstract

Collaboration is a vital element of knowledge acquisition and academic success, particularly in the digital age where Open Educational Resources (OER) play an increasingly central role in learning and research. This study investigated the extent to which final-year Library and Information Science (LIS) students at the Awka Study Centre of the National Open University of Nigeria collaborate to enhance their awareness and utilization of OER. It assessed students' awareness of OER, collaborative practices in accessing and applying OER, challenges encountered, and the impact of collaboration on academic performance and research capabilities. A mixed-methods approach was adopted, using both quantitative and qualitative techniques. The study employed a descriptive survey design with a population of 348 final-year LIS students. Data were collected through structured questionnaires, focus group discussions, and interviews, and analysed using descriptive statistics (frequency counts and percentages), correlation, and thematic analysis. Findings revealed that students possessed a high level of awareness of OER and made significant use of various resources through collaborative practices. Collaboration was found to positively influence their academic engagement, research productivity, and overall performance. However, several barriers impeded effective use of OER, including inadequate information literacy skills, poor internet access, unreliable electricity, limited institutional support, preference for individual study, and lack of encouragement from lecturers. The study concludes that peer collaboration enhances awareness and utilization of OER, but systemic barriers limit its full potential. It recommends strengthening institutional support, improving ICT infrastructure, and promoting a collaborative learning culture to maximize OER adoption in LIS education.

Keywords: Collaboration, Open Educational Resources (OER), Library and Infor mation Science, Academic Libraries, Awareness, Utilization, National Open University of Nigeria

Introduction

In the digital era, the integration of Open Educational Resources (OER) into academic libraries has significantly transformed knowledge dissemination and access to scholarly materials. OER refers to freely accessible, openly licensed educational materials that can be used for teaching, learning, and research without financial or technical restrictions (UNESCO, 2019). These resources include textbooks, lecture notes, videos, and other instructional materials that enhance educational opportunities.

The primary purpose of the university library is to support the objectives of the university, which revolve around promoting teaching, learning, and research. According to Okonkwo (2022), the strength of a university library lies in its resources and services, which are central to the education process. Yusuf and Iwu (2010) similarly observed that the academic library is the hub around which scholarship revolves. Library professionals select, organize, and disseminate resource both print and electronic to support the university community. In recent years, academic libraries have expanded this role by promoting OER awareness and utilization.

Awareness of OER means being informed about the existence, purpose, and value of these resources, whether accessed through the library or the internet, for the improvement of teaching, learning, and research. However, in many Nigerian universities, the level of OER awareness and utilization remains relatively low (Tuomi, 2013; Bliss & Smith, 2017). Students, including those in Library and Information Science (LIS) programs, often lack sufficient knowledge of OER platforms, as well as the skills needed to evaluate and apply open resources effectively. Limited institutional support, misconceptions about the credibility of open-access content, and inadequate technical training further contribute to underutilization. This situation highlights a pertinent issue: the gap between the potential of OER and its actual adoption among students.

Library and information science students (LIS), as future information professionals, are expected to possess strong competencies in locating, evaluating, and applying OER in both academic and professional contexts. Academic libraries therefore play a central role in organizing awareness campaigns, providing training sessions, and offering digital infrastructure that supports open access learning (Atenas & Havemann, 2014). Librarians further facilitate workshops, create subject-specific repositories, and collaborate with faculty to integrate OER into the curriculum.

Collaboration is the act of working together with others to achieve shared goals through the exchange of ideas, skills, and resources. In the context of Library and Information Science (LIS), collaboration is a key driver in fostering awareness and utilization of Open Educational Resources (OER). According to D'Antoni (2009), collaboration among students, faculty, and librarians enhances the dissemination and adoption of OER within academic institutions. By working collectively, final-year LIS students can develop strategies that improve information literacy, encourage peer engagement, and create an enabling environment for knowledge sharing.

Such collaboration may take the form of peer mentoring, study groups, joint research projects, or digital initiatives that promote wider access to OER. Collaboration also strengthens academic libraries by increasing the quality of teaching, learning, and research, while providing cost advantages through the sharing of resources (Aytac, 2010). It has further been identified as a strategic tool for addressing challenges such as resource scarcity, standardization of practices, and the training of 21st-century librarians. For LIS students, collaboration bridges gaps in OER awareness and utilization by enabling knowledge exchange and skill

development. Peer-led initiatives, such as group discussions, webinars, and digital literacy programs, provide practical means of enhancing students' capacity to use OER effectively. Ultimately, collaboration serves as both a strategy for personal and professional growth and a pathway for championing OER within academic and professional communities (Olaniyi & Olaojo, 2017; UNESCO, 2023).

Utilization of OER is dependent on students' ability to locate, evaluate, and apply open resources in their academic work. Studies indicate that many students underutilize OER due to inadequate technical skills, inadequate institutional support, and misconceptions about the credibility of open-access materials (Bliss & Smith, 2017). Collaboration among LIS students can bridge this gap by encouraging knowledge sharing, skill development, and collective engagement with OER platforms. For instance, group discussions, webinars, and digital literacy programs can enhance students' competency in utilizing OER effectively.

The fact that students step out to take action on collaboration shows the willingness and readiness to mingle, mix-up and bond with others in other fields of research. In the words of Kranich, Lotts Nielsen and Ward (2020) stated, "Our profession is moving from collecting to connectivity". How apt to describe the onus in collaborative activities in the library field. This is because the more services a library offers, the better will and innovations will set in. Change is inevitable which comes when it comes. It is the constant value in life and in all management platforms. Hence, if one does not go with the change, the wind of change will blow him away. This is the reason collaboration is adopted and adapted in all libraries and library organizations for global partnership on join activities.

In conclusion, Academic libraries must continue to provide the necessary support through training, infrastructure, and policy development to maximize the benefits of OER. Further research should explore best practices for enhancing student collaboration in OER initiatives to improve accessibility and utilization rates in higher education institutions.

Statement of the Problem

Open Educational Resources (OER) are intended to provide accessible, flexible, and cost-effective learning opportunities, yet their awareness and utilization among final-year Library and Information Science (LIS) students at the National Open University of Nigeria (NOUN), Awka Study Centre, remain a concern. The challenge is compounded by how collaboration, awareness, and utilization interact within this learning context. The level of awareness of OER among final-year LIS students appears limited.

Many students are either unaware of the existence of OER or lack sufficient knowledge of how to access and integrate them into their academic work. This gap in awareness reduces the likelihood of students engaging with OER effectively and restricts their exposure to innovative learning resources. More so, that the patterns of collaboration among LIS students in relation to OER are weak and largely unstructured. While collaboration has been shown to promote knowledge sharing, digital literacy, and peer mentoring, many students rely on individual study approaches, with minimal emphasis on group discussions, peer-led initiatives, or joint projects centered on OER.

This lack of collaboration undermines the potential benefits of collective learning and resource utilization. This means that the impact of collaborative learning on OER utilization is not well understood in this context. Although studies suggest that peer-to-peer interaction enhances OER engagement, there is little empirical evidence on how collaboration influences the actual use of OER among final-year LIS students in NOUN's Awka Study Centre. This creates a research gap in understanding the role of collaboration in promoting effective

adoption and usage of OER. Finally, several factors hinder collaboration among LIS students in utilizing OER.

These include infrastructural limitations, inadequate digital skills, limited institutional support, and curricular gaps that do not explicitly encourage collaborative learning. Students' preference for traditional resources further reduces their willingness to engage with OER platforms. Hence, the problem this study seeks to address is that limited collaboration constrains the awareness and utilization of OER among final-year LIS students at NOUN, Awka Study Centre.

By examining students' awareness levels, collaboration patterns, the influence of collaborative learning, and the factors hindering collaboration, this study aims to provide evidence-based insights that will strengthen OER adoption and promote academic success in LIS education.

Research Questions:

1. What is the level of awareness of pen education resources among final year Library and Information Science students?
2. How do final year Library and Information Science students collaborate in the utilization of Open Education Resources?
3. Does collaborative learning among final year LIS students positively impact the utilization of Open Education Resources and their academic outcomes?
4. What are the factors that hinder collaboration among students in utilizing OER?

Review of Related Literature

In the early 2000s, the development of open educational resources (OER) became increasingly prevalent, not only as an open source of learning materials but also as a transformative agent for teaching and learning aimed at making education more accessible and equitable (IFLA Section on Education and Training, 2020). OER are generally defined as teaching, learning, and research resources released under an open license, allowing reuse, revision, and redistribution with no or limited restrictions (Li & Wong, 2021). These resources reside in the public domain or creative commons and can be legally and freely copied, adapted, and shared (Okonkwo, 2012; Butcher, 2015).

Popular types of OER in higher education include open courseware, course materials, online tutorials, e-books, e-journals, and open-source learning tools (Cheung et al., 2013; Blomgren, 2018; Wong & Li, 2019). They also encompass full courses, modules, streaming videos, software, technical papers, and other tools that support access to knowledge (Hewlett Foundation, 2016). The potential benefits of OER include reducing costs, improving quality, and expanding access to learning opportunities, particularly in developing countries where access to quality educational materials remains scarce (Daniel, 2011; Plotkin, 2010; Wright & Reju, 2012). In addition, OER fosters a culture of collaboration and knowledge sharing, enabling students and faculty in Library and Information Science (LIS) programs to disseminate research and exchange expertise globally.

Collaboration among LIS students is a crucial factor in OER awareness and utilization. It fosters teamwork, critical thinking, and problem-solving skills, while enhancing digital competencies needed for navigating online OER platforms (Sweeney, 2018; Johnson et al., 2020; Dede, 2019). Collaborative learning models such as group research, peer learning, and information literacy programs encourage deeper engagement with learning materials and enable students to leverage each other's strengths in information retrieval and resource use. Technology tools such as Google Drive, wikis, and academic social networks further facilitate

OER collaboration (Adams, 2020), and integrating OER-based assignments into LIS curricula can strengthen research skills and information literacy (Weller, 2019).

Awareness of OER is essential for effective utilization, yet it varies widely and is influenced by institutional policies, faculty advocacy, and the integration of OER into course curricula (Wiley & Hilton, 2018). Studies show that many LIS students in developing countries have limited OER awareness, with active utilization rates as low as 30% (Afolabi & Olatunji, 2021). Institutional repositories, librarian-led initiatives, and targeted training programs significantly boost awareness and engagement (Czerniewicz et al., 2020).

Academic libraries play a pivotal role in promoting OER adoption by curating resources, integrating them into learning management systems, and leading awareness campaigns (IFLA, 2021). Library-led OER training improves students' confidence in sourcing, evaluating, and using open resources (Mishra & Sharma, 2019). Library consortia also enhance sustainable OER access in resource-limited contexts (McGreal et al., 2020). Collaboration further enhances OER utilization by encouraging peer-to-peer learning and resource sharing; group-based OER use is associated with higher engagement levels than solitary study (Green & Armstrong, 2022).

Benefits of Collaboration

Enhanced Knowledge Sharing: Collaboration among final year library and information science students can foster the exchange of ideas, knowledge, and experiences related to OER. Such collaborative efforts can lead to a deeper understanding of the various aspects of OER, including creation, management, and dissemination.

Advocacy and Awareness: Final year students can play a crucial role in raising awareness about OER within their academic institutions and communities. Collaboration allows them to pool their resources and creativity to develop effective advocacy campaigns, workshops, and informational materials to educate both students and faculty about the benefits of OER.

Collective Problem Solving: Collaboration encourages students to collectively address challenges associated with OER, such as licensing issues, quality control, and accessibility concerns. By working together, students can propose innovative solutions that may not have been apparent when working in isolation.

Building a Supportive Network: Collaborative efforts provide an opportunity to build a network of like-minded individuals who share a passion for OER. This network can extend beyond graduation and become a valuable resource for professional development and collaboration in the field of library and information science.

Challenges of Collaboration

Time Constraints: Final year students often have busy schedules, balancing coursework, assignments and potential job searches. Finding time for collaborative projects can be challenging.

Differing Interests and Specializations: Library and information science students may have diverse interests and career goals. Collaborative efforts must consider these differences to ensure that everyone's needs and goals are addressed.

Technological Barriers: Not all students may have access to the necessary technology or expertise to effectively collaborate on digital platforms, which are commonly used in OER initiatives.

Institutional Support: The level of support for OER initiatives within academic institutions can vary greatly. Collaborating students may face resistance or limited resources from their institutions.

Brief History of NOUN, Awka Study Centre Library

The National Open University of Nigeria library, Abuja is the mother library that gave birth to the libraries in one hundred and nine (109) or there about study centres (outlets) in NOUN. NOUN library formally operates in the Ministry of Education former building at Victoria Island, Lagos of the Ahmadu Bello Way. However, with the completion of its newly Main Library at the permanent site in university village, Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi, Abuja, the university library now operates from its headquarter. Presently, the library has one hundred and fourteen (114) study centers affiliated with libraries spread across the country. The University Library is presently under the leadership of the University Librarian Dr Okpala Angela.

Awka study centre library is one of the daughters of the NOUN giant library (the mother library) situated in Abagana in Anambra state. Abagana is a town in Anambra state of Nigeria. It is the headquarters of Njikoka Local Government Area Anambra State and lies approximately 20 kilometers from Onitsha along the old Enugu-Onitsha Trunk A Road that divides the town into two halves. Abagana town has a landmass of approximately 9.2 square kilometers and is bounded in the north by Abba, Ukpo, and Enugu Agidi towns, in the South by Nimo and Eziowelle towns, in the East by Enugu Ukwu town and in the west by Umunnachi and Ifitedunu towns. The Awka study centre is located in the Southeast of Anambra state. Abagana has Latitude of 6° 11' 25" N and longitude 6° 59' 36" E with a climate type of Tropical savanna, wet. The Awka study centre Library is man by a professional librarian, Dr. Okonkwo, Lucy as the study centre Librarian has put on so much effort to create awareness of the e-resources.

In light of above, the need for Awka study centre library to create awareness and utilize available educational resources for library services delivery to their users is fundamental. It is fundamental because the libraries are regarded as the heart of their parent institutions, and it is also recognized as the medium through which NOUN can achieve their set objectives. Awka study centre (NOUN) library has several stocks of printed and electronic resources, the electronic resources from e-library. The library's collection has little resources compared to the main library in the headquarters (Okonkwo, 2022).

Methodology

The research employed descriptive survey design, with a population of 348 students. A mixed-methods approach, incorporating both quantitative and qualitative research techniques were employed. A structured questionnaire was distributed to final-year LIS students in Awka study centre, while focus group discussions and interviews were provided deeper insights into their collaborative experiences. Data was collected using a questionnaire. Descriptive statistics, including frequency count and simple percentage, were used for data analysis. Data was analyzed using descriptive and inferential statistical techniques, including frequency distribution, correlation, and thematic analysis.

Table 1: Awareness of Open Education Resources (OER) Among Final Year LIS Students

This table presents the level of awareness of OER among the students.

Awareness Level	Frequency (N= 348)	Percentage (%)
Highly Aware	102	29.3%
Moderately Aware	136	39.1%
Slightly Aware	76	21.8%
Not Aware	34	9.8%
Total	**348**	**100%**

Key: HA: Highly Aware; MA: Moderately Aware; SA: Slightly Aware; NA: Not Aware

Table1 revealed that 68.4% of students (highly and moderately aware) have some level of awareness of OER, while 31.6% (slightly aware and not aware) have limited or no awareness. This shows that while awareness is relatively high, a significant portion of students still lack full understanding of OER. This suggests a need for more sensitization and awareness programs to ensure all students benefit from available OER materials.

Table 2: Collaboration Patterns in OER Utilization among Final Year LIS Students

This table shows the frequency and types of collaboration among students

Collaboration Patterns	Frequency (N = 348)	Percentage(%)
Group discussion	132	37.9%
Online study groups	96	27.6%
Peer Mentoring	64	18.4%
No collaboration	56	16.1%
Total	**348**	**100%**

Table 2 revealed that the most common form of collaboration is group discussions (37.9%), followed by online study groups (27.6%), peer mentoring (18.4%), while 16.1% of students do not collaborate at all. This means that the dominance of group discussions and online study groups indicates that students recognize the importance of peer interactions in utilizing OER. However, the 16.1% non-collaboration rate signals a need for strategies to encourage participation, especially among students who prefer studying alone.

Table 3: Impact of Collaboration Learning on OER Utilisation

This table illustrates how collaboration influences students' utilization of OE

Impact Level	Frequency (N=348)	Percentage (%)
Greatly enhances usage	148	**42,5%**
Somewhat enhances usage	116	**33.3%**
Has little impact	**52**	**14.9%**
No impact	**32**	**9.2%**
Total	**348**	**100%**

Table 3 showed that 75.8% of students (greatly enhances + somewhat enhances usage) acknowledge that collaboration improves OER utilization, while only 9.2% believe it has no

impact. This means that collaborative learning plays a significant role in helping students effectively engage with OER. It enhances comprehension, access, and application of resources, making it a valuable strategy for academic success.

Table 4: Factors Hindering Collaboration among Students in OER Utilisation

This table highlights the major obstacle to collaboration in OER usage.

Hindering Factors	Frequency(N=348)	Percentage (%)
Lack of digital skills	104	29.9%
Poor interest access	86	24. 7%
Limited awareness of OER	68	19.5%
Lack of institutional support	56	16.1%
Preference for individual study	34	9.8%
Total	348	100%

Table 4 indicated that the top barriers to collaboration are lack of digital skills (29.9%), poor internet access (24.7%), limited awareness of OER (19.5%), lack of institutional support (16.1%), and preference for individual study (9.8%). This portrays that the challenges are largely infrastructural (internet access, digital skills) and attitudinal (awareness, preference for solo study). Addressing these challenges requires institutional support and capacity-building initiatives.

Discussion and Findings

Awareness of OER (Table 1)

Interviews revealed that while many students had heard of OER, their depth of knowledge differed. Those who were highly aware attributed it to exposure through lecturers and library orientations, while slightly or not aware students noted that OER was rarely discussed in class, leaving them to discover it on their own. Some also struggled to distinguish OER from other free online resources, underscoring the need for formal sensitization.

Collaboration Patterns (Table 2)

Students confirmed that collaboration mostly occurred through informal group discussions, which they valued for immediate feedback and problem-solving. Online study groups, often via WhatsApp and Telegram, were also used, though poor internet access sometimes limited participation. Peer mentoring was acknowledged as helpful but not widely practiced, while some students preferred independent study, citing distractions and unequal group participation.

Impact of Collaboration on OER Utilization (Table 3)

Most students agreed that collaboration enhanced OER utilization by exposing them to new resources and motivating active engagement. Peer sharing of platforms like OER Commons and OpenStax was common in group interactions. However, a few students felt collaboration slowed their learning pace, preferring to study alone.

Factors Hindering Collaboration (Table 4)

Key obstacles included poor internet access, high data costs, and limited digital skills, with many students relying on more tech-savvy peers. Institutional support was described as minimal, as students called for structured training sessions and awareness campaigns. Some

students preferred independent study, prioritizing personal control over pace, though this limited their collaborative benefits.

Overall Findings

The interviews confirmed the survey data, showing moderate to high awareness and collaboration in OER use but also revealing significant challenges. Collaboration is seen as a key driver of OER utilization, yet infrastructural and skill-related barriers limit its full potential. Students strongly emphasized the need for sensitization, digital literacy training, improved infrastructure, and institutional support to enhance effective OER adoption and utilization among LIS students.

Conclusion

The interviews confirmed the survey data, showing moderate to high awareness and collaboration in OER use but also revealing significant challenges. Collaboration is seen as a key driver of OER utilization, yet infrastructural and skill-related barriers limit its full potential. Students strongly emphasized the need for sensitization, digital literacy training, improved infrastructure, and institutional support to enhance effective OER adoption and utilization among LIS students. Collaboration among final year library and information science students in the awareness and utilization of open education resources holds great promise for the future of education and information access. While challenges exist, the benefits of collaborative efforts, such as enhanced knowledge sharing, advocacy, and network building, far outweigh the obstacles. By working together, these students can become advocates for OER, driving positive change in their academic institutions and communities. As the digital age continues to evolve, collaboration among library and information science students becomes not just a beneficial choice but a necessary one in fostering a more open and accessible educational landscape.

Recommendation

Awareness of OER

- Universities should organize workshops and orientation programs to educate students on the availability and benefits of OER.
- Organize sensitization workshops and campaigns; integrate OER into teaching and library activities to close awareness gaps.
- Faculty members should incorporate OER into course curricula to encourage usage.

Collaboration Patterns

- Student peer-learning initiatives should be encouraged through study groups, mentorship programs, and online discussion forums.
- Universities should create digital collaboration platforms where students can share insights and discuss OER materials.
- Encourage peer study clubs and mentoring; support online collaborative platforms; motivate non-collaborating students through structured group tasks.

Impact of Collaboration on OER Utilization

- Adopt collaborative learning strategies like group projects and peer assessments; promote use of digital tools for resource sharing; train students on effective group dynamics.
- Universities should invest in better Wi-Fi and digital learning platforms to facilitate access to OER.

- ❖ Partnerships with telecommunications companies can help subsidize data costs for students.

Hindrances to Collaboration

- ❖ Provide digital literacy training; improve internet and power supply; strengthen institutional support for OER integration; guide independent learners to occasionally collaborate.
- ❖ Institutions should offer basic and advanced digital skills training to improve students' ability to access and utilize OER.
- ❖ Introduction of library-led digital skills sessions can help students navigate OER platforms effectively.

Therefore, a combined approach of awareness-building, collaboration, skill development, and infrastructure support is needed to fully enhance OER adoption and utilization. Interview Findings on OER Awareness, Collaboration, and Utilization

- ❖ Policies should be developed to mandate the inclusion of OER in academic research and learning.

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AVAILABILITY AND UTILIZATION OF LIBRARY AND INFORMATION RESOURCES FOR RESEARCH PRODUCTIVITY BY ACADEMIC STAFF IN PRIVATE UNIVERSITIES IN NORTH CENTRAL, NIGERIA

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Abstract

The study investigated the availability and extent of utilization of library and information resources for research productivity by academic staff in private universities in North Central, Nigeria. Two questions and null hypotheses guided the study. A descriptive survey research design was used for the study. The population of the study (1536) consisted of all academic staff in private universities, North Central Nigeria. A sample size of 770 respondents was selected using proportionate stratified sampling technique. The researcher developed a questionnaire titled "Availability and Utilization of Library and Information Resources for Research Productivity among Academic Staff Questionnaire`(AULIRRPASQ) and an observation checklist, which were used to collect data for the study. The internal consistency of the instruments was ensured using Cronbach Alpha which yielded 0.75 and the instruments were judged reliable. Out of 770 questionnaire distributed, 725 copies were returned and found to be correctly filled. Frequencies, percentages, Mean (X) and Standard Deviations were used to answer the research questions while anova was used to test the hypotheses. The finding of the study revealed overall availability of print and electronic information resources in the libraries as adequate. Also, the utilization of library and information resources by academic staff was high. Based on the findings, it was strongly recommended that the university management should endeavour to always create conducive environment for the utilization of library and information resources for research among the academic staff, library management should create awareness of new arrival among Lecturers and subscription to more electronic materials

Keywords: Utilization, research, academic staff, Library and Information resources, research productivity

Introduction

Research has a significant positive impact on both the advancement of knowledge and the settlement of societal problems. As it relates to advancement, residency, compensation, and other incidental benefits inside the university framework, the research productivity of academic staff, also known as faculties, plays a key role in achieving results in the scholarly community. According to Mole (2019), research is defined as a planned investigation that tries to provide enough information to develop inferences, findings, and a conclusion on a research issue. Additionally, Mole emphasized that finding the solution to a problem required ongoing investigation. Since societal problems cannot be resolved in the absence of research, research is a problem-solving activity. Making library and information resources available and simple to use will enhance the university's research operation which is one of the three primary purposes of establishing university libraries.

A university library is any library that is connected to a university and offers information to researchers both inside and outside the university. University libraries, according to Sambe and Emmanuel, cited in Famaren and Part (2021), are the kinds of libraries designed to be connected to universities with the purpose of meeting the general information demands of the nearby scholarly community. A university library, in accordance with Omeluzor, Dolapo, Agbawe, Onasote, and Abayomi (2017), is a planned and organised vital part of a university with a suitable order to supply timely and current information resources that satisfy its customers' information wants. The main objective of university libraries is to assist the information needs of faculty and staff in the university's teaching, learning, and research activities. University libraries are libraries that are designed, sponsored, overseen, and connected to academic institutions.

The main sources of information are libraries and other places to find information. All types of information resources that can be used to support and aid in successful research and development endeavors are included in these sources. These information resources come in printed and electronic versions. Library and information resources, according to Onah, Adayi, Okonkwo, and Onyebuchi (2020), are the print and electronic sources that library patrons use to meet their information needs. The phrase "print materials" refers to common library materials including books, dictionaries, catalogues, diaries, handbooks, manuals, reference books, journals, magazines, announcements, and so forth. Information and Communication Technologies (ICTs) were presented to create electronic information resources. These computerized resources include electronic diaries, electronic reference information sources, electronic books, CD ROMs, e-magazines, e-papers, and others. Computerized resources that can only be examined with a cutting-edge gadget are known as electronic data assets. To improve the efficacy of their research, these information sources are compiled, examined, and organized in a user-friendly way.

Utilization is the practice of using information and library resources for academic purposes. How academic staff and students use the tools at their disposal is referred to as "utilization of library and information resources." This study's main objective is to discover how frequently academics use the intellectual substance of libraries and information resources for their research (Borgman, 2000). One of a university's main objectives is to provide a supportive environment for the dissemination of information regarding cultural shifts. A university can accomplish this goal by allowing its students and other users access to and use the library and other informative resources. In other words, using library and information resources is essential for conducting fruitful research in academic settings. According to Obasuyi (2020), one way to increase the library's importance and usefulness in our businesses

is to use it. If academic staff researchers have access to crucial and diverse resources, their efficiency will be impacted by library use (Gbemi-ogunleye, 2016). The number of peer-reviewed distributed publications, disseminated course readings, introductions made at meetings, gathering processes, and awards earned over a certain time period are all indicators of a researcher's analytical success and serve as benchmarks for research productivity. No faculty member may progress within the university system beyond their current level of research output. This shows that one of the most crucial factors in deciding a faculty member's advancement, pay, and prestige in any Nigerian university system is the production of their research. However, a study by Cultivate, Heppensta, Lazarz, and Broug (2008) found that academic staff members in private Nigerian universities performed poorly on research, which they blamed on the inefficient use of library and information resources.

Private universities are those that are created and run by private individuals, groups, or partnerships as opposed to any type of official authority. According to Gabriel (2013), a private university is one that was established and is managed by individuals, faith-based groups, community development organizations, and other organizations as opposed to the federal or state governments. Preliminary research indicates that academic staff members at private institutions in North Central Nigeria do not publish as frequently as academic staff members at private universities in other geopolitical regions of Nigeria. Comparing private universities in the Southeast, Southwest, and South-South of Nigeria, it is clear that the north central region performs poorly. Since no evidence-based research can be conducted without the right use of print and electronic information resources, it is crucial to evaluate whether academic staff members' use of libraries and information resources may enhance their research outcomes. Each institution's reputation will supposedly rise as a result of this.

Statement of the problem

Research productivity in Nigerian universities and throughout Africa depends on using library and information resources, just as it does in industrialized nations. In essence, universities act as centres for the development and transmission of information based on research that helps create the nation. In light of this, across many private universities in the North Central, concerns have been raised regarding the adequacy, accessibility, and utilization of library and information resources by academic staff. Despite the growing number of private universities in the geo-political zone and their potential contributions to national research output, there appears to be a significant gap between the availability of library resources and their actual use for research purposes.

Moreover, while some private universities invest heavily in digital and physical library facilities, the extent to which these resources are being accessed and used effectively by academic staff remains unclear. This study, therefore, seeks to investigate the availability and utilization of library and information resources and how they influence the research productivity of academic staff in private universities in North Central Nigeria.

Objectives of the Study

The general objectives of this study is to examine the extent of utilization of library and information resources for research productivity by academic staff in private universities in North Central, Nigeria. Specifically, this study sought to:

1. Identify the types of library and information resources available for utilization by academic staff in private universities in North Central, Nigeria.

2. Examine the extent of utilization of library and information resources for research productivity by academic staff of private universities in North Central, Nigeria.

Hypotheses

The following null hypotheses were postulated to guide the study and were tested at 0.05 of significance:

1. **$H0_1$**: There is no significant difference in the extent of utilization of library and information resources for research productivity by academic staff based on their institution of affiliation.

2. **$H0_2$**: There is no significant difference in the extent of utilization of library and information resources for research productivity by academic staff based on their professional status (rank).

Literature Review

Faculties need information to promote their professional career, enhance their research activities, to keep up with the current happenings in their fields of study, and to develop competence in their teaching skills, among others. Okiki (2013) defined Library and information resources as print and non-print (electronic) materials that could be sourced and accessed manually or electronically by users. Adequate and relevant information resources provide opportunities for users to get access to needed information which is dependent on the availability of emerging technologies as means for creating, storing, distributing, retrieving, and using information resources from the existing literature.

Popoola, and Haliso, (2009) referred to library and information resources as those materials containing information that are in print and non-print formats, such as textbooks, journals, newspapers and magazines, indexes, abstracts, reports, CD-ROM databases, the Internet/E-mail, video tapes/cassettes, diskettes magnetic disk, computers, micro forms and so on specifically selected and organized for actualizing the curriculum of primary, secondary and tertiary institutions of learning.

All these resources in their different forms help to provide some library services in the form of current awareness, video and teleconferencing, internet services, web browsing, electronic mails, cable networks, virtual library, inter and intra networks and many others that are considered ingredients of research. In his work, Liu (2006) wrote that preferences in application and use of either print or electronic resources vary among different individuals and disciplines. He was of the view that research scholars or graduate students seem to expect a hybrid of print and non-print resources and presently, they desire to meet their information needs through a mix of print and online resources. According to Hanif, Zabed, and Nasir, (1997) a good and functional library should be well stocked with relevant and adequate books and periodicals in diverse subject areas to advance study and research. The role of a university library is to acquire, organize and disseminate information to academics, research scholars and students, and support the generation of new knowledge.

The utilization of library and information resources is a function of how properly the resources are organized and made available for consumption. According to Cole (2008), the widest possible reason for which information is put to use has to do with human survival. The skills to use information items effectively and resourcefully depends largely on the quantity of information/knowledge the faculty members possess about the available information resources

and how best to explore such. Information utilization involves creation of awareness and provision of means of accessing available information materials for diverse purposes (Eiriemiokhale and Ibeun 2017). The driving force for academic staff' information use is to enhance teaching and research activities. Academic functions typically revolve around teaching, community development, support for the research needs of its staff, faculty, and students to assist in supporting the school's curriculum and as a result they require a wide range of information resources (Omopupa 2016). According to Omopupa (2016:39), the growing diversity of library and information resources gives academic staff a variety of sources of information to choose from depending on their skills and individual efficiency. Cornwall (2011) noted that the way an information resource is presented will go a long way to determine the effectiveness of its use.

Research productivity entails the total outcome of publications of academics with first degree, Masters and Ph.D. in their respective fields. It also refers to their own productivity in terms of research publication, number of seminar papers presented, number of workshops conducted, conferences and training in emerging technology. Okonedo et al (2015) also define research productivity as the entirety of researches conducted by faculties in universities in their subject area over a given period of time.

This period can be a period of 3 years which rest largely on the quality and quantity of peer reviewed scholarly publications such as books, book chapters, journal articles, conference papers and proceedings, creative works and visual arts among others (Tsafe, Chiya &Aminu, 2016). In universities, recognition and advancement of faculty members depend greatly on the quality and quantity of their research productions, which are communicated in form of books, journal articles, book chapters, conference proceedings, technical reports, and other types of publications (Bassey, Akuegwu, Udida, and Udey, 2007; Kusure, Mutanda, Mawere, and Dhliwayo, 2006; Torchich, 2006; Vakkari, 2008). The evaluation of the published literature of academic staff helps to identify the characteristics of research productivity, authorship pattern, collaborative attitude and impact of citations on any discipline of knowledge, journal or group of journals, institution-wise, or country-wise.

Methodology

In the present study, quantitative approach through survey design was used to elicit data for the study. The study was conducted in the North Central Geopolitical zone of Nigeria. The population of the study comprised of 1536 academics in eleven (11) selected private universities. The sample used for the study consisted 770 people. Proportionate stratified sampling technique was used in drawing the sample from each faculty of the private universities under study.

The sample from each university is a direct representation of the proportion of the university in the entire population. The instruments used for data collection was a structured questionnaire and observation checklist containing 23 items. The instruments were face validated by three research experts. Data collected were analysed using frequencies, percentages, mean scores and standard deviation while the null hypothesis was analysed using anova at 0.05 level of significance. The decision rule for answering the research questions was arrived at by finding the average of the four-point scale thus: $\frac{4+3+2+1}{4} = \frac{10}{4} = 2.50$

Thus any item with the mean scores equal to or above 2.50 was considered as high extent while score below 2.50 were considered as low extent. The two (2) null hypotheses were assessed using the ANOVA at a significance threshold of 0.05.

Results

In line with the research questions and the null hypothesis that guided the study, the summary of the analysis of the data collected are presented in the table below:

Research Question 1: What are the types of library and information resources available for utilization by academic staff in private universities in North Central, Nigeria?

Table 1: Observation Checklist Results of library and information resources available for utilization by academic staff in private universities in North Central, Nigeria

S/N		AUST		BUA		VU		NUN		AUI		LUO		SUO		CHU		BUN		UM		SU	
		A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA
	PRINT RESOURCES																						
1	Textbooks	√		√		√		√		√		√		√		√		√		√		√	
2	Journals	√		√		√		√		√		√		√		√		√		√		√	
3	Magazines	√		√		√		√		√		√		√		√		√		√		√	
4	Newspapers	√		√		√		√		√		√		√		√		√		√		√	
5	Dictionaries	√		√		√		√		√		√		√		√		√		√		√	
6	Encyclopedia	√		√		√		√		√		√		√		√		√		√		√	
7	Student research projects	√		√		√		√		√		√		√		√		√		√		√	
8	Literature book (novel, poems etc.)	√		√		√		√		√		√			X	√		√		√		√	
9	Conference proceedings	√		√		√		√		√		√		√		√		√		√		√	
10	Workshop papers	√		√		√		√		√		√		√		√		√		√		√	
11	Manuals		X	√		√		√		√		√		√		√		√		√		√	

12	Government publications	√		√		√		√		√		√			X		X	√		√			X
	ELECTRONIC RESOUCES																						
13	e-books	√		√		√		√		√		√		√		√		√		√		√	
14	e-journals	√		√		√		√		√		√		√		√		√		√		√	
15	e-newspapers	√		√		√		√		√		√		√		√		√		√		√	
16	Internet	√		√		√		√		√		√		√		√		√		√		√	
17	CD-ROMs	√		√		√		√		√		√			X	√		√		√		√	
18	Electronic student projects and Thesis	√		√		√		√		√		√		√		√		√		√		√	
19	Institutional repository	√		√		√		√		√		√			X	√		√			X		X
20	OPAC(Online Catalogue)	√		√		√		√		√		√		√		√		√		√		√	
21	e-abstract	√		√		√		√		√		√		√		√		√		√		√	
22	e-databases	√		√		√		√		√		√		√		√		√		√		√	
23	e-report	√		√		√		√		√		√		√		√		√		√		√	
	Total	**22**		**23**		**23**		**23**		**23**		**23**		**20**		**21**		**23**		**22**		**21**	

Data from table 1 above which was collected through observation checklist shows that all the 23 print and electronic information resources are available in Baze University, Abuja; Veritas University; Nile University of Nigeria; Al-Hikmah University, Ilorin; Landmark University, Omu-Aran, Kwara State; and Bingham University New Karu. On the other hand, manuals are not available in African University of Science and Technology; Institutional repository is not available in University of Mkar. While, government publications and CD-ROMs are not available in Crown Hill University, Eiyenkorin, Kwara State; government publication and Institutional repository in Salem University, Lokoja. Also, Summit University, Offa, Kwara State do not have Literature book (novel, poems etc.), government publications and CD-ROMs. This revealed that the outlined information resources are available in most of the university libraries of the private universities under study.

Research Question 2: What is the extent of utilization of library and information resources for research productivity by academic staff of private universities in North Central, Nigeria?

Table 2: Mean Response on the extent of Utilization of Library and Information Resources for Research Productivity by Academic Staff of Private Universities in North Central, Nigeria

S/N	Types of Information Resources	VHE	HE	LE	VLE	$\bar{x}$	SD	Decision	Rank
	Print Information Resources								
1	Journals	410	175	74	66	3.28	0.98	Accepted	1st
2	Textbooks	279	282	135	29	3.12	0.85	Accepted	2nd
3	Conference proceedings	198	262	183	82	2.79	0.97	Accepted	3rd
4	Workshop papers	176	271	208	70	2.76	0.93	Accepted	4th
5	Student research projects	158	336	126	105	2.75	0.95	Accepted	5th
6	Encyclopedia	104	303	236	82	2.59	0.87	Accepted	6th
7	Dictionaries	128	231	247	119	2.51	0.97	Accepted	7th
8	Magazines	124	260	177	164	2.47	1.02	Rejected	8th
9	Manuals	83	309	178	155	2.44	0.95	Rejected	9th
10	Government publications	34	290	245	156	2.28	0.85	Rejected	10th
11	Literature book (novel, poems etc.)	76	179	262	208	2.17	0.96	Rejected	11th
12	Newspapers	33	215	301	176	2.14	0.84	Rejected	12th
	Electronic Information Resources								
13	Internet	588	99	34	4	3.75	0.56	Accepted	1st
14	e-journals	486	177	17	45	3.52	0.82	Accepted	2nd
15	e-books	427	233	24	41	3.44	0.81	Accepted	3rd
16	e-databases	332	193	93	107	3.03	1.08	Accepted	4th
17	Electronic student projects and Thesis	275	214	175	61	2.97	0.98	Accepted	5th
18	e-report	279	267	56	123	2.97	1.07	Accepted	5th
19	e-abstract	204	320	119	82	2.89	0.94	Accepted	7th
20	Institutional repository	229	191	260	45	2.83	0.95	Accepted	8th
21	e-newspapers	273	93	255	104	2.74	1.11	Accepted	9th
22	OPAC(Online Catalogue)	118	325	204	78	2.67	0.87	Accepted	10th
23	CD-ROMs	125	100	275	225	2.17	1.05	Rejected	11th

KEY: VHE – Very High Extent; HE – High Extent; LE – Low Extent; Very Low Extent

Data in table 2 shows the responses on the extent of utilization of library and information resources for research productivity by academic staff of private universities in North Central, Nigeria. From the results; print information resources such as Journals, Textbooks, Conference proceedings, Workshop papers, Student research projects,

Encyclopedia, and Dictionaries, with mean ranging from 2.51-3.28 were accepted by the academic staff as the major print information resources they utilize for their research. On the other hand, electronic information resources, Internet, e-journals, e-books, e-databases, Electronic student projects and Thesis, e-report, e-abstract, Institutional repository, e-newspapers, and OPAC (Online Catalogue), with mean ranging from 2.67-3.75 were accepted by the academic staff as major electronic information resources they utilize for research. The standard deviation of items 1-23 ranged from 0.56–1.11. This revealed that the respondents were fairly close to one another in their opinion on the items.

Hypothesis 1: There is no significant difference in the extent of utilization of library and information resources for research productivity by academic staff based on their institution of affiliation.

Table 3: Summary of ANOVA on mean ratings of Academic Staff in the extent of Utilization of Library and Information Resources for Research Productivity based on their Institution of Affiliation

S/N		Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Between Groups	5.353	10	.535	0.743	0.684	Not significant
	Within Groups	514.446	714	.721			

Table 7, reveals that the F value 0.743 is significant at 0.684. Since this significant level 0.684 is higher than 0.05 level of significance at which the null hypothesis is tested, the null hypothesis is therefore upheld. Hence, there was no significant difference in the extent of utilization of library and information resources for research productivity by academic staff based on their institution of affiliation.

Hypothesis 2: There is no significant difference in the extent of utilization of library and information resources for research productivity by academic staff based on their professional status (rank)

Table 4: Summary of ANOVA on mean ratings of Academic Staff in the extent of Utilization of Library and Information Resources for Research Productivity based on their Professional Status (rank)

S/N		Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Between Groups	102.030	6	17.005	29.226	0.000	Significant
	Within Groups	417.768	718	.582			

Table 8, reveals that the F value 29.226 is significant at 0.000. Since this significant level 0.000 is less than 0.05 level of significance at which the null hypothesis is tested, the null hypothesis is therefore rejected. Hence, there was a significant difference in the extent of utilization of library and information resources for research productivity by academic staff based on their professional status (rank).

Discussion

Types of Library and Information Resources Available for Utilization by Academic Staff in Private Universities in North Central, Nigeria.

The findings of the study revealed that, there is adequate availability of print and electronic information resources in university libraries of private universities in North Central, Nigeria which the academic staff utilizes for their research activities. This implies that both electronic and print information resources are adequately available in all the private university libraries studied in north central Nigeria.

The finding of the study is in accordance with that of Akinola and Ngeme (2021) who found out that there are adequate availability of print and electronic information resources in university libraries in federal universities in north central, Nigeria. The findings of the study also correspond with that of Joseph, Shaashie and Mathias (2020) who also found out that there are adequate information resources in university libraries. The similarities between the two findings might be due to time and the fact that both were carried out in university libraries in Nigeria.

Extent of utilization of library and information resources for research productivity by academic staff of private universities in North Central, Nigeria

The findings of the study revealed that, the extent of utilization of library and information resources for research productivity by academic staff of private universities in North Central, Nigeria is high. However, the extent of utilization of electronic information resources is higher than that of print information resources by academic staff for their research productivity. This is because print information resources such as Magazines, Manuals, Government publications, Literature book (novel, poems etc.) and Newspapers are utilized to a low extent when compared to the utilization of all the electronic information resources ranging from e-journal, e-books, e-newspaper, e-magazines, among other e-resources which are utilized to a high extent among the academic staff.

The finding of the study is in accordance with that of Ani, Ngulube, and Onyancha (2015) who found out that academic staff prefer electronic information resources more than print information resources when carrying out their research activities. Similarly, the finding is also in accordance with that of Ismail and Khan (2020) who found out that researchers prefer the use of internet or online information resources to the print information resources. The similarities among the findings justifies the established fact that electronic information resources are more recent, relevant and more accurate for evidence-based research than print information resources.

Conclusion

The study examined the utilization of library and information resources for research productivity by academic staff in private universities in North Central, Nigeria. Based on the findings, the study concluded that, private universities in North Central Nigeria have adequate information resources (print and electronic) for meeting the research information needs of academic staff for enhanced research productivity. However, the academic staff utilizes electronic information resources than print resources. The study also concluded that, the research productivity of academic staff in private universities in North Central, Nigeria is inadequate to promote the global ranking of the private universities internationally. Utilization

of library and information resources has the potentials to enhance the research productivity of academic staff of private universities when properly and adequately utilized.

Recommendations

The following recommendations were suggested by the researcher based on the findings of the study:

1. The University Management should endeavor to continue to create conducive environment for the utilization of library and information resources for research among the Academic Staff

2. Creating awareness of new arrival among Lecturers through text message or memo by the University Library Management

3. The University and University Library Management should ensure that the institution subscribes to more electronic resources since the academic staff prefers it when carrying out their research.

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INFORMATION TECHNOLOGY (IT) TRAINING PROGRAMMES FOR EFFECTIVE YOUTH EMPOWERMENT IN KANKIA L.G.A, KASTINA STATE, NIGERIA

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Abstract

The rapid advancement of information technology (IT) has revolutionized various aspects of human life, including education, communication, healthcare and business. In developing countries like Nigeria, IT has the potential to serve as a powerful tool for youth empowerment by providing skills, knowledge and opportunities necessary for economic and social development. This demographic segment faces numerous challenges, including unemployment, poverty and limited access to quality education and training opportunities. The objectives of the study were to assess the current level of IT training programs for youth empowerment and to evaluate the impact of IT training programs for youth empowerment Descriptive survey research design was used. Questionnaires and interview were used for data collection and quantitative research method was adopted for the study. To ensure representativeness, a sample size of 300 respondents from 2,000 youths was determined by using Yamane's formula for finite populations. The findings revealed that while IT training programs exist in Kankia L.G.A, accessibility remains a major concern, with only 20% of respondents rating them as very accessible. A significant percentage (50%) found them moderately accessible, while 30% reported that they were not accessible. The impact of IT training on youth empowerment was evident, as 40% of respondents acknowledged an improvement in their digital skills, 30% applied their skills in employment and 15% used them for entrepreneurship and further education. The findings suggested that while these programs had a positive impact, their full potential is hindered by accessibility issues, limited training infrastructure and financial constraints. The study concludes by reaffirming that IT skills significantly enhance employment opportunities and promote entrepreneurship. However, for these benefits to be maximized, the paper recommended that IT training programs must be expanded and made more inclusive. Government intervention, public-private partnerships and community engagement are essential in ensuring the sustainability of these programmes.

Keywords: IT Trainings, Youth Empowerment, Entrepreneurship, employability and Information and Communication Technology (ICT)

Introduction

The rapid advancement of information technology (IT) has revolutionized various aspects of human life, including education, communication, healthcare and business. Youth is defined as individuals aged between 15 and 35 according to the National Youth Policy of Nigeria (Federal Ministry of Youth and Sports Development, 2019), they constitute a significant proportion of Nigeria's population. This demographic segment faces numerous challenges, including unemployment, poverty and limited access to quality education and training opportunities (Federal Ministry of Youth and Sports Development, 2019; National Bureau of Statistics, 2021).

Before the advent of IT, training programs in Nigeria were predominantly manual and classroom-based, often relying on traditional vocational skills such as tailoring, carpentry and farming. These training methods, though effective in the past, lacked the technological integration necessary for modern economic demands. They were largely inaccessible to a significant number of youths, especially in rural areas, due to infrastructural and logistical constraints (Okonkwo & Adepoju, 2019).

In Nigeria, government initiatives like the National Digital Economy Policy and Strategy (2020-2030) aim to enhance access to IT training for underserved communities. Adedokun et al. (2020) argue that while these initiatives have increased awareness about IT training, infrastructural gaps such as unreliable electricity and poor internet penetration still persist. Kankia Local Government Area in Katsina State, predominantly rural, is no exception to these challenges. With limited employment opportunities and a high dependence on agriculture, many youths in Kankia L.G.A lack the skills required to participate effectively in the modern economy. IT training programs, such as computer literacy training, digital marketing, software development and networking, offer a pathway for bridging this gap by equipping youths with digital literacy and technical skills that can enhance their employability and entrepreneurial potential (Akinyemi & Yusuf, 2021).

Information Technologies are the application of computers, networks and software for storing, processing and sharing information. Youth empowerment refers to the process of equipping young people with the skills, knowledge and confidence to participate fully in economic and social activities. The Nigerian government has implemented several youth empowerments programs such as; N-Power Program, Youth Enterprise with Innovation in Nigeria (YouWiN), National Directorate of Employment (NDE) Programs, Graduate Internship Scheme (GIS), Presidential Youth Empowerment Scheme (P-YES), TraderMoni & MarketMoni, Technology Incubation Centers (TICs) and Agricultural Youth Empowerment Scheme (AGYES)

Entrepreneurship is a critical pathway for youth empowerment and IT training facilitates entrepreneurial ventures by enabling youths to leverage digital tools and platforms. According to a study by Olowu (2022), IT-trained youths are more likely to identify innovative business opportunities and utilize technology to scale their enterprises. For instance, digital marketing, social media management and e-commerce platforms allow rural entrepreneurs to reach wider audiences.

According to UNESCO (2021), a lack of digital infrastructure and affordability are the primary barriers to IT training in rural areas. The digital divide is especially pronounced in Sub-Saharan Africa, where only 28% of rural households have access to the internet compared

to 57% in urban areas (World Bank, 2022). This disparity creates challenges for rural youths in gaining essential digital skills.

While the benefits of IT training are well documented, several empirical studies have identified significant barriers to its successful implementation. Adebayo et al. (2021) explored the challenges faced by IT training initiatives in rural Nigeria. The study highlighted infrastructural deficits, such as unreliable electricity and poor internet connectivity, as major obstacles. The lack of qualified trainers and gender disparities were cited as critical issues that limit program participation.

Administered by the Nigerian Communications Commission (NCC), the Universal Service Provision Fund (USPF) is designed to extend telecommunications and digital services to underserved and rural areas. One of the core objectives of the USPF is to support IT training programs that enhance digital literacy and promote economic empowerment. The fund provides grants and resources for the establishment of digital learning centers, particularly in regions with limited access to IT infrastructure (NCC, 2020).

Globally, IT training has been recognized as a critical component of youth empowerment. For example, in Kenya, the "Ajira Digital Program" provides digital job training to youths, enhancing employment prospects (World Bank, 2022). Similarly, Google's "Digital Skills for Africa" has trained millions of youths across the continent, enabling them to access better job opportunities and start their businesses. Factors such as poor infrastructure, lack of qualified trainers and limited awareness about the importance of IT training contribute to this gap. Moreover, the absence of a structured approach to integrating IT training into existing youth empowerment initiatives exacerbates the problem.

Problem Statement

Before the introduction of IT, training programmes for youths in Kankia L.G.A were primarily vocational, focusing on manual skills such as carpentry, tailoring and welding. While these skills remain relevant, they do not fully align with the digital economy's demands. The traditional training approach had limitations in scalability, accessibility and adaptability to modern technological advancements. The introduction of IT training programs has significantly transformed youth empowerment by enhancing employability and promoting entrepreneurship. Digital literacy, coding, graphic design and other IT-related skills have enabled many youths to secure remote jobs, establish online businesses and participate in the global digital economy. However, the adoption of IT training in rural areas like Kankia L.G.A has been slow, raising concerns about its effectiveness in labeling youth unemployment. (Digital Youth Nigeria, 2022).

Youth unemployment is a pressing issue in Nigeria, with the National Bureau of Statistics (NBS) reporting a youth unemployment rate of over 42% as of 2021. The lack of technical skills among youths has resulted in low employability and limited entrepreneurial opportunities, perpetuating poverty and social exclusion in the area (Digital Youth Nigeria, 2022). Without targeted interventions, the potential of IT training to transform the lives of youths in Kankia L.G.A may remain untapped.

This study aims to examine the impact of IT training programmes on youth empowerment in Kankia L.G.A. and to identify the specific needs of youths in the area, evaluate the effectiveness of existing programs and propose strategies for improving their implementation to achieve sustainable outcomes.

Research Objectives

The study objectives are to:

i. To assess the current level of IT training programmes for youth empowerment.
ii. To evaluate the impact of IT training programmes for youth empowerment.
iii. To establish challenges faced in the implementing IT training programmes for youth empowerment.
iv. To ascertain the strategies adopted for effective of IT programmes

Review of Related Literature

IT training programmes also promote social capital by building networks of collaboration and knowledge-sharing. Participants in these programmes often form professional communities that facilitate mentorship, innovation and resource exchange. This sense of community strengthens social cohesion and creates a supportive environment for collective growth (Chukwu & Nwachukwu, 2021).

In a similar vein, Alabi and Fakorede (2021) assessed the outcomes of IT training programmes in southwestern Nigeria. The study found that participants who received training in software development and digital content creation were more likely to establish successful tech startups.

Eze and Uzoamaka (2020) conducted a gender-focused analysis of IT training programmes in southeastern Nigeria. Their findings revealed that cultural norms and limited access to resources disproportionately affect young women, reducing their participation rates in IT training initiatives. Labeling these barriers is essential to achieving equitable outcomes and maximizing the impact of IT training programs.

Methodology

The study adopted quantitative research methods to provide a comprehensive understanding of the research objectives. The study employed a descriptive survey research design. The population comprises of 2,000 youths in Kankia L.G.A, Katsina State, who had participated in or are eligible to benefit from IT training programmes. To ensure representativeness, a sample size of 300 respondents was determined using Yamane's formula for finite populations. The study employed quantitative data collection instruments. The questionnaire was divided into sections based on the research objectives; Section A: Demographic Information, Section B: Access to IT Training Programmes, Section C: Impact of IT Training Programmes, Section D: Challenges in Implementing IT Training Programmes, Section E: Strategies for Effective IT Training Programmes. To ensure that the questionnaire accurately measures the research objectives, it was subjected to face and content validity checks. Data collection was conducted in two phases over a period of two weeks. The study employed both quantitative data analysis methods.

Data from questionnaires was coded and entered into the Statistical Package for the Social Sciences (SPSS) software, version 25.0. Descriptive statistics, including frequencies and percentages was used to summarize the data.

Results and discussion of findings

Level of Access to IT Training Programmes

Table 4.1: Accessibility of IT Training Programmes

Accessibility Level	Frequency (n)	Percentage (%)
Very Accessible	60	20%
Moderately Accessible	150	50%
Not Accessible	90	30%
TOTAL	300	100%

The accessibility of IT training programmes is important in determining the extent of youth participation in digital skills development. The findings indicate that 50% of respondents consider IT training programmes moderately accessible, while 20% found them very accessible. However, a significant proportion (30%) reported that IT training programmes were not accessible. This finding aligns with previous studies that emphasize the digital divide in rural communities, where IT infrastructure and training centers are limited. Accessibility issues may stem from inadequate government policies, limited financial support and a lack of awareness regarding available training programmes.

Studies in similar rural settings have shown that increased access to IT training can significantly improve youth employability and entrepreneurship opportunities (Smith & Jones, 2020). However, challenges such as high costs, long distances to training centers and limited facilities hinder access. To improve accessibility, local authorities should collaborate with non-governmental organizations (NGOs) and private institutions to expand digital training initiatives. Community engagement and targeted awareness campaigns may also bridge the accessibility gap.

Impact of IT Training Programmes

Table 4.2: Impact of IT Training Programmes on Youth Empowerment

Impact Areas	Frequency (N)	Percentage (%)
Improved Digital Skills	120	40%
Applied in Employment	90	30%
Used in Entrepreneurship	45	30%
Further Education	45	15%
Total	300	100%

The results indicate that IT training programmes have a positive impact on youth empowerment in Kankia L.G.A. About 40% of respondents reported improved digital skills, while 30% successfully applied these skills in employment. Furthermore, 15% of respondents utilized their IT knowledge in entrepreneurship and an additional 15% pursued further education.

These findings align with research by Johnson and Ahmed (2019), which highlighted that digital skills significantly enhance employability, particularly in sectors requiring IT proficiency. However, the relatively lower percentage of respondents who utilized IT training for entrepreneurship suggests that additional business support services, such as funding and mentorship programmes, may be necessary to maximize the economic benefits of IT skills.

Moreover, studies suggest that IT training programmes should include practical components such as internships and job placements to bridge the gap between training and employment opportunities (Nguyen, 2021). This can enhance the real-world applicability of digital skills, ensuring that more youths transition into gainful employment or entrepreneurial ventures.

Challenges in Implementing IT Training Programmes

Table 4.3: Challenges in Implementing IT Training

Challenges	**Frequency (N)**	**Percentage (%)**
Lack of Awareness	90	30%
Limited Training Center	120	40%
High Cost	60	20%
Poor Internet Connectivity	30	10%
Total	300	100%

Challenges in IT training implementation significantly impact program effectiveness. The most reported challenge (40%) was the limited number of training centers, followed by lack of awareness (30%) and high costs (20%). Poor internet connectivity was identified as a minor challenge, affecting only 10% of respondents.

Previous research by Smith et al. (2020) found similar limitations in rural IT training programmes, emphasizing the need for improved infrastructure and government support. Limited training centers restrict access for many youths, forcing them to travel long distances to acquire IT skills. The high cost of training further excludes disadvantaged groups, particularly those from low-income households. Labeling these challenges requires strategic interventions such as increased government funding, public-private partnerships and mobile training units to reach underserved areas. Digital literacy awareness campaigns can enhance programmes participation by informing more youths about available opportunities.

Strategies for Effective IT Training Programs

4.4: Strategies for Enhancing Effective IT Training Programmes

Strategy	**Frequency (N)**	**Percentage (%)**
Increased Funding	120	40%
Awareness Campaign	90	30%
Better Training Facilities	60	20%
Government Private Partnership	30	10%
Total	300	100%

Strategies for improving IT training effectiveness were explored, with increased funding emerging as the most preferred option (40%), followed by awareness campaigns (30%). Better training infrastructure and government-private partnerships accounted for 20% and 10% of responses, respectively. Funding constraints has been identified as a major barrier to IT skill acquisition in developing regions (Adeyemi & Ojo, 2018). Increased funding can enhance training accessibility, provide better resources and support the establishment of more IT training centers. Awareness campaigns are also essential, as many youths remain unaware of available IT training opportunities. A study by Okafor et al. (2021) found that social media

and community outreach programs significantly improved enrollment in IT training programmes.

Government-private partnerships play a critical role in IT training sustainability. By engaging private sector stakeholders, training programs can integrate industry-relevant skills, ensuring graduates meet market demands. Public-private collaborations have been successful in various countries and implementing similar models in Nigeria could enhance IT training effectiveness in Kankia L.G.A.

This study examined Information Technology (IT) training programmes and their role in youth empowerment in Kankia L.G.A, Katsina State, Nigeria. The study aimed to assess the accessibility of IT training programs, evaluate their impact, identify challenges in their implementation and explore strategies for improvement. The findings revealed that while IT training programmes exist in Kankia L.G.A, accessibility remains a major concern, with only 20% of respondents rating them as very accessible. A significant percentage (50%) found them moderately accessible, while 30% reported that they were not accessible. The impact of IT training on youth empowerment was evident, as 40% of respondents acknowledged an improvement in their digital skills, 30% applied their skills in employment and 15% used them for entrepreneurship and further education.

Challenges in implementing IT training programmes were also highlighted, with 40% of respondents citing limited training centers, 30% pointing to a lack of awareness and 20% mentioning high costs. Poor internet connectivity was a minor concern, affecting only 10% of respondents. The study also explored strategies to enhance IT training effectiveness, with 40% advocating for increased funding, 30% recommending awareness campaigns and 20% emphasizing the need for better training infrastructure.

Conclusion

IT training programmes are critical for youth empowerment, particularly in developing regions such as Kankia L.G.A. The findings suggest that while these programmes have a positive impact, their full potential is hindered by accessibility issues, limited training infrastructure and financial constraints. The study reaffirms that IT skills significantly enhance employment opportunities and promote entrepreneurship. However, for these benefits to be maximized, IT training programmes must be expanded and made more inclusive. Government intervention, public-private partnerships and community engagement are essential in ensuring the sustainability of these programmes.

Awareness campaigns should be strengthened to encourage more youths to participate in IT training. Strategic policy implementation focusing on funding, accessibility and skill applicability is important in bridging the digital divide and promoting economic growth through youth empowerment.

Recommendation

Based on the findings, the following recommendations were made to enhance IT training programmes in Kankia L.G.A:

1) The government and relevant stakeholders should allocate more funds to establish new training centers, upgrade existing infrastructure and provide free or subsidized IT training for youths.

2) Awareness campaigns through social media, local radio stations and community engagement initiatives could help inform more youths about available IT training opportunities.

3) Efforts should be made to enhance internet connectivity in training centers and rural communities to facilitate better learning experiences.

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LIBRARIANS' RESEARCH PRODUCTIVITY: A REFLECTION OF INSTITUTIONAL SPONSORSHIP TO CONFERENCES AND MENTORSHIP

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Abstract

The research productivity of librarians over the years have been on a downward slope necessitating the need to investigate the role of university management in addressing the ugly scenario. The study determined the influence of institutional sponsorship to conferences and mentorship on the research productivity of academic librarians in federal university libraries in South-South and South-East, Nigeria. The ex-post facto research design was adopted for the study. The population of the study comprised all academic librarians in all the federal university libraries in South-South and South-East, Nigeria numbering 350. The sample size was 289 academic librarians purposively selected from six federal university libraries. An instrument titled: Institutional sponsorship to Conferences and Mentorship Questionnaire (ISCMQ) was used to collect data for the study. The data collected from the field was analysed using mean and standard deviation as well as independent t-test. The findings of the study showed that sponsorship to conferences and mentorship influenced research productivity of academic librarians in federal university libraries in South-South and South-East, Nigeria but the test of significance showed no significant influence of sponsorship to conferences and mentorship on research productivity of academic librarians. Based on the findings of the study, it is concluded that institutional sponsorship to conferences and mentorship have not translated into research productivity among librarians in federal university libraries in South-South and South-East, Nigeria. Consequent upon the findings, it is recommended among others that university management should initiate and implement institutional policy on mentorship as this would in no small measure improve the research productivity of librarians.

Keywords: Institutional Indices, Sponsorship to Conferences, Mentorship, Research Productivity

Introduction

The advancement and prosperity of human society hinge significantly on the commitment to acquiring and utilizing knowledge. Knowledge acquisition and application are essential assets in driving societal progress. Recognizing this, nations consistently channel investments into initiatives aimed at expanding their knowledge base, with research being a primary vehicle for this growth. Research plays a pivotal role in acquiring knowledge that enhances quality of life and supports a nation's economic, social, political, and educational development. Both industrial growth and government effectiveness benefit significantly from research endeavours. Research is a structured approach to identifying solutions and generating new knowledge through systematic data collection, organization, and analysis. Its core purpose is the creation and dissemination of knowledge.

According to Agoh and Omekwu (2021), research as a deliberate process of gathering, verifying, analyzing, and sharing information with the academic community through scholarly outputs. Similarly, Castellacci (2023), avers that research is a systematic process of generating and sharing new knowledge that enhances understanding, drives innovation, and contributes to national development and societal well-being. Also, Schwengel and Toy (2019) assert that research is a core function of the university system invaluable for knowledge creation and innovation. In the same vein, Mubichakani et al., 2019) note that universities serve as centers of entrepreneurship and learning through research with their reputation and rankings largely determined by the quality and quantity of faculty research outputs, reinforcing the "publish or perish" imperative (Okonedo, 2015).

For academic librarians, engaging in research is essential. It broadens their service perspectives, enhances professional status, supports promotions and tenure, fosters recognition, and satisfies intellectual curiosity (Brew *et al.,* 2016; Haliso *et al.,* 2021). Often equated with publication output, research productivity includes all scholarly work produced over time by academics, including librarians. These outputs may appear in textbooks, journal articles, edited volumes, conference proceedings, bibliographies, and other scholarly media (Simisaye, 2020). According to the Association of College and Research Libraries (2017), academic librarians contribute meaningfully to the profession and institutional missions through their publications and these efforts also elevate their institutions' academic standing. The capacity and capability to engage in research and sustain research productivity is premised on individual characteristics, institutional factors and the prevailing research culture within an institution (Kienast, 2023). However, this crux of this study is on institutional factors with emphasis on sponsorship to conferences and mentorship.

Institutional factors encompass the policies, regulations, environments, and behaviour embedded within an organization's operations. Charles *et al.* (2012) assert that supportive institutional frameworks can enhance academic research productivity. Research by Apolinario *et al.* (2014), Hollister (2016), and Lessick *et al.* (2016) indicates that the level of institutional support provided to academic librarians directly affects their research productivity-higher support levels typically foster more research. According to Muhammed *et al.* (2015), Nigerian universities aim to contribute to national development through training skilled personnel, promoting societal values, and encouraging scholarship and service. Among these objectives, capacity building through teaching and research is paramount. Faborode (2016) supports this view, noting that universities exist fundamentally to generate new knowledge through quality research that addresses real-world issues.

Librarians in universities are responsible for supporting teaching, learning, and research while also contributing to institutional success through their own scholarly work (Nwankwo et al., 2017). They engage in research and publishing for personal, professional, and institutional reasons, demonstrating service value and fostering continuous improvement (O'Brien & Cronin, 2016; Hollister, 2016). In Nigeria, university policies require academic staff, including librarians, to meet publication standards for promotion and career advancement (Igiri et al., 2021; Okiki, 2013). However, academic librarians' capacity to conduct research depends to a great extent on institutional support of conference sponsorship and mentorship.

Conference is a formal gathering of individuals or professionals who come together to share knowledge, present research findings, exchange ideas, and discuss developments within a specific field or discipline. With specific relationship to academic librarians, conferences provide academic librarians with opportunities to present research, learn about emerging trends, and exchange ideas that enhance their professional knowledge and practice (Spilker et al., 2020). According to Bebenimibo and Mutua (2025), conferences serve as platforms that foster networking, collaboration, and exposure to new technologies and innovations that improve library services and research productivity. Moghdam *et al.* (2015) highlight that conferences allow academics to present work, learn new methods, and build networks. Okendo (2018) similarly argues that research visibility increases with conference participation, and institutions must support such attendance. Oyeyemi *et al.* (2019) suggest that poor research productivity in Nigeria may result from limited collaboration, partly due to low conference attendance. Okeji (2018) also reports that insufficient participation in conferences hampers academic librarians' output. Thus, fewer conference opportunities likely lead to reduced research productivity.

Mentorship is a supportive relationship in which an experienced individual guides, advises, and nurtures the personal and professional development of a less experienced person. It is recognised as another essential component in boosting research productivity, especially since many new faculty members may have inadequate knowledge of research methods (Owan et al., 2024). According to Ovais and Jain (2025), effective mentorship helps develop junior academics' research capabilities and supports long-term career growth. With reference to academic librarians, Freedman (2021) avers that mentorship helps academic librarians develop research skills, gain professional confidence, and enhance their career growth through guidance and knowledge sharing from experienced colleagues. In view of this, Goerisch et al. (2019) assert that many universities have formal mentoring systems aligned with their institutional missions. This is based on the recognition that mentorship significantly enhances research productivity (Anagbogu and Nwokolo, 2016). However, unlike universities in other climes, Nigerian institutions lack formal mentorship policies, potentially contributing to low research output.

The foregoing recognises that without the opportunities to present work at conference as well as the availability of effective mentorship, academic librarians may fall short of yielding productive research outcomes. Several studies by Rambe (2024) Uwizeye et al. (2022), Igiri et al. (2021) and Akuru (2019) revealed a seemingly low research productivity among academics especially in Africa citing several factors. This study explores how institutional factors-specifically conference sponsorship and mentorship influence the research productivity of academic librarians.

Objective of the Study

The study determined the influence of institutional factors on research productivity of librarians in federal university libraries in South-South and South-East, Nigeria. Specifically, the study sought to:

i. Determine the influence of sponsorship to conferences on the research productivity of academic librarians in federal universities libraries in South-South and South-East, Nigeria.
ii. Examine the influence of mentorship on research productivity of academic librarians in federal universities libraries in South-South and South-East, Nigeria.

Research Questions

The following research questions were answered in the study:

i. What is the influence of sponsorship to conferences on research productivity of academic librarians in selected federal universities libraries in South-South and South-East, Nigeria?
ii. What is the influence of mentorship on research productivity of academic librarians in federal universities libraries in South-South and South-East, Nigeria?

Null Hypotheses

The following null hypotheses guided the study:

i. There is no significant influence of sponsorship to conferences on research productivity of academic librarians in federal universities libraries in South-South and South-East, Nigeria.
ii. There is no significant influence of mentorship on research productivity of academic librarians in selected federal universities libraries in South-South and South-East, Nigeria.

Literature Review

Institutional factors represent the structural and operational elements of an organization that significantly influence its day-to-day activities. They include active organizational support through policies, regulations, and both financial and non-financial resources that motivate employees to perform efficiently and productively. According to Amoozegar et al. (2017), institutional factors are the support programs or requirements established by an institution as standards, practices, or benchmarks for achieving organizational goals and ensuring operational success. Similarly, Ai-Enazi (2016) defines institutional factors as university-provided support systems—such as research sponsorships, grants, publication assistance, technical and pedagogical support—especially important in knowledge-driven economies.

Taye et al. (2019) observe that institutional factors lay the groundwork for research and faculty performance. These include institutional objectives and policies that guide the development of performance evaluation frameworks and reward systems. The authors identify six key elements—environment, mission, leadership, information, strategy, and socialization—as crucial to fostering an organizational culture that boosts faculty performance. Iwu-James et al. (2021) also emphasize the importance of institutional factors in enhancing academic librarians' research productivity. These include opportunities for collaboration and networking,

competitive remuneration, adequate facilities, modern equipment, and access to research grants. They stress that effective institutional leadership in providing such support is essential for encouraging research engagement.

Research productivity is a measure of a researcher's scholarly activity, primarily reflected through publications. It is a cornerstone for a successful academic career, professional reputation, and institutional prestige. Jameel and Ahmad (2020) argue that research productivity is a key determinant of academic and institutional success, as it provides a basis for evaluating academic staff performance. Akbaritabar et al. (2017) note that while definitions vary, research productivity generally refers to the volume of peer-reviewed publications and scholarly books produced by academics over a specified period.

Heng et al. (2020) corroborate this view, stating that research productivity includes books, book chapters, journal articles, conference papers, awarded grants, and patents. Okonedo (2015) explains that for academic librarians, research productivity encompasses all research activities conducted throughout their careers. Basiru (2018) expands the definition to include professional journal articles, conference papers, book authorship or chapters, original data collection and analysis, postgraduate research supervision, editorial responsibilities, patent acquisition, monograph writing, experimental design, artistic or creative work, and public commentary. Additionally, research productivity can also be assessed through the number of publications, external funding secured, and citation count (Basiru, 2018). Adetayo et al. (2024) note that research productivity of academic librarians is measured through research output, publications, conference participation, research grants, and postgraduate supervision. Similarly, Khan et al. (2023) emphasize that such productivity is vital for advancing the library and information science field by fostering innovations that enhance library operations, service delivery, and user satisfaction.

According to Doğan and Arslan (2024), research productivity strengthens the academic reputation of both faculty members and the institution, enhancing visibility and attracting collaborations. This is supported by Igiri et al. (2021) that research productive academic librarians contribute to the intellectual capital of their universities by engaging in research that addresses contemporary information challenges, such as digital literacy, information retrieval, data management, preservation among others. However, Ndiango et al. (2024) asserted that several factors influence librarians research productivity and these are institutional support, self-efficacy, motivation, research skills, and access to resources.

This is supported by Buondau et al. (2024), that research productivity depends not only on individual effort but also on institutional factors, emphasizing the need for policies that promote open access publishing, scholarly communication skills as well as incentivising visibility enhancing activities. In view of this, Idoko et al. (2024) posited that institutional encouragement through research grants, conducive work environments, and recognition of scholarly achievements significantly boost the productivity of academic librarians. While these studies collectively highlight the positive influence of institutional factors, it is important to gauge the specific influence of sponsorship to conferences and mentorship on the research productivity of academic librarians

Sponsorship to Conferences and Research Productivity

Academic conferences serve as vital platforms for knowledge exchange and professional development. Buddie (2016) defines them as one- or multi-day gatherings where researchers present their work, interact with peers, and stay informed about current trends in their disciplines. Similarly, the Academic Association for Contemporary European Studies (2017) emphasizes that conferences foster collaboration, networking, and skill enhancement, all of which are essential for career advancement and research productivity. Paliwal et al. (2016) further describe conferences as opportunities for scholars to connect, share ideas, and gather information crucial for advancing research. Moghdam et al. (2015) note that conference participation promotes scholarly communication and knowledge sharing, encouraging academics to pursue publication-oriented research. Such events expose participants to new methodologies, expert insights, and opportunities for future collaboration. Institutions that seek to strengthen academic research output are encouraged to leverage the benefits of conferences, as they not only inspire new research ideas but also enhance the visibility and impact of scholars within their professional communities.

Several studies affirm the link between conference participation and research productivity. Atanda and Olasupo (2018) and Oyeyemi et al. (2019) identify conference attendance as a key indicator of sustained research engagement, while Alzuman (2015) and Rowe (2018) report that conferences enhance faculty experience and networking capacity. For librarians, Yarber et al. (2015) and Kennedy and Brancolini (2018) argue that conferences help address research skill gaps, while Idiegbeyan-Ose et al. (2015) and Mauvais-Jarvis (2016) stress the need for institutional funding to support attendance. However, in Nigeria, most academics self-finance conference participation due to limited institutional support and low salaries, which hinders research productivity (Atanda & Olasupo, 2018; Oyeyemi et al., 2019). Baro et al. (2017) further reveal that the mismanagement of research funds and the disproportionate allocation of budgets to salaries leave inadequate resources for conference participation and research development.

The foregoing highlighted the critical role of conferences in fostering research productivity, collaboration, and professional development among academics and librarians. It recognises that academic conferences enhance research productivity, professional networking, and skill development by providing platforms for knowledge exchange and collaboration. However, gaps exist in empirical evidence linking conference participation to measurable research outcomes among academic librarian in federal university libraries in South-South, Nigeria.

Mentoring System and Research Productivity

Nwafor and Oka (2018) define a mentor as a guide, counselor, educator, and role model who helps mentees navigate career challenges and personal development. Anagbogu and Nwokolo (2016) add that mentors are experienced advisers who support, train, and guide younger or less experienced colleagues, fostering confidence, creativity, and critical thinking.

Udegbe (2016) observes that in Nigerian universities, mentoring often refers to relationships where experienced lecturers support newcomers in research and teaching. Mgaiwa and Orestes (2021) view mentoring as a strategic tool for helping early-career academics transition smoothly into academic roles, offering support through research

supervision, evaluation, informal coaching, and personal guidance. The University of St. Andrews (2020) describes mentoring as a structured policy aimed at fostering professional development among all staff, not just newly appointed faculty. The program ensures new staff understand institutional expectations and helps them succeed in research, teaching, and administration.

In contrast, Nigerian universities lack formal mentoring policies. Anagbogu and Nwokolo (2016) report that this absence has led to low research productivity among junior academics, diminished enthusiasm for research, and increased plagiarism particularly among younger librarians who circulate unoriginal work. The "publish or perish" culture has transformed academia into a business, overshadowing genuine research and mentorship. Carmel and Paul (2015) argue that mentoring is essential for improving research output and navigating academic challenges. Okendo (2018) calls for creating faculty-level research teams to support skill development through mentorship.

Nwabueze and Anike (2016) and Nwankwo *et al.* (2017) emphasize the need for structured mentoring systems to foster productivity, acknowledging that successful mentoring requires effort, experimentation, and commitment. Despite the potential for setbacks, the long-term benefits justify continued investment in mentorship programs. They conclude that an effective mentoring program should establish mechanisms to match mentors and mentees based on personal and institutional goals. It must ensure equal access, address individual needs, consider sensitive issues, and ultimately contribute to institutional growth.

The reviewed literature highlights mentorship as a critical factor in academic and professional growth; however, it showed that low research productivity may be attributed to the lack of formal mentorship programs for academic librarians. However, gaps exist in empirical evidence linking mentorship to measurable research outcomes among academic librarian in federal university libraries in South-South, Nigeria.

Research Methodology

This study employed an ex-post facto research design, which is used in situations where the researcher cannot manipulate the variables under investigation because they have already occurred. This design was deemed appropriate as the focus of the study which was research productivity had already taken place and, therefore, could not be altered by the researcher during the course of the investigation.

The population for this study comprised 350 academic librarians working in federal university libraries across the South-South and South-East zones of Nigeria. From this population, a purposive sampling technique was employed to select 289 academic librarians from six federal universities namely University of Calabar, University of Uyo, University of Port Harcourt, University of Nigeria, Federal University of Technology Owerri, and Nnamdi Azikiwe University Awka. This method was considered appropriate because it allowed the researcher to deliberately target academic librarians who are directly involved in research and publication activities, ensuring that only those with relevant experience and responsibilities participated in the study

Data were collected using a researcher-designed instrument titled Institutional sponsorship to Conferences and Mentorship Questionnaire (ISCMQ) was used to collect data for the study. The questionnaire was divided into three sections: A, B, and C.

Section A gathered demographic data. Section B, which included 12 items, focused on institutional sponsorship to conferences and mentorship. Section C, comprising 11 items, addressed research productivity. Section B used a four-point Likert scale of Strongly Agree (4 points), Agree (3 points), Disagree (2 points), and Strongly Disagree (1 point). The use of a four-point Likert scale in this study was justified to eliminate the tendency of respondents to choose a neutral or indecisive option, which is common in a five-point scale.

By excluding the midpoint, respondents were encouraged to take a clear stance on each statement either agreeing or disagreeing thereby generating more decisive and meaningful data. Section C used a rating scale based on the number of publications: 1–20 publications (1 point), 21–40 publications (2 points), 41–60 publications (3 points), and 61–80 publications (4 points). The instrument underwent face validation by three experts to confirm its clarity and effectiveness in eliciting data aligned with the study objectives. The validators included two experts from the Department of Library and Information Science and one from the Department of Educational Foundations, Guidance, and Counseling (specializing in Measurement and Evaluation), all within the Faculty of Education, University of Uyo, Akwa Ibom State, Nigeria.

A trial test was conducted to assess the instrument's reliability using the inter-rater reliability method. Thirty librarians from Michael Okpara University of Agriculture, Umudike, and the University of Benin participated. The collected data were analyzed using Cronbach's Alpha, which yielded a reliability coefficient of 0.854, indicating the instrument was reliable for data collection. Descriptive statistics were used to answer the research questions, while independent t-tests were applied to test the hypotheses. A criterion mean (midpoint) of 2.50 was used to determine agreement or disagreement with the questionnaire items: scores of 2.50 or higher indicated agreement, while scores below 2.50 indicated disagreement.

Findings and Discussion

Research Question One

What is the influence of sponsorship to conference on the research productivity of academic librarians in federal university libraries in South-South and South-East, Nigeria?

Table 1: Mean and Standard Deviation Scores of academic Librarians on Sponsorship to Conferences

S/N	Sponsorship to conferences	$\overline{X}$	SD	Remarks
1.	I have been sponsored to conferences by my universities	2.72	0.76	Agreed
2.	I attend at least one conference every year fully sponsored by my university (2016-2020)	2.13	0.69	Disagreed
3.	I attend at least one conference every year partially sponsored by my university (2016-2020)	2.05	0.83	Disagreed
4.	Most of my researches are presented in conferences fully sponsored by my university	2.00	0.76	Disagreed
5	Most of researches are presented in conferences partially sponsored by my university	2.42	0.99	Disagreed
6	I have been sponsored to conferences to present papers by external bodies through the efforts of my university	2.23	0.93	Disagreed
	Cluster Mean	**2.26**	**0.83**	**Disagreed**

The result in Table 1 reveals the mean range for the response of academic librarians on sponsorship to conferences. The mean score of 2.71 which is above the cut-off mean of 2.50 for item one shows that academic librarians agreed that they have been sponsored to conferences by their universities. Based on the mean scores for items two, three, four, five and six which were below the cut-off point of 2.50, it shows that academic librarians disagreed on the attendance of conference at least one a year either partially funded or fully funded by the university. They further disagreed on presenting most of their research papers at conferences either fully or partially funded by their universities. Also, they disagreed on the sponsorship to conference by external bodies through the efforts of their universities. However, the cluster mean of 2.26 implies that sponsorship to conferences do not influence academic librarians' research productivity.

The results suggest that inconsistent or insufficient conference sponsorship limits librarians' exposure to emerging research trends, collaboration opportunities, and skills enhancement which are essential factors for improving research productivity. Without regular financial support or encouragement to attend academic conferences, librarians' ability to share findings, gain feedback, and build research networks remains constrained, ultimately hindering their research productivity.

Research Question Two

What is the influence of mentorship on the research productivity of academic librarians in federal university libraries in South-South and South-East, Nigeria?

Table 2: Mean and Standard Deviation Scores of Academic Librarians on Mentorship

S/N	Mentorship	X	SD	Remarks
1.	The university has a mentorship system that spreads across all disciplines	2.21	0.70	Disagreed
2.	I was given a research mentor at the time I was employed into the university	2.23	0.93	Disagreed
3.	At the library level, research teams are created to enhance research productivity of librarians through collaborative efforts	2.63	0.71	Agreed
4.	I have received insightful knowledge about research through mentorship system of the library management	2.78	0.58	Agreed
5	My ability to carry out research was enhanced by the mentorship system in the university library	2.76	0.74	Agreed
6	My research activities has been enhanced as a result of mentorship	2.81	0.76	Agreed
	Cluster Mean	**2.57**	**0.74**	**Agreed**

The result in Table 2 reveals the mean range for the response of academic librarians on mentorship. The mean scores for items one and two which are below the cut-off point of 2.50 shows that academic librarians disagreed on the availability of a mentoring system in the university and the assignment of a mentor to them at the point of being employed by the university. The other mean scores for other items above the cut-off point of 2.50 shows that academic librarians agreed that at the library level, research teams are created to enhance their research productivity, they have received knowledge about research through mentorship system in the library, their ability to carry out research was enhanced through mentorship in the library and their research abilities have improved as a result of mentorship. However, the cluster mean of 2.57 implies that academic librarians' research productivity is influenced by mentorship.

The results show that while most universities lack formal mentoring structures or designated mentors for new academic librarians, librarians acknowledged benefiting from informal or library-level mentoring initiatives. This suggests that informal mentoring relationships and collaborative research teams within libraries play a crucial role in enhancing librarians' research competence and productivity., This highlights the importance of peer learning and collegial support in fostering research development, especially in the absence of structured mentorship policies.

Test of Hypotheses

Hypothesis One

There is no significant influence of sponsorship to conferences on research productivity of academic librarians in federal university libraries in South-South and South-East, Nigeria

Table 3: Independent t-test Analysis of the Influence of Sponsorship to Conferences on Research Productivity of Academic Librarians in Federal University Libraries in South-South and South-East, Nigeria. (n= 267)

Variables		X	n	SD	t-cal	t-crit	Decision
Pair 1	Sponsorship to Conferences	13.54	267	3.94	1.30	1.97	Not Significant
	Research productivity	15.48	267	5.18			

*Not significant at P< .05; df= 265

The result in Table 3 reveals that the calculated t-value of 1.30 is less than the critical t-value of 1.97 at .05 level of significance and at 266 degrees of freedom. With this result, the null hypothesis is retained. This implies that there is no significant influence of sponsorship to conferences on research productivity of academic librarians.

The insignificant influence of sponsorship to conferences on research productivity is due to the fact that majority of academic librarians in federal university libraries in South-South and South-East, Nigeria have not been sponsored by their universities to any conference in the last five years either fully funded or partially funded to present papers. The findings of the study is in agreement with that of Iwu-James *et al.* (2021) and Okendo (2018) which revealed that sponsorship to conferences have no significant influence on research productivity of academic librarians because universities do not fund sponsorship to conferences that would allow academics to collaborate and network with others academics in order to leverage on the knowledge and expertise of colleagues to become resourceful in undertaking research. In contrast with the findings from this study, Moghdam *et al.* (2015) and Paliwal *et al.* (2016) reported that sponsorship to conferences have a significant influence on research productivity of academics as it is a forum for scientist to network and gather information necessary for research productivity.

The findings of the study that show that sponsorship to conferences does not significantly influence research productivity of academic librarians in federal university libraries in South-South and South-East, Nigeria is as a result of lack of investment in that direction. Academic librarians do not get the needed sponsorship to conferences from their universities and as such cannot present their papers, collaborate with other colleagues and share ideas that important to enhance research engagement.

The insignificant influence of sponsorship to conference on research productivity of academic librarians is hinged on inadequate institutional sponsorship, limited funding opportunities, and inconsistent participation. All these restrict their access to knowledge exchange, collaboration, and publication opportunities that drive scholarly output.

Hypothesis Two

There is no significant influence of mentorship on research productivity of academic librarians in federal university libraries in South-South and South-East, Nigeria

Table 4: Independent t-test Analysis of the Influence of Mentorship on Research Productivity of Academic Librarians in Federal University Libraries in South-South and South-East, Nigeria (n= 267)

Variables		$\bar{X}$	n	SD	t-cal	t-crit	Decision
Pair 1	Mentorship	18.41	267	3.14	0.19	1.97	Not Significant
	Research productivity	15.48	267	5.18			

*Not significant at P< .05; df= 265

The result in Table 4 reveals that the calculated t-value of 0.19 is less than the critical t-value of 1.97 at .05 level of significance and at 265 degrees of freedom. With this result, the null hypothesis was retained. This implies there is no significant influence of mentorship on research productivity of academic librarians.

The results from the findings of the study is not significant because mentorship though recognised as an important tool not only for ensuring the research productivity of academic librarians but also for their well-rounded development within and outside the field has not been seen as a necessity for improved research productivity among academics with librarians inclusive. In affirmation with the findings of the study, Anagbogu and Nwokolo (2016) who carried out a study on preparing for research mentoring in Nigerian colleges and universities report that mentoring creates opportunities and suitable environment for the personal, social, educational and vocational development, as well as growth of new faculty and young researchers but this has not translated into that because of the lack of formal mentoring system in Nigerian tertiary education system.

The findings of the study are in line with that of Nwabueze and Anike (2016) in their study of mentoring strategies in use for professional development of librarians in South-East federal university libraries and report that mentorship has not influenced the research and professional development of academic librarians in South-East, Nigeria. However, the authors assert that mentorship is an important factor in the research and professional development of academic librarians and would encourage research productivity if formally initiated. Also, the findings of the study corroborate with that of Nwankwo *et al*. (2017) who studied the mentoring of young librarians in South East Nigeria for improved research and scholarly publications and report that mentorship does not influence the research and scholarly output of young academic librarians in South-East, Nigeria. However, the authors assert that mentorship is a necessity for increased research output among young academic librarians if formalised in the library.

The findings from the study disagree with that of Mgaiwa and Kapinga (2021) who studied the issues and challenges of mentorship in early career academics report that mentorship is a strategy used in the preparing young academic for a life in the academia both for teaching and research. This is so because it involves academic advising, research or laboratory supervision, evaluation, informal support, personal support, and career coaching.

The insignificant influence of mentorship on research productivity of academic librarians is hinged on the fact that most universities lack formal mentoring structures, leading to irregular guidance, limited research collaboration, and insufficient transfer of scholarly skills from senior to junior librarians. The absence of formal mentoring structures results in inadequate research guidance, constrained professional development, diminished self-efficacy among early-career librarians, weakened collaborative engagement, and consequently, a decline in research productivity.

Conclusion

This study advances knowledge on institutional influences on librarians' research productivity by providing empirical evidence from federal university libraries in South-South and South East, Nigeria, revealing that sponsorship to conferences and mentorship have not significantly improved librarians' research output. Thus, offers practical insights for university management and policymakers on the need for structured mentorship systems and consistent conference funding to enhance librarians' research capacity, foster collaboration, and improve the overall visibility and scholarly reputation of academic librarians. in South-South and South-East, Nigeria.

Recommendation

Consequent upon the findings from the study, it is recommended that:

i. University management should make sponsorship to conference a priority for academic librarians especially those going to present papers. This creates opportunity for increased international and national collaboration and networking that can be used to increase research productivity.

ii. It is high time the university management instituted a formalized mentoring system among academic staff. This is considered important and long overdue within the Nigerian university system as research productivity can be greatly enhanced through mentorship.

iii. There is need for government to improve the funding for university education in Nigeria. This should go beyond paying lip service but rather a conscious effort at improving university education by ensuring that adequate funds are allocated and judiciously used to deliver quality service to the university communities as well as improve the level of funding for research activities.

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CHALLENGES IN IMPLEMENTING PUBLIC RELATIONS PRACTICES FOR ENHANCED SERVICE DELIVERY IN STATE UNIVERSITY LIBRARIES OF BENUE AND NASARAWA STATES

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ABSTRACT

This study investigated challenges in implementing public relations practices for enhanced service delivery in state university libraries of Benue and Nasarawa states, Nigeria. The study was guided by two research questions and one hypothesis. The survey research method was used for this study. It employed descriptive research design with population of 131 library staff of Rev. Fr Moses Orshio Adasu University Library and Information Services and Nasarawa State University Library Keffi. The study adopted a census sample approach where all 131 library staff were studied. Data were collected through well-structured questionnaires. The total of 131 questionnaires were administered to respondents and of the number, 103 were returned representing 78.63% return rate. Data were analyzed using descriptive and inferential statistics. Findings revealed that despite the benefits of public relations practices in promoting the value of the library and shaping public perception, systems limitations continue to hinder the implementation of public relations practices in Benue and Nasarawa State university libraries. The study showed that insufficient funding (mean=3.37), incessant power outages (mean=3.34), absence of public relations department and slow internet connectivity (mean=3.30) are critical financial and technological constraints in carrying out public relations practices in the State University libraries. The study discovered that librarians understand some strategies for ensuring public relations practices to enhance service delivery in university libraries in Benue and Nasarawa States. The result further showed that sufficient budgeting for Library public relations activities obtained a mean score of 3.38 which underscores the critical need for dedicated financial resources for sustaining effective public relations practices in the libraries. The study concluded that public relations practices are essential for enhancing service delivery and visibility of university libraries. However, financial, technological and institutional constraints hinder their full implementation. It therefore recommends adequate funding, establishment of dedicated public relations unit and continuous staff training for public relations engagement.

Keywords: Public relations practices, Publicize, Communication, Resources, Service delivery

Introduction

Public relations practices in libraries have increasingly become an essential activity for libraries of all types particularly university libraries. Studies by scholars in the field of library and information science such as by Umelo and Nyemezu (2023) as well as Udofot and Abi (2024) affirms that the integration of public relations practices in University libraries plays a pivotal role in building goodwill, enhancing communication, mutual understanding, and correcting the challenges of limited visibility and strengthening the positive image of the library. Similarly, Udofot and Sambe (2021) argue that the interdependency between academic libraries and their various publics has become necessary for libraries to adopt effective public relations to ensure continued relevance. It is possible to say that the ability of university libraries to make their patrons aware or promote their resources and services can determine its level of performance and success in achieving its mandate of supporting the mission of their parent institution. It must be borne in mind, that the university library has to ensure students, staff and researchers have access to latest scientific trends in their field of specialization by providing information resources of various types or forms, organizing and processing them in order to facilitate easy access and use (Shimawua & Ternenge, 2022).

Service delivery in libraries as the process of providing access to information resources, programs and services offered by the library to meet the information, educational, cultural and recreational need of a user community. In their work, Bassey et. al (2024) citing Kumar in Dogara describe service delivery as the generation, collection, organization and dissemination of up-to-date, accurate, unbiased and relevant information available in a variety of formats when demanded by the user or in anticipation of demand. This involves planning, implementing and continuously improving library practices to ensure access to relevant and reliable information resources such as books, journals, e-books, e-magazines, databases and multimedia as well as information services. Conversely, if organisation such as the university library cannot implement public relations practices, it may lead to poor performance, institutional neglect and ultimately, the risk of going into extinction.

Public relations is a global practice adopted by organisations to project a good reputation, create awareness of their products or services, communicating and receiving feedback from their publics. Iorshe, Amene and Solomon (2025) noted that through public relations, librarians receive feedback from the publics which enable them to evaluate their services and make improvements that aligns with the interest of all stakeholders. Public relations practices in the context of librarianship is defined by Shidi and Sambe (2019) as those library activities that are geared towards creating a positive image, publicizing resources and services as well as reputation of the library institutions before its publics.

The purpose of implementing public relations practices in the library is to ensure that the objectives of the library, its policies as well as resources and information services are effectively communicated, publicized and made known to potential users. Such practices accelerate goodwill, foster trust and enhance mutual understanding among all stakeholders. In this regard, Odede (2012) asserts that building relationships with people or organisations through sustained communication and feedback is a necessity of life, hence libraries and librarians cannot operate in isolation. Public relations practices therefore become a strategic necessity for libraries in the quest to remain relevant, attract institutional support and responsive to the user communities.

Furthermore, public relations practices enable libraries to showcase their significance and highlight the value of their collections. It is a common fact that many potential users within the university environment remains unaware of the relevance and richness of the university library collections and information services. As such, by implementing public relations practices such as resource display, information literacy programmes, etc. libraries can draw attention of their holdings and services. Apparently, public relations practices in university libraries serves as a mechanism for aligning the library with the needs of its user community.

However, implementing library public relations in university libraries has become an uphill task as a number of challenges militate against effective public relations practices. These challenges include lack of passion for public relations or absence of public relations department/practitioners. Some University libraries have not integrated or established public relations units in their libraries (Umelo and Nyemezu,2023). Even where there is the recognition for public relations, experts are not employed. There is also lack of Information Communication Technology (ICT) skills, digital divide and the inability of some library staff to embrace modern technologies. In their argument, Shidi and Sambe (2019) identified some of the challenges to include among others, inadequate financial allocation; lack of social media skills, lack of specialized staff in the area of public relations and lack of internally accepted media. There is the need to maintain programmes or activities that are in the best interest of the university library because that will showcase the relevance of the library.

So far as the library has enormous activities and services to deliver, university libraries also have to continually strive to create the consciousness and awareness of its existence, information resources available and services so as to establish a healthy and beneficial relationship with its publics. It is against this backdrop that this study investigates the challenges to implementing public relations practices for enhanced service delivery in State University libraries in Benue and Nasarawa States.

Statement of the Problem

Public and private organizations have continually strived to achieve success and sustain their standard of product and services so as to maintain a beneficial relationship with the public especially their customers. The university library is an important institution that should not be exempted from this strive to gain public acceptance, patronage and sustained support from all stakeholders of the library. However, current situation surrounding the implementation of public relations practices at State university libraries in Benue and Nasarawa State is unknown. There seem to be no data (research) carried out particularly to interrogate the challenges of implementing public relations practices in the State University libraries in the areas under study. If these challenges are not identified or addressed, it could lead to poor performance of the library, under-utilization of information resources and services offered by university libraries. Also, the poor image and negative attitude of people towards libraries may persist. It is against this backdrop that, this study examined the challenges in implementing public relations practices for enhanced service delivery in State university libraries in Benue and Nasarawa States.

Research Questions

The following research questions guided the study;

1. What are the challenges against public relations practices in promoting effective service delivery in State University libraries in Benue and Nasarawa States?

2. What are the strategies to employ for building effective public relations practices to enhance service delivery in State University libraries in Benue and Nasarawa States?

Hypothesis

Challenges of public relations practices has no significant influence on service delivery in State University libraries in Benue and Nasarawa States.

Literature Review

At the core of the implementation of public relations in university library is the librarian who develop a systematic and sustained plan for public relations practices in the library. Supporting the foregoing, Akai and Udoh (2025) assert that, the librarian remains the foremost public relations officer of the library. This implies, that the librarian's role included to give direction and coordinate activities that will foster mutual understanding, build trust as well as create awareness of library resources and services to enhance patronage. To achieve this, the librarian coordinate and manages public relations activities in the library which involves undertaking several responsibilities. In doing so, the librarian faces several challenges including financial constraint and competing institutional priorities. There is a growing body of literature that revealed several challenges against the implementation of public relations practices by librarians.

Challenges Against Implementing Public Relations Practices for Promoting Effective Service Delivery in University Libraries

Public relations in libraries can be considered as the central medium through which librarians promote, project a good reputation of the library and build trust between the library and its publics. The publics of the library refers to those who have something to do with the library such as undergraduate students and postgraduate, lecturers and researchers from other institutions. Public relations is also essential in raising awareness of the library holdings and offerings which contributes to enhance teaching, learning and research output of the University. Despite its importance and capacity of public relations practices to promote effective service delivery, university libraries remain constrained.

Empirical and theoretical works such as that of Shidi and Sambe (2019) identified challenges university libraries face in the course of implementing public relations to include but not limited to difficulty in attending to/satisfying library publics with varied needs and preferences, lack of conscious plan to attract good will, ignorance of the benefits of library public relations, cost of sponsorship of public relations activities, inadequate financial allocations, personal and selfish interest of some staff, inadequate attention being paid to library development, lack of social media skills, lack of knowledge about Information and Communication Technology (ICT), lack of internally accepted media, lack of recognition, difficulty in establishing library public relations units, poor understanding of library public relations concept, lack of specialization in the area of public relations and inability of some library staff to embrace new technologies. In the work of Arum, Achi and Ewuzie (2024) conducted an assessment of public relations practices of selected universities in Enugu state,

Nigeria the objective of the study was to assess the activities of public relations units in managing and marketing the image of the university and challenges of implementing public relations practices. The study adopted descriptive survey design with a sample of forty-three staff of public relations units of three selected universities.

Data were collected using questionnaire. Findings from the study showed that the universities public relations units employed education and enlightenment campaigns to manage and marketed the image of the selected universities to the public. Furthermore, the study revealed challenges that confront public relations practices in the universities under study to be majorly inadequate funding and lack of adequate tools and non- participation in decision making. Based on the findings, it was recommended that public relations units of the universities be adequately funded and furnished with modern tools and involve in decision making of the universities. In a related study of Umelo and Nyemezu (2023) examined the influence of public relations on service delivery in Rivers state university library.

The purpose of the study was to identify public relations practices employed for enhancing library services in Rivers State University library and challenges associated with public relations practices in promoting effective library service delivery. The study adopted descriptive research design with a sample of thirty (30) library staff of all cadres in Rivers state university Library. The study found out, that Rivers state university offers services that facilitate good public relations such as lending services, inter-library loan services, reservation services, exhibition services etc. The study revealed major challenges such as insufficient funds to acquire public relations tools, absence of public relations department, and absence of library involvement in university and students social activities.

Strategies for Building Effective Public Relations Practices to Enhance Service Delivery in University Libraries

The relevance of public relations practices in any organisation cannot be downplayed. As such there is need for strategies to be employed to sustain public relations activities in university libraries. These strategies refer to actions by which an organization such as the university library may adopt to help it move from its current situation to its desired goals which include gaining publicity, growing its customer base or improving on its reputation. Indeed Editorial Team (2024) argues that public relation strategies help an organization to attract its target customers and identify ways to reach its goals.

John and Haliru (2020) examined public relations for effective service delivery: Kenneth Dike Library, University of Ibadan, Oyo State Nigeria. The purpose of the study was to find out the public relations practices for effective service delivery, find out challenges and strategic possible solutions to the implementation of public relations practices in the institution. A sample size of 218 was used for to obtain data which were analyzed using Statistical Package for Social Science (SPSS). Regression analysis was also used to establish the relationship between public relations practice and service delivery. The findings of the study confirmed that public relations practice in Kenneth Dike library was very effective as students affirmed it enabled them get information needed on time. The study furthered affirmed strategies overcome challenges such as deploying some marketing strategies to create awareness through social media for dissemination of information resources, creation of public relations units, and user education among others. These finding are in agreement with Umelo and Nyemezu (2023) whose study on public relation strategies needed to enhance service delivery in Rivers State University library viewed that proper orientation, sufficient provision

of funds, establishment of public relations unit in the library and renovation of library buildings were accepted with very high percentage scores.

Methodology

The study employed the survey research method and a descriptive survey research design to collect and analyze data systematically. Descriptive survey enables the researcher to identify the present condition of an entity or to study immediate status of a phenomenon. This is supported by Ekere, Omekwu and Nwoha (2016) who noted that descriptive survey research design is only interested in describing certain characteristics in relations to population. The population of the study was made up of 131 library staff of Rev. Fr Moses Orshio Adasu University (MOUAM) and Nasarawa State University Keffi (NSUK).

The population was obtained from the offices of the University Librarians of the institutions under study. Out of the 131 library staff, 17 and 53 were professionals and paraprofessionals respectively of NSUK and 24 and 37 professionals and paraprofessionals were of MOUAM. The study adopted census approach to study the 131 library staff comprising 41 professionals drawn from Rev. Fr Moses Orshio Adasu University Library and Information Services and Nasarawa State university library and 90 para-professionals from the two university libraries.

In doing this, 24 professionals were drawn from Rev. Fr Moses Orshio Adasu University Library and Information Services, Makurdi and 17 from Nasarawa State University Library, Keffi. Similarly, 37 para-professionals were drawn from Rev. Fr Moses Orshio Adasu University Library and Information Services and 53 from Nasarawa State University Keffi. The choice of census method is supported by Kelechi (2025) who noted that census method is suitable in a study with small population to obtain accurate information from every single member of the population.

The instruments used for data collection in this study was a structured questionnaire titled Challenges in Implementing Public Relations Practices for Enhanced Service Delivery Questionnaire (CIPRPESDQ) which consisted of two clusters with 13 and 11 items in cluster one and two respectively. The researchers administered 131 questionnaires and of the number, 103 were returned representing a 78.63% rate of returned questionnaires used for analysis. Data collected for this study were analyze using descriptive statistics of frequency counts, percentages, mean and standard deviation to answer research questions and Chi-square was used to test the hypothesis at 0.50 level of significance. In terms of decision making, a mean criterion of 2.50 and above was considered agreed while a mean below 2.50 criterion was disagreed.

Table 1: Population of the Study

S/NO.	STAFF CADRE	MOUAM	NSUK
1.	Professional Librarians	24	17
2.	Para-professionals	37	53
3.	**Total**	**61**	**70**

Source: Field Survey (2025)

Results

Research Question One: What are the challenges of implementing public relations practices in effective service delivery in State University libraries in Benue and Nasarawa States?

Table 2: Challenges of Implementing Public Relations (PR) Practices to Enhance Service Delivery at State University Libraries in Benue and Nasarawa States

N=103

S/N	Items	SA	A	D	SD	Mean	Standard Deviation	Decision
1	Insufficient funding to acquire PR tools and high cost of sponsoring PR activities	52	40	7	4	3.37	0.72	Agree
2	Incessant power outage	50	42	6	5	3.34	0.73	Agree
3	Absence of public relations department	48	43	7	5	3.31	0.74	Agree
4	Inadequate knowledge of PR benefits for the library	45	46	6	6	3.28	0.75	Agree
5	Slow internet connectivity/high cost of subscription	47	45	5	6	3.30	0.74	Agree
6	Lack of passion for public relations programs	42	48	7	6	3.24	0.76	Agree
7	Frustration due to poor working conditions or environment	49	44	6	4	3.35	0.72	Agree
8	Shortage of experienced manpower	46	45	6	6	3.29	0.75	Agree
9	Negative attitude of users towards librarians	41	50	6	6	3.23	0.77	Agree
10	Lack of conscious planning and implementation of PR activities	44	47	6	6	3.27	0.76	Agree
11	Lack of digital literacy/social media skills	43	47	6	7	3.25	0.76	Agree
12	Lack of specialization in the area of library public relations	48	44	6	5	3.34	0.71	Agree
13	Non-beautification and renovation of the library to make it look attractive	50	42	6	5	3.35	0.72	Agree

Source: (Field Survey, 2025)

The table presents the challenges associated with implementing public relations practices for effective service delivery in university libraries in Benue and Nasarawa States. Regarding insufficient funding to acquire public relations tools and the high cost of sponsoring PR activities, 52 respondents were strongly agree, 40 agree, 7 disagree, and 4 strongly disagree. The mean of 3.37 confirms its acceptance as a major challenge. Similarly, incessant power outage is a significant challenge, with 50 respondents strongly agreeing, 42 agreeing, 6 disagreeing, and 5 strongly disagreeing, recording mean score of 3.34.

For the absence of a public relations department, 48 respondents were strongly agree, 43 agree, 7 disagree, and 5 strongly disagree, yielding a mean of 3.31, confirming its importance. Inadequate knowledge of PR benefits for the library was also rated as a challenge, with 45 strongly agreeing, 46 agreeing, 6 disagreeing, and 6 strongly disagreeing, resulting in

a mean of 3.28. Similarly, slow internet connectivity and the high cost of subscription were acknowledged as a challenge against implementing PR, with 47 strongly agreeing, 45 agreeing, 5 disagreeing, and 6 strongly disagreeing, leading to a mean of 3.30.

Furthermore, lack of passion for public relations programs was identified as an issue, with 42 strongly agreeing, 48 agreeing, 7 disagreeing, and 6 strongly disagreeing, yielding a mean of 3.24. Frustration due to poor working conditions or environment was also considered as a major challenge, as 49 respondents were strongly agree, 44 agree, 6 disagree, and 4 strongly disagree, resulting in a mean of 3.35. Shortage of experienced manpower was identified as a challenge, with 46 respondents strongly agreeing, 45 agreeing, 6 disagreeing, and 6 strongly disagreeing, giving to a mean of 3.29. Negative attitude of users towards librarians was widely acknowledged as a challenge, with 41 respondents strongly agreeing, 50 agreeing, 6 disagreeing, and 6 strongly disagreeing, with a mean of 3.23.

Regarding lack of conscious planning and implementation of PR activities, 44 respondents were strongly agree, 47 agree, 6 disagree, and 6 strongly disagree, yielding a mean of 3.27, confirming it's a challenge. Lack of digital literacy and social media skills was another identified challenge, with 43 strongly agreeing, 47 agreeing, 6 disagreeing, and 7 strongly disagreeing, leading to a mean of 3.25. Lack of specialization in the area of library public relations was also highlighted, with 48 respondents strongly agreeing, 44 agreeing, 6 disagreeing, and 5 strongly disagreeing, resulting in a mean of 3.34. Finally, non-beautification and renovation of the library to make it look attractive was recognized as a major problem, with 50 strongly agreeing, 42 agreeing, 6 disagreeing, and 5 strongly disagreeing, leading to a mean of 3.35.

Research Question Two: What are the strategies to employ for building effective public relations practices to enhance service delivery in State University libraries in Benue and Nasarawa States?

Table 3: Strategies Employed for Building Public Relations Practices to Enhance Service Delivery at State University Libraries in Benue and Nasarawa States

N=103

S/N	Items	SA	A	SD	D	Mean	Standard Deviation	Decision
1	Ensure sufficient budgeting for library public relations activities	54	39	6	4	3.38	0.70	Agree
2	Ensure provision of adequate power source through alternative means	53	40	5	5	3.37	0.71	Agree
3	Ensure establishment of functional Public Relations unit in the library	50	43	6	4	3.36	0.72	Agree
4	Ensure use of radio, television, social media, and readership campaigns	48	45	5	5	3.34	0.73	Agree
5	Ensure reporting achievement of the library to the management of parent body	49	44	6	4	3.34	0.72	Agree
6	Ensure regular subscription, exhibition, book fairs, and special events	47	46	5	5	3.32	0.74	Agree
7	Ensure library/librarians' involvement in all campus activities, including university and student-sponsored events, to create publicity of library holdings and services	46	47	6	4	3.31	0.74	Agree
8	Ensure renovation of the library building to keep it good-looking and attractive	52	41	5	5	3.36	0.72	Agree
9	Ensure proper orientation and motivation of library staff	50	42	6	5	3.34	0.73	Agree
10	Ensure the library establishes a social media presence online	48	44	6	5	3.32	0.74	Agree
11	Ensure proper and sustainable staff training and retraining on public relations programs	51	42	6	4	3.36	0.72	Agree

Source: (Field Survey, 2025)

The table 3 presents the strategies needed for ensuring effective public relations practices to enhance service delivery in university libraries. The first strategy, sufficient budgeting for library public relations activities, had 54 respondents strongly agreeing, 39 agreeing, 6 strongly disagreeing, and 4 disagreeing, with a mean of 3.38, confirming its importance. Similarly, ensuring the provision of an adequate power source through alternative means was supported, with 53 strongly agreeing, 40 agreeing, 5 strongly disagreeing, and 5 disagreeing, resulting in a mean of 3.37. The establishment of a functional Public Relations

unit in the library was also recognized as essential strategy, with 50 strongly agreeing, 43 agreeing, 6 strongly disagreeing, and 4 disagreeing, leading to a mean of 3.36.

For the use of radio, television, social media, and readership campaigns, 48 respondents were strongly agree, 45 agree, 5 strongly disagree, and 5 disagree, producing a mean of 3.34, indicating a positive reception. Reporting achievements of the library to the management of the parent body also received strong agreement, with 49 strongly agreeing, 44 agreeing, 6 strongly disagreeing, and 4 disagreeing, yielding a mean of 3.34. Regular subscription, exhibition, book fairs, and special events were also emphasized, with 47 respondents strongly agreeing, 46 agreeing, 5 strongly disagreeing, and 5 disagreeing, resulting in a mean of 3.32. Additionally, involvement of the library and librarians in all campus activities to enhance publicity had 46 respondents strongly agreeing, 47 agreeing, 6 strongly disagreeing, and 4 disagreeing, with a mean of 3.31.

Renovation of the library building to keep it attractive was another widely supported strategy, with 52 strongly agreeing, 41 agreeing, 5 strongly disagreeing, and 5 disagreeing, leading to a mean of 3.36. Proper orientation and motivation of library staff was also recommended, with 50 strongly agreeing, 42 agreeing, 6 strongly disagreeing, and 5 disagreeing, resulting in a mean of 3.34. Regarding establishing social media presence for the university library, 48 respondents strongly agreed, 44 agreed, 6 strongly disagreed, and 5 disagreed, yielding a mean of 3.32. Finally, proper and sustainable staff training and retraining on public relations programs was considered appropriate and agreed upon, with 51 strongly agreeing, 42 agreeing, 6 strongly disagreeing, and 4 disagreeing, leading to a mean of 3.36.

Table 4: Chi-square Test on the challenges of public relations practices on service delivery at State University Libraries in Benue and Nasarawa States

Opinions	Observed Frequency	Expected Frequency	Df	X^2cal	X^2tab	Level of Sig	Decision
No Influence	30 (28.7%)	50 (49.5%)	1	21.36	3.84	0.000	Significant
Influence	73 (72.3%)	50 (49.5%)					

Values in parentheses are percentages ($X^2 = 21.36$, df = 1, p = 0.05 > 0.00)

Table 4 presents the descriptive statistics (percentages) and inferential statistics (chi-square test) used to determine the challenges of implementing public relations practices to enhance service delivery in State University libraries in Benue and Nasarawa States. The results show that 72.3% of respondents agreed that challenges of public relations practices have a significant influence service delivery, while 27.7% disagreed. The calculated chi-square value (21.36) is greater than the table value (3.84) at a 0.05 level of significance with 1 degree of freedom. Therefore, the null hypothesis is rejected. This implies that challenges of public relations practices have a significant influence on service delivery in State University libraries in Benue and Nasarawa States.

Discussion of Findings

The first finding of the study revealed that despite the numerous benefits of public relations practices in promoting the valued of the library and shaping public perception, systems limitations continue to hinder the implementation of public relations practices in Benue and Nasarawa State university libraries. The study shows that insufficient funding (mean=3.37), incessant power outages (mean=3.34), absence of public relations department and slow internet connectivity (mean=3.30) are critical financial and technological constraints in carrying out public relations practices in the State University libraries.

This finding aligns with that of Umelo and Nyemezu (2023) who findings regarding problems associated with public relations practices for promoting effective service delivery in Rivers State university library highlighted with insufficient funding recording percentage score of 91.3%, absence of public relations department and library public relations officer (86.7%).

However, through verbal interview, staff showed commitment to their job as they explained that, oftentimes they use their power bank, phones and private network to reach out to patron which by extension foster continued communication and publicity of library resources. The findings further revealed institutional neglect of public relations practices as seen in the absence of a dedicated public relations depart, lack of strategic planning and specialized training. For instance, in Benue State University library, the duty of public relations is assigned to the reference librarian who is in charge of the Window On America Space.

The window on America provide free internet (WIFI) to librarians and users to engage in public relations activities and foster collaboration on projects. However, combining references services with public relations is not good enough. Public relations should not be viewed as an auxiliary function. The findings suggest the need for university management, and government ministries responsible for higher education to make policy intervention and strategic rethinking of public relations with the necessary financial backing to enhance visibility, relevance and impact of university libraries.

The second finding of the study discovered that librarians understand some strategies for building effective public relations practices to enhance effective service delivery in university libraries in Benue and Nasarawa States. The result of findings showed that sufficient budgeting for Library public relation activities obtained a mean score of 3.38 which underscores the critical need for dedicated financial resources for sustaining effective public relations practices in the libraries. Budgetary allocation and timely release of funds influences the library's ability to execute or carry out public relations activities.

The study shows provision of alternative power sources with a mean score of 3.37, clearly suggested that respondents recognize the need for reliable energy infrastructure, particularly through alternative sources such as generators or solar panels. This strategy ensures uninterrupted delivery of both physical and digital library services, which is indispensable in regions like Benue and Nasarawa where power outages are frequent. Establishing a dedicated public relations unit within libraries (mean = 3.36) suggested that Public relations is essential communication and publicity of university library resources and services.

The establishment of a specialized public relations unit will enhance professional coordination of library branding, media relations, publicity, event planning, and user engagement, thereby fostering good image and value of the university library. The study also

revealed that reporting the achievements of the university library to the University management recorded a mean score of 3.34, from respondents. Apparently, respondents support regular reporting of library milestones to university management. Furthermore, the study showed that Library buildings need to be renovated to make it beautiful and attractive (mean = 3.36) suggest a non-verbal communication of institutions' commitment to standard and quality services. It was impressive to observe that at the time of this study, renovation work was being carried on the MOAU library making it very attractive.

From the results, orientation, training and motivation (mean = 3.34) clearly suggest how it is central to staff performance in public relations and other roles. Motivated staff are more likely to embrace user-centered services and act as ambassadors for the library. Training in soft skills and customer service significantly boosts user satisfaction. These finding are in agreement with Umelo and Nyemezu (2023) whose study on public relation strategies needed to enhance service delivery in Rivers State University library viewed that proper orientation, sufficient provision of funds, establishment of public relations unit in the library and renovation of library buildings were accepted with very high percentage scores. The policy implications on the university libraries suggested that university management and library administrations should adopt a policy framework that allocates a fixed percentage of the library budget to public relations and outreach activities.

Conclusion

Based on the findings, this study established the relevance of public relations in enhancing effective service delivery in State University libraries in Benue and Nasarawa States. However, barriers such as insufficient funding, incessant power outage, lack of functional public relations departments as well as insufficient skilled personnel hinders effective implementation of public relations practices in State University libraries. The study also concludes that librarians demonstrate commitment by adopting alternative measures such as the use of personal devices and networks to sustain communication and publicity of library resources.

Recommendation

1. State governments and university management should develop policies that encourage investment in sustainable energy infrastructure in libraries, such as installation of solar power panels or provision of standby generators to mitigate the adverse effects of consistent outage of power supply.
2. Library management should ensure regular training and retraining programs for librarians to enhance their skills particularly digital literacy, social media and communication skills.
3. University libraries should be renovated at regular intervals to maintain a beautified and welcoming environment which will also serve as a non-verbal way of communicating library standard.
4. Librarians should ensure that achievements and impacts of public relations activities in libraries are consistently reported to university management to attract continuous support and promote visibility of the parent body.

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EQUIPPING LIBRARY AND INFORMATION SCIENCE PROFESSIONALS AS AGENTS OF CHANGE THROUGH THE USE OF TELECOMMUNICATION GADGETS IN THE FIFTH INDUSTRIAL REVOLUTION

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Abstract

This study explores the crucial role of libraries and information science professionals as agents of change in the Fifth Industrial Revolution, emphasizing the integration of telecommunication technologies to enhance library services. The research seeks to determine how the adoption of telecommunication gadgets can empower information professionals to drive community transformation and to identify the major challenges faced in this process. Employing a survey research design and quantitative methods, the study highlights existing competency gaps among library professionals and identifies key barriers such as inadequate funding, limited training opportunities, and resistance to technological change. Findings indicate that while telecommunication gadgets possess immense potential to transform library operations and strengthen community engagement, their successful utilization depends on strategic investment in professional development and digital literacy programs. The study emphasizes that empowering both library staff and users with technological and soft skills is essential for promoting innovation, inclusivity, and knowledge sharing. Furthermore, continuous learning, institutional support, and collaborative efforts among stakeholders are critical for overcoming challenges and sustaining progress. The study concludes that equipping library and information science professionals with the necessary tools and competencies not only enhances their effectiveness as change agents but also ensures the relevance of libraries in a rapidly evolving digital landscape. Ultimately, the research offers practical recommendations for leveraging technology to foster sustainable development, strengthen community ties, and position libraries as key drivers of social transformation in the era of the Fifth Industrial Revolution.

Keywords: Libraries, Information Science Professionals, Telecommunication Gadgets, Digital Literacy, Change Agents

Introduction

The Dawn of the Fifth Industrial Revolution (5IR) marks a paradigm shift in the global landscape, characterized by the synergistic integration of advanced technologies and human-centric innovation. Unlike its predecessor, which focused heavily on automation and artificial intelligence (AI), the Fifth Industrial Revolution emphasizes collaboration between humans and machines to foster inclusivity, sustainability, and ethical advancement. In this evolving landscape, the role of Library and Information Science Professionals (LISPs) is undergoing a significant transformation from custodians of information to proactive agents of change.

The Fifth Industrial Revolution (5IR) emphasizes human-centered collaboration with cutting-edge technology, such as automation, IoT, 5G, and artificial intelligence, which creates new responsibilities and expectations for public institutions (IFLA, 2024; Gbaje, 2025). Telecommunication devices, such as smartphones, tablets, laptops, Internet of Things devices, and associated connectivity tools, are not just accessories in this context; rather, they are catalysts that facilitate real-time interaction, remote access, and scalable library service delivery. Particularly in underserved and distant locations, these devices facilitate user-driven services that address local requirements and expand the channels for information distribution (Azubuike, 2023; Okwu, Okwu, & Oladokun, 2024).

The changeable availability and exposure of library services is closely associated with communications devices. By lowering geographical and temporal barriers to collections and activities, telecommunication tools can increase participation and inclusivity (IFLA, 2024). Better access does not, however, always translate into increased digital visibility; visibility depends on complementing strategies that many libraries are still working on, such as digital marketing, online service design, and infrastructure reliability (Azubuike, 2023; Girish, 2025).

The competency profile of information science professionals' technical capabilities (networking, metadata, digital preservation), digital literacy pedagogy, and soft skills (communication, community involvement, change management) is a key human variable. According to the research, in order for librarians to be effective change agents in a 5IR context, they must have both people-centered and technological capabilities (Nwobu et al., 2024; Gbaje, 2025). Therefore, relationships with educational and technology providers, ongoing professional development, and mentorship are important moderating elements that decide whether telecommunication devices result in significant community transformation.

The aforementioned elements influence the outcome variable of librarians' function as change agents. Librarians become facilitators of innovation, local development, and lifelong learning when telecommunication tools are combined with staff capability, stakeholder participation, and contextually relevant programming (Okwu et al., 2024; IFLA, 2024). Mobile outreach, virtual reference, e-learning, and community co-creation labs are examples of programs made possible by telecommunications devices that show how librarians actively influence social and economic consequences.

Research Questions

1. How can the integration of telecommunication gadgets in Library services enhance the role of information science professionals as agents of change in their communities during the Fifth Industrial Revolution?

2. What are the Challenges faced by Equipping Libraries and Information Science Professionals as Agents of Change in the 5th Industrial Revolution?

Literature Review

The role of libraries in the digital age has evolved significantly, with telecommunication gadgets emerging as pivotal tools for enhancing information access and community engagement. According to McClure and Jaeger (2019), libraries worldwide are increasingly adopting mobile technologies to bridge the digital divide, enabling access to information for underserved populations. This shift not only facilitates information dissemination but also empowers library professionals to serve as community advocates and change agents. The integration of telecommunication technologies fosters collaboration and innovation, aligning with the principles of the Fifth Industrial Revolution, which emphasizes human-centric approaches and sustainability (Schwab, 2020).

In the African context, the adoption of telecommunication gadgets in libraries is crucial for addressing challenges such as limited access to information and educational resources. African libraries are leveraging mobile technologies to enhance service delivery and reach remote communities. This approach is essential for promoting digital literacy and fostering socio-economic development. Furthermore, library professionals are increasingly recognized as key players in advocating for policy changes that support technological integration in libraries, aligning with the goals of the Fifth Industrial Revolution (Horsfall, 2023).

In Nigeria, the integration of telecommunication gadgets in libraries has gained momentum as a strategy for improving access to information and fostering community development. Nandi, et al, (2025) emphasizes that Nigerian librarians are increasingly utilizing mobile applications and social media to engage with users and promote library services. This trend not only enhances information dissemination but also positions librarians as facilitators of change. Additionally, training programmes focused on digital skills are essential for equipping library professionals with the necessary competencies to navigate the challenges of the Fifth Industrial Revolution (Nwobu et al, 2024).

The literature highlights the transformative potential of telecommunication gadgets in equipping library and information science professionals as agents of change across various contexts. Globally, these technologies are reshaping the role of libraries, while in Africa and Nigeria, they are critical for addressing local challenges and promoting socio-economic development. Continued investment in training and technological infrastructure is essential to maximize the impact of these tools in the evolving landscape of the Fifth Industrial Revolution.

Types of Telecommunication Gadgets used in the 5th IR

The seamless integration of state-of-the-art technologies into the core of libraries has initiated a profound transformation, perfectly aligned with the monumental paradigm shift ushered in by the onset of the 5th Industrial Revolution. This technological metamorphosis goes beyond traditional boundaries, granting libraries a dynamic and multifaceted ability to

interact with patrons through innovative and unexplored avenues. The telecommunication gadgets include:

1. **Artificial Intelligence (AI) and Machine Learning:** AI and machine learning have assumed central roles in libraries' adaptation to the 5th Industrial Revolution. These technologies are instrumental in revolutionizing cataloguing, information retrieval, and user interactions. Machine learning, on the other hand, enables libraries to analyze vast datasets to glean insights, optimize resource allocation, and deliver services aligned with evolving user.
2. **Data Analytics and Big Data:** Libraries are harnessing the power of data analytics and big data to gain deeper insights into user behaviour, resource utiliza-tion, and collection development. Big data analytics enables data-informed deci-sion-making, enhancing operational efficiency and resource allocation.
3. **Internet of Things (IoT):** IoT technologies are transforming libraries into smart, responsive spaces that are in tune with the needs of patrons. IoT sensors monitor various aspects of library operations, including environmental conditions, occupancy rates, and resource usage.
4. **Blockchain:** Libraries are exploring blockchain technology to bolster the security and transparency of transactions, particularly in the management of dig-ital assets and intellectual property.
5. **Augmented Reality (AR) and Virtual Reality (VR):** AR and VR technol-ogies are reshaping how libraries engage with their patrons. These immersive technologies enable virtual library tours, interactive learning experiences, and in-novative storytelling.
6. **Cybersecurity Solutions:** Libraries are implementing robust cyber secu-rity solutions to safeguard against cyber threats and data breaches, considering the sensitivity of user data and digital resources. Intrusion detection systems and encryption protocols are vital in protecting library assets and ensuring patron pri-vacy.
7. **Cloud Computing:** Has revolutionized how libraries manage and deliver digital services. It offers scalable and cost-effective solutions for storage, collaboration, and resource sharing.
8. **5G and Enhanced Connectivity:** The widespread deployment of 5G net-works promises to revolutionize library services. High-speed, low-latency connectivity is indispensable for the adoption of IoT, augmented reali-ty, and other transformative applications within libraries. 5G empowers libraries to offer faster access to digital resources and enhances user engagement.
9. **Accessibility Technologies:** Libraries are proactively embracing accessibility technologies to ensure inclusivity and accessibility for all patrons, including those with disabilities. These technologies encompass screen readers, voice recognition software, and assistive devices, enabling individuals with diverse needs to fully participate in and benefit from library resources and services.
10. With these technologies, libraries are poised to continue serving as vital pillars of education, research, and community engagement, adapting to the evolving needs of their patrons and remaining at the forefront of knowledge systems (Yusuf & Bolaji, 2024).

The Future of Library Services

The landscape of library services is currently undergoing a profound transformation, a metamorphosis propelled by the relentless advancement of cutting-edge technologies. These innovations are revolutionizing how libraries function and engage with their communities, adapting to the needs and expecta-tions of the digital age. A noteworthy stride in technology-driven library services is the incorporation of artificial intelligence (AI) and machine learning.

AI-driven virtual assistants and chatbots offer immediate assistance, thereby enriching the overall user experience. Machine learning algorithms optimize resource organization and discovery, ensuring swift and efficient access to information These technologies not only streamline library operations but also customize the library experience for each individual. Data analytics and big data are also crucial in shaping modern library services. Libraries can now analyze user behaviour, resource utilization, and collection trends, enabling data-informed decisions about resource allocation and responsiveness to patrons' evolving needs. (Kociubuk et al., 2023)

The Concept of Information Professional, Change Agent and Society

The concepts for this study are information professionals, change agents, and society. All are explained in detail for better comprehension of the direction of the paper.

Information Professional: According to Horsfall (2023) information professionals are individuals who use information strategically in their work to help their organizations meet vital goals. Information professionals accomplish this through various means including gathering, developing, deploying, and managing information resources and services. Information professionals harness a variety of existing and emerging information tools to accomplish goals.

Change Agent: Change means to make a shift, to alter, remodel, revamp. A change agent is that individual, person, or group that undertakes the task of initiating and managing change in any organization, region, or state. These change agents can help to transform the socio-economic development of the country, inspiring and influencing others and so on (Horsfall, 2023).

Society: A society is a group of people who have regular interactions with one another, or a large social group that shares the same spatial or social territory and is typically subject to the same political authority and dominant cultural expectations (Artur, 2019).

Competency of Library Information Science Professionals

In the context of the 5th Industrial Revolution (5IR), professional competencies for information professionals are evolving to meet the demands of a rapidly changing technological landscape. The integration of advanced technologies such as artificial intelligence, machine learning, and big data analytics necessitates a diverse skill set that encompasses both technical and soft skills. Key Professional Competencies include:

1. **Technical Skills**: These are specialized abilities and knowledge used to perform specific task, often involving the use of tools, software or equipment.
2. **Soft Skills:** The ability to convey complex information clearly and concisely is vital. This includes both verbal and written communication skills, as well as active listening to understand user needs**.**

3. **Adaptability and Continuous Learning:** Information professionals must be open to learning new skills and adapting to changing technologies. This includes engaging in continuous professional development through courses, webinars, and networking opportunities**.**
4. **Leadership and Customer Service Orientation:** Leadership skills are necessary for guiding teams and mentoring others, while a strong customer service orientation ensures that user needs are prioritized and met effectively**. (**Oladokun, et al 2024).

Roles of Information Profession as Change Agents

As change agents in society, information professionals perform different roles in to bring change in society in the area of librarianship and information sciences. Some of the roles of information professionals that bring changes are:

1. **The Information Professional as Researcher:** It has become necessary for the Information Professional to be involved in research and development by facilitating access to information, such as finding, delivering, and summarizing information.
2. **The Information Professional as Organizer and Publisher:** The Information Professional has to play important roles such as organizers, reviewers, and guardians of intellectual property in the development of the future (Borrego, & Pinfield, 2020). As the world is becoming a global village information professionals as information gatekeepers are at the forefront to make that a reality in society by embracing and incorporating the changes in librarianship.
3. **The Information Professional as Teacher and Consultant**: The Information Professional must guide users in information gathering, information skills, and tools, organizing information resources, research strategies, basic reference works, accessing information, and many more. Technology is far ahead of information literacy education, however, information professionals are trying to bridge the gap via information literacy education (Rosi, 2016).
4. **Information Professional as Navigation, Browsing, and Filtering Expert:** The Information Professional is an expert in navigation, browsing, and filtering, digital reference services, and electronic information services from digital information sources (Engerer, 2020).
5. **The Global Digital Library:** The Information Professional is fully responsible for the digital library operations. The digital library is really a transitory phase towards the universal digital library, a vast distributed information and active repository accessible from anywhere with increasingly improved indexing, extraction, and summarization techniques (Ilahi, et al, 2019).
6. **Information Professional as Knowledge and Data Mining expert:** Data mining provides the ability to mine data and text through knowledge discovery. The library as an information centers has consistently adopted data mining. The information professionals have the knowledge of data mining and discovery of knowledge from digital libraries to extract unmet information needs for users. **Information Professional as Search and Retrieval Co-Ordination:** The Information Professional can achieve the goal of creating information queries by using retrieval engines and indexing structures (Ajibade, & Muchaonyerwa, 2023).

Methodology

The design and procedure used for the study are discussed in the following heading

The study adopted a survey research design through the use of a qualitative research method. Surveys are effective for gathering information directly from your sample population. It's a common research plan that researchers across different industries, such as marketing, manufacturing, and technology employ. Questionnaires were under survey and were used for the study to extract data from the respondents. (Indeed, 2024)

This study is limited to the Adamawa State academic institution's library staff and members of host communities. The population of the study includes the staff and some members of the library's host community. The researchers adopted the stratified random sampling technique to select 30 Librarians and 100 community members from the host community' giving a total of 130 respondents which is made up of two strata; 65 males and 65 females.

Data was analyzed by using frequency and simple percentages. Results were also presented in tables. The percentage of respondents was used for simplifying and reducing the presentation of the raw data. These include the calculations of percentages and tables that were necessary. A percentage of 99.9% - 50% was accepted as Very High (VH) and High (H) by respondents while 49.9% - 16.6% accepted it as Low (L) or Very Low (VL) by the respondent. If the percentage of response rate from the research question table was 50% and above was considered accepted while a percentage response rate below 50% was considered rejected. The presentation, analysis, and interpretation of data are presented below. Tables were used to present the results of this study according to the research questions.

Research Question 1: How can the integration of telecommunication gadgets in Library services enhance the role of information science professionals as agents of change in their communities during the Fifth Industrial Revolution?

Table 1: Percentage responses of areas on how can the integration of telecommunication gadgets in Library services enhance the role of information science professionals as agents of change

S/N	ITEM STATEMENT	S A	A	S D	D	TOTAL
1.	Telecommunication gadgets improve access to library service for underserved communities.	70 53.84%	40 30.76%	15 11.53%	5 3.84%	**130** **100%**
2.	Information professionals use telecommunication tools to engage more effectively with community members.	85 63.38%	10 7.69%	20 15.38%	15 11.53%	**130** **100%**
3.	Integration of telecommunication gadgets enhances the visibility of library services in the digital era.	20 15.38%	18 13.84%	90 69.23%	2 1.53%	**130** **100%**
4.	Telecommunication technologies helps library initiate innovate community programmes.	88 67.69%	30 23.07%	11 8.46%	1 0.76%	**130** **100%**
5.	The use of telecommunication gadgets has strengthened the librarian's role as a change agent.	90 69.23%	20 15.38%	18 13.84%	2 1.53%	**130** **100%**

Key: Strongly Agree (SA) - Agree (A) - Strongly Disagree (SD) – Disagree (D)

From Table 1 above, the respondents indicated that. Out of the 130 respondents, 70 respondents (53.84%) accepted that Telecommunication gadgets improve access to library service for underserved communities. 85 (63.38%) respondents agreed that Information professionals use telecommunication tools to engage more effectively with community members. 90 (69.23%) respondents rejected that Integration of telecommunication gadgets is not enhancing the visibility of library services in the digital era which stand rejected, 88 (67.69%) respondents accepted that Telecommunication technologies helps library initiate innovate community programmes, and 90 (69.23%) of the respondents accepted that, the use of telecommunication gadgets has strengthened the librarian's role as a change agent.

For instance, Azubuike (2023) asserted that the integration of Information and Communication Technologies (ICTs) has repositioned libraries as active participants in community development through innovative outreach and knowledge-sharing initiatives. Similarly, Oladokun et al. (2024**)** highlighted that the adoption of telecommunication gadgets enables librarians to extend services beyond traditional boundaries, fostering inclusivity and enhancing access to information among underserved populations.

Research Question 2: What are the Challenges faced by Equipping Libraries and Information Science Professionals as Agents of Change in the 5th Industrial Revolution?

Table 2: Percentage responses on the challenges faced by Equipping Libraries and Information Science Professionals as Agents of Change in the 5th Industrial Revolution.

S/N	ITEM STATEMENT	S A	A	S D	D	TOTAL
1.	Inadequate funding limits the integration of modern technology in libraries.	100 76.92%	10 7.69%	5 3.84%	15 11.53%	**130** **100%**
2.	Lack of training opportunities prevents librarians from fully utilizing emerging technologies.	74 56.92%	33 25.38%	4 3.07%	19 14.61%	**130** **100%**
3.	Resistance to change among library staff and members of community hinders digital transformation efforts.	83 63.84%	8 6.15%	22 16.92%	17 13.07%	**130** **100%**
4.	There is shortage of skilled ICT professionals in many libraries and community settings	65 50.00%	28 21.53%	9 6.92%	28 21.53%	**130** **100%**
5.	Data privacy and security concerns limit the use of digital tools in libraries and community engagement.	5 3.84%	6 4.61%	8 6.15%	111 85.38%	**130** **100%**

Key: Strongly Agree (SA) - Agree (A) - Strongly Disagree (SD) – Disagree (D)

From Table 2 above, the respondents indicated that. Out of the 130 respondents, 100 respondents (76.92%) accepted that In-adequate funding limits the integration of modern technology in libraries to a high extent, 74 (56.92%) 83 respondents strongly agreed that; Lack of training opportunities prevents librarians from fully utilizing emerging technologies. 83 (63.84%) respondents accepted that; Resistance to change among library staff and members of community hinders digital transformation efforts, 65 (50.00%) respondents accept that; There is shortage of skilled ICT professionals in many libraries and community settings, while 111

(85.38%) of respondents rejected that Data privacy and security concerns limit the use of digital tools in libraries and community engagement.

Discussion of Findings

The study revealed that the majority of the respondents indicated that Telecommunication gadgets improve access to library service for underserved communities. Which are considered accepted. Information professionals use telecommunication tools to engage more effectively with community members is also accepted by the respondents. Telecommunication technologies helps library initiate innovate community programmes and The use of telecommunication gadgets has strengthened the librarian's role as a change agent were both consider accepted by respondents which scored above 50% While Integration of telecommunication gadgets enhances the visibility of library services in the digital era remain rejected by the respondents which score below 50%. This is in line with the findings of. (Azubuike, 2023) in his paper titled "*The role of information and communication technology (ICT) in transforming library operations and management into digital knowledge hub"* they focused on achieving community development and transformation services.

The study further revealed that challenges facing the library and community members in its effort to provide services that will lead to community development and transformation includes Inadequate funding, Lack of training opportunities, Resistance to change, Shortage of skilled ICT professionals were all consider accepted by the respondent which scored above 50% by respondents, while Data privacy and security concerns limit the use of digital tools in libraries and community engagement are considered as not challenge to the transformation process which scored below 50%. This is in line with the findings of. (IFLA, 2024) in their paper titled "*Digitalization in libraries: the challenges of preservation and accessibility"* they stated that the challenges facing public libraries towards community development services in Nigeria.

Conclusion

Equipping libraries and information science professionals as agents of change in society during the 5th Industrial Revolution is essential for fostering innovation, enhancing community engagement, and promoting equitable access to information. As the landscape of information management evolves with the integration of advanced technologies, libraries must adapt to meet the changing needs of their communities. This adaptation requires a strategic focus on developing the necessary skills and competencies among information professionals.

To effectively serve as change agents, information professionals must embrace continuous learning and interdisciplinary collaboration. They need to acquire not only technical skills related to emerging technologies but also soft skills such as effective communication, emotional intelligence, and problem-solving abilities. These competencies will enable them to navigate the complexities of the 5th Industrial Revolution and respond to the diverse needs of users.

However, several challenges must be addressed to facilitate this transformation. These include inadequate funding, insufficient institutional support for professional development, and resistance to change within organizations. Overcoming these barriers will require a concerted effort from stakeholders, including government bodies, educational institutions, and library organizations, to create an environment that prioritizes innovation and continuous improvement. By investing in the training and resources necessary for information professionals, libraries can enhance their role as vital community hubs and empower these

professionals to drive positive change in society. This proactive approach will not only benefit the information profession but also contribute to the overall progress and sustainability of communities in the context of the 5th Industrial Revolution. This goes in line with **(**Oladokun, et al 2024).

Recommendations

Addressing the challenges facing libraries in the integration of telecommunication gadgets during the Fifth Industrial Revolution requires a multifaceted approach. Here are some strategies to overcome the listed challenges:

i. To enhance the role of information science professionals as agents of change, libraries should invest in capacity building and professional development focused on emerging telecommunication technologies. Establishing continuous training programmes and mentorship systems will help librarians acquire both technical and soft skills needed to effectively deploy telecommunication tools for innovative service delivery. Collaborations with educational institutions, technology providers, and professional associations should be strengthened to facilitate workshops, online courses, and hands-on learning experiences. Moreover, fostering an inclusive and innovation-driven culture within libraries can help mitigate resistance to change among staff and users. Open communication about the benefits of digital transformation, coupled with community engagement initiatives such as forums and workshops, will encourage active participation, creativity, and adaptability among librarians and community members alike.

ii. To address the challenges identified—such as inadequate funding, shortage of skilled ICT professionals, and limited institutional support—libraries must adopt a strategic and collaborative approach to resource mobilization and workforce development. Management should actively pursue funding through partnerships with government agencies, private organizations, and non-profit bodies, as well as explore grants and crowdfunding opportunities to support technological integration. Additionally, policies that advocate for increased budgetary allocations to library services are essential for long-term sustainability. To overcome the shortage of ICT professionals, libraries can collaborate with universities to establish internship and apprenticeship programmes that attract new talent into the field. Offering competitive remuneration, career growth opportunities, and conducive working environments will also help retain skilled professionals. Through these efforts, libraries can build a resilient workforce capable of driving innovation and sustaining technological progress in the Fifth Industrial Revolution.

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SOCIOECONOMIC EFFECT OF PIRACY ON BOOKS PUBLISHING INDUSTRY IN NIGERIA

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Abstract

This work examined the socio-economic effect of piracy on books publishing industry in Nigeria. The publishing sector has grown to be an essential component of the Nigerian society and economic driver because it support and promote cultural and intellectual properties of the country and its people. This very important sector is affected by piracy, particularly the socioeconomic effects on the publishing industry, causing revenue loss and economic drain, impact on authors and creative professionals, decreased investment in the industry, job losses and economic displacement, government revenue losses, and hindrance to cultural and educational development. This review discusses the concept of piracy, types of piracy, the extent of piracy and causes of piracy in the society. The study concluded that piracy cannot be allowed to continue in Nigeria, as such all the stakeholders especially authors, publishing industry, and the government needs to come together to ensure judicious application of the following way forward: Strengthening Intellectual Property Laws, Awareness Campaigns, Adoption of Digital Rights Management (DRM), Promoting Affordable Books, Collaborating with International Partners, and Encouraging Local Publishing Initiatives. By applying the way forward it is believed that the menace brought by the activities of books piracy in the general perspective would be effectively tackled.

Keyword: Effect; Piracy; Publishing; Publishing Industry, Socioeconomic

Introduction

Book piracy in Nigeria has become a significant concern, impacting the publishing industry both economically and culturally. Pirated books are widely available in markets such as Onitsha, Aba, and Lagos, often imported from countries like China and Indonesia, where production costs are lower, and copyright enforcement is less stringent. The financial repercussions of book piracy are profound. Estimates suggest that pirates control up to 70% of the Nigerian book market (The Guardian Nigeria, 2020). This dominance leads to significant revenue losses for legitimate publishers and authors, who face reduced sales and royalties. Additionally, the government's tax revenues are diminished, as pirated books are sold without contributing to tax collections.

Piracy undermines the creative industry by discouraging originality and innovation. Authors and publishers are less motivated to produce new works if their creations are likely to be pirated, leading to a stagnation in cultural development. This environment also discourages investment in the publishing sector, further hindering growth and development (Ahmadu, 2018). The Nigerian Copyright Commission (NCC) has taken steps to combat book piracy. In 2023, the NCC reaffirmed its commitment to curbing piracy in the book sector, emphasizing the importance of collaboration with publishers and the use of new technologies, such as the 4D hologram device, to authenticate books. Despite these efforts, challenges remain in effectively enforcing copyright laws and reducing the prevalence of pirated books in the market. As piracy is more prevalent these days, a proper knowledge and understanding can help everyone to stay away from these kinds of misconducts. So, in this article many important points of socioeconomic effects of piracy are discussed. This will help to get a proper understanding of how piracy has affected the socio-economic activities of the people in the larger society so that adequate measures can be taking.

Piracy

The English word 'Pirate' comes from the Latin word- piracy, which loosely means "sea robber". Sea pirates have existed for thousands of years. They have been in operation for as long as sea travel itself has existed, just as robbery on land has been around since men began to walk the Earth. Intellectual content owners use the term Piracy to equate copyright infringers with thieves. It was shortly after the invention of the Mechanical Printing Press in 1439 that the term 'pirate' came to be applied to those who made unauthorized copies of publications. The press revolutionized the spread of knowledge in all fields of human endeavor, as well as increasing literacy in the broader community.

However, it also introduced an entirely new problem for authors: prior to the press, it was difficult for people to duplicate an entire book without permission, and most certainly not on any scale worth worrying about. The press instantly changed all that, and both the printers and the authors of works soon sought protection, both for economic reasons, as well as to ensure that their works remained unaltered and authors were duly credited (Ghazi, 2012) Piracy equals Copyright Infringement. Modern Copyright is an international legal concept as specified by the Berne Convention first signed in 1886, an agreement to which almost every country in the world is now bound as part of their World Trade Organization membership. Copyright is intended to ensure that those who create original works can maintain exclusive rights over how those works are reproduced and distributed. However, this effective monopoly only applies for a fixed period of time after the creator's death, generally from fifty to a hundred years, after which the work can then usually be distributed and used without requiring permission. There

are also Fair Use provisions that allow people to use protected copyrighted works at any time without the creator's explicit permission in a limited range of scenarios, such as in reviews, or for use by educational institutions. The practice of piracy is widespread in all regions of the world. Any publishing and related industries of countries that have not acceded to the international intellectual property agreements have traded in pirated products on a particular large scale. Piracy is not concern with only print format of information but also with non – print format.

Smith (2019) also noted that the internet has given book pirates an effective way to spread their illegal works, with websites, file-sharing platforms, and social media channels becoming common places for the illegal exchange of books. Some pirates even go so far as to compile entire databases of pirated works that are available for free download. Effective file-sharing protocols, robust scanning tools, and high-speed internet have made it simpler for pirates to disseminate stolen content to a large audience. As e-books and audiobooks have grown in popularity, digital piracy has emerged as a more common type of infringement. It is simpler to copy and distribute books when people have the tools and software to get around digital rights management (DRM) safeguards (Bishop, 2020).

The unlawful dissemination of scholarly and research materials is one of the areas of book piracy that is becoming increasingly concerning. The free or inexpensive distribution of pirated textbooks, journal articles, and research papers affects not just writers but also academic institutions that depend on sales and subscriptions (Rendleman, 2021). He restated that copyright infringement lawsuits are frequently used in legal actions against book piracy, but that enforcement is made more difficult by the anonymous nature of the internet and the usage of proxy servers to conceal the names of pirates. Piracy persists despite the fact that some nations have reinforced their intellectual property laws, especially in areas where enforcement is laxer.

Types of Books Piracy

1. **Digital Piracy**

   Digital piracy primarily involves the unauthorized sharing or distribution of eBooks. With the proliferation of online platforms and peer-to-peer file-sharing networks (e.g., torrents), pirated books can be accessed and downloaded globally. Websites that host pirated eBooks and forums where users share them anonymously complicate the enforcement of copyright laws. Additionally, advances in digital tools have made it easier to circumvent Digital Rights Management (DRM) protections, leading to more widespread piracy.

2. **Physical Piracy**

   Physical book piracy involves the unauthorized printing of books, often in developing countries where enforcement of copyright laws is weak. These pirated copies are sold at a much lower price than the original, which can be a major concern for authors and publishers, especially in markets where books are sold at premium prices.

The Extent of Piracy

Piracy on literary works can be extended upto many forms:

(i) Conversion or transmutation of original work in unauthorized way.

(ii) Reproduction of books either by reprinting or by other possible ways for wholesale rate.

(iii) Making Xerox of books and journals for business / Commercial/ money making purposes.

(iv) With the progressive evolution in the digital technologies, piracy is taking a new direction and dimension. Piracy in the field of literary works is more pronounced than that of in magazines, article, newspapers etc.

(v) In the field of book piracy, the novels, text books and other study materials are much more susceptible of piracy due to its high demand in the society.

The extent of book piracy can be estimated by overseeing the total sale. However, we can predict only the value of the production which comes out from the publishing industry. But to find the extent of pirated work we will have to focus on pirated sales, which is practically not easy.

Publishing

The publishing sector is essential to society because it facilitates the exchange of information and production of diverse information resources such as prints and electronic books, newspapers, magazines, blogs, aggregated search engines. One of the distinguishing natures of publishing is that it allows us to enjoy a variety of stories, investigate many viewpoints, and keep abreast of current events. It operates traditionally (mostly print-based) and digitally (mostly electronic-based, and leverage on information and communication technologies support platforms); both the traditional and electronic-based publishing is a vital component of communication and knowledge dissemination. Publishing role extends beyond providing society with reading materials. The development of intellectual culture is inextricably linked to publishing infrastructure. The nexus between intellectual life and business is publishing. It gives participants in intellectual endeavors business experience. Creative persons can find work in publishing (Ahmadu, 2018).

Since prehistoric man painted on cave walls, people have been publishing information for thousands of years, and it is impossible to depict every breakthrough in publishing. One of the oldest industries in Nigeria's history is book publishing, which began about 68 years before the various peoples of the country were united to form the geographical entity known as Nigeria in 1914. The first printing press in Nigeria was established in Calabar, the current capital of Cross River state, in 1846, or 165 years ago (2011–1846) by Reverend Hope Waddell of the Presbyterian church of Scotland Mission. This press's main purpose was to publish Bible lessons, but it also produced school math books later on (Ajibade 2003). In 1859, five years after the first printing press was established in Calabar, Henry Townsend of the Church of Missionary Society (CMS) opened a second press in Abeokuta, the current capital of Ogun state, to print the country's first newspaper, called "Iwe Iroyin," a dialect newspaper. The result of Henry Townsend's seed is CMS Press, which has published hundreds of books in Nigeria.

From that moment, publishing started increasing in Nigeria with diverse ambitions for the business. Sometimes, these objectives define the genre of books some publishers print while others undertake wide publication without bias. The publishing sector has seen some major technology developments in the twenty-first century. E-books, print-on-demand, and accessible publishing are some examples of these developments. Since 2005, the number of e-books available in key publishing markets including the USA and the UK has been rapidly increasing. Leading companies in collaborating with publishers and libraries to digitize books include Google, Amazon.com, and Sony.

Social and Economic Effect of Books Piracy on Publishing Industry

The socioeconomic effect of book piracy on the Nigerian publishing industry is multifaceted, causing revenue loss and economic drain, impact on authors and creative professionals, decreased investment in the industry, job losses and economic displacement, government revenue losses, and hindrance to cultural and educational development (NCC, 2021, Aina & Alabi, 2020, Ogunleye, 2019 and Abubakar, 2018).

Piracy leads to substantial financial losses for publishers, authors, and other stakeholders in the book production and distribution chain. According to a study by the Nigeria Copyright Commission (NCC), the publishing sector in Nigeria loses billions of Naira annually due to piracy (NCC, 2021). These losses occur because pirated books are sold at a fraction of the price of the original, making it difficult for legitimate businesses to compete. Consumers, lured by lower prices, often purchase pirated copies, undermining the market for authentic products. The Nigerian publishing industry is already grappling with high production costs, including printing, distribution, and marketing expenses. With piracy siphoning off significant revenue, publishers are often unable to recoup their investments. This financial strain reduces the incentive for publishers to invest in new titles, leading to fewer publications and less diversity in the market (Aina & Alabi, 2020).

In the same vein, Authors and other creative professionals are often the most affected by piracy in the publishing industry. The unauthorized distribution of books means that authors lose income from book sales and royalties. In Nigeria, where many authors depend on the revenue generated from book sales, piracy can significantly diminish their earnings. This undermines the financial stability of authors, discouraging them from continuing their creative work or producing new books (Abubakar, 2018). Moreover, the prevalence of piracy can result in the erosion of the quality of literary work. Faced with the loss of income from pirated books, authors may reduce the quality of their output or avoid publishing altogether. This can lead to a reduction in the diversity and quality of literature available to readers in Nigeria.

Similarly, Piracy has a chilling effect on investment in the Nigerian publishing industry. Both local and foreign investors are less inclined to invest in an industry where intellectual property rights are poorly enforced. When piracy thrives unchecked, it creates an environment where legal and financial risks are high, making publishers hesitant to embark on new projects. According to Ogunleye (2019), the publishing industry's vulnerability to piracy diminishes its appeal as a profitable venture, leading to a decline in both local and international investment. Without the assurance of adequate protection for their intellectual property, publishers face the constant risk of having their work copied and sold without compensation. This creates a climate of uncertainty that stifles innovation and the growth of the sector. Furthermore, piracy discourages potential partnerships between Nigerian publishers and international publishers, who fear that their intellectual property may be compromised.

In addition, the effects of piracy extend beyond publishers and authors to the broader economy. The publishing industry provides jobs in areas such as printing, distribution, sales, and marketing. When piracy undermines the profitability of legitimate publishers, it can lead to reduced hiring and even job cuts. According to Adebayo (2020), piracy in the Nigerian publishing sector has contributed to the displacement of workers in both large and small publishing firms, as companies are forced to scale back operations or close entirely due to financial losses. This phenomenon also affects related industries, such as bookstores, transportation companies, and printing presses. As pirated books flood the market, legitimate bookstores struggle to maintain sales, leading to reduced demand for physical retail space and services. This cascade effect leads to a contraction in the overall economy, affecting many sectors that rely on a vibrant publishing industry.

Also the Nigerian government suffers from piracy in the publishing industry. Taxes and royalties from book sales constitute a source of revenue for the government. However, with pirated books dominating the market, the government loses out on tax income generated from legitimate sales. Moreover, piracy often thrives in informal markets, making it difficult for the authorities to track and collect taxes from illegal sales (Osime, 2019). The government's inability to curb piracy further exacerbates the loss of potential revenue and undermines efforts to foster a robust creative economy.

Furthermore, piracy in the publishing industry can also hinder Nigeria's cultural and educational development. Books play a vital role in fostering literacy, education, and cultural identity. With the rise of pirated copies, the quality of educational materials, including textbooks, is compromised, as pirated versions are often of inferior quality. This not only affects the quality of education but also undermines efforts to build a knowledge-based economy (Olatunji, 2021). Piracy impacts the ability of publishers to produce and distribute culturally relevant materials. With a reduced capacity to generate income, publishers are less likely to invest in works that reflect the nation's unique cultural heritage, thereby limiting the availability of locally produced literature for both domestic and international audiences.

The issue of piracy is made worse by Nigeria's ineffective enforcement of intellectual property laws. Law enforcement is inadequate, and the nation's legislative frameworks for protecting intellectual property rights (IPR) are frequently poor. Lax enforcement and the frequent impunity of people engaged in illicit operations are conducive to the growth of piracy (Okpara, 2023). As a result, the publishing sector finds it difficult to defend its rights, and the general public begins to doubt the legal system's capacity to stop piracy.

Socially, piracy promotes an intellectual theft culture in which people undervalue innovative endeavors and their capacity to advance society. The younger generation is influenced by this unfavorable view of intellectual property rights, which leads to a tendency of piracy in fields other than publishing, such as software, music, and movies. Consequently, this undermines the long-term growth of Nigeria's knowledge-based economy (Daramola, 2020). The availability of pirated textbooks in educational institutions feeds a vicious circle of impunity, where students may believe they have a right to access resources without paying the authors.

Causes of Piracy in the Society

Pirated products are typically offered at discounted costs to draw in customers, it is commonly believed that many people do this illegal crime for financial benefit. Over time, this lowers the original authors' and publishers' profit. The following are some common reasons and justifications for creating illegal copies:

1. Poverty. Piracy in Nigeria is shaped by poverty which is a state of deprivation of social and financial inequality. Many people who are unable to secure employment, poor, and exposed to publishing activities take to piracy as source of livelihood.

2. Ignorance and Lack of adequate information about copyright processes and laws. Many individuals are not fully informed on what piracy and copyright is, and therefore don't know it is a criminal offense. To deter people, the United Nations Educational Scientific and Cultural Organization said that "Piracy lacks the negative social stigma that would make the public realize that it is a criminal activity" (UNESCO, 2015). With such sensitization and attacks on pirates and pirated works Nigerians should distaste pirated works.

3. The high cost of publishing in Nigeria leads to increase in the cost of essential text books. This has caused many people to patronize pirated works because of the relatively cheap price at the detriment of the publishers and authors benefits.

4. Inability to gain access to original products: Many book titles are scarce in the book market and of high demand, pirates use this situation to carry out their nefarious activities which has to be stopped.

5. Poor funding of regulatory agencies, such as the Nigeria Copyright Commission, etc. renders these institutions less effective and responsive for carrying out their legitimate duties.

6. People indulge in piracy in greed of quick money.

7. Usually occurs in books that are popular and of high demand in the school system

Many good papers, journals, books are of too high price to subscribe, most of the people cannot afford that much so they follow the pirated sites on the internet to get a copy of that paper of interest either at low cost or for free and researcher prefer those pirated sources of information because at less price they get the same information as the original work contains.

Conclusion

Book piracy is a significant issue that undermines the growth and sustainability of Nigeria's publishing industry. Its effects are far-reaching, from financial losses to job cuts, and it hampers creativity and intellectual property protection. However, by strengthening intellectual property laws, raising awareness, adopting DRM technologies, and promoting affordable and local publishing initiatives, Nigeria can mitigate the negative impacts of piracy. A concerted effort from the government, publishers, authors, and readers is necessary to protect the literary ecosystem and ensure that Nigeria's publishing industry thrives.

Way Forward

From the conclusion, it is pertinent that a calibrated strategy is required to strengthen the cooperation between the government and the publishing industry in Nigeria to be able to curb piracy in the publishing sector. In order to achieve this goal, the following actions should be prioritized:

1. **Strengthening Intellectual Property Laws**

   One of the most effective ways to combat book piracy is to strengthen the enforcement of intellectual property laws in Nigeria. The Nigerian Copyright Commission (NCC) should increase its efforts to monitor and enforce copyright protection laws. This includes conducting regular raids to seize pirated books from local markets and prosecuting offenders. Additionally, the government should impose stricter penalties for piracy to deter offenders.

2. **Awareness Campaigns**

   Raising awareness about the negative impacts of book piracy is crucial in changing consumer behavior. The Nigerian government, in collaboration with publishers and authors, should embark on public education campaigns aimed at informing readers about the importance of purchasing legitimate copies of books. These campaigns can highlight the detrimental effects of piracy on the literary industry, including job losses and the stifling of creativity.

3. **Adoption of Digital Rights Management (DRM)**

   As digital piracy becomes more prevalent, publishers and authors in Nigeria should adopt Digital Rights Management (DRM) tools to protect their works in digital formats. DRM technologies can help prevent unauthorized copying and distribution of e-books. While not foolproof, DRM can significantly reduce piracy by making it more difficult for pirates to distribute unauthorized copies.

4. **Promoting Affordable Books**

   One of the reasons why piracy thrives is the high cost of legitimate books. Many Nigerians cannot afford to purchase original copies due to economic constraints. Publishers can address this issue by introducing affordable pricing strategies, such as offering books in different formats (e.g., e-books, paperback editions) or establishing discount programs for students and libraries. By making books more accessible, publishers can reduce the incentive for readers to turn to pirated copies.

5. **Collaborating with International Partners**

   Given the global nature of digital piracy, Nigerian publishers should consider collaborating with international organizations and publishers to fight piracy. Organizations such as the International Publishers Association (IPA) and the World Intellectual Property Organization (WIPO) can provide resources and support for combating piracy on a global scale. These collaborations could involve sharing best practices, technologies, and strategies for tackling piracy.

6. Encouraging Local Publishing Initiatives

To reduce reliance on foreign publishers and their associated pirated versions, Nigeria can invest in local publishing initiatives. By strengthening local publishing houses and supporting indigenous authors, the government and publishers can create a robust local industry less susceptible to piracy. Encouraging local authors to publish in Nigerian languages and promoting Nigerian literature in international markets can help establish a strong, piracy-resistant publishing ecosystem.

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AVAILABILITY OF LIBRARY AND INFORMATION RESOURCES FOR ACCREDITATION OF PROGRAMMES IN STATE UNIVERSITIES IN NORTH-NORTHWEST, NIGERIA

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Abstract

The study investigated library information resources availability, and accreditation of programmes in state universities in North-west, Nigeria. The study was set to ascertain the status of accreditation of programmes in state universities in North-west, Nigeria; to find out the extent of availability of library information resources for accreditation of programmes in state universities in North-west. Survey research method using descriptive research design was adopted for this study. The population of the study comprised of 197 professional librarians and 67 heads of departments. Total enumeration was used because the population size was small and manageable. Questionnaire was used as an instrument for data collection. A total number of 264 questionnaires were administered to the respondents out of which 205 (78%) were duly filled, returned and found useful. Collected data were analyzed using frequency counts and percentages, mean and standard deviation. The findings revealed that some programmes in the State Universities obtained full accreditation and some got interim while very few with denial. The State Universities equally have available information resources. It also revealed that cooperation between staff, qualitative resources, and good number of copies, library budget and seating capacity has great impact on accreditation of programmes. Lastly, it revealed that state universities faced some challenges during accreditation exercise. It is recommended that regular review and update of accreditation document should be made. Integrated library system (ILS) and online public access catalogs (OPAC) should be provided for seamless searching. Funding should also be increased, adhere to NUC criteria and sufficient time to prepare for accreditation.

were made line with the research findings.

Keywords: Library, Utilisation, Accreditation, Universities and Information Resources

Introduction

Libraries have been around for a very long time and are traditionally seen as collections of information and services. Libraries have always played a significant role, enabling people to engage with all kinds of information and knowledge resources. Through the technological development of electronic resources, the means to collect, store, manage, and use widely distributed knowledge resources have become more effective serving the library users even better. Modern libraries are therefore being redefined as an institution to get wider access to information in many formats and from many sources. The digital approach makes use of new technology capabilities to make library resources and services more accessible. University libraries, according to organizational theory, are an organization within a bigger organization, whose purpose and functions are dictated by the larger organization's numerous elements (Gabby and Shoham, 2017).

Accreditation of programmes is a process that involves self-study and external quality review used in higher education to scrutinize colleges, universities and higher education programmes for quality assurance and quality improvement. Accreditation of programmes in university libraries encourages library staff especially sectional heads, academic staff (lecturers) and school management to work hard toward successful accreditation to avoid interim or denial accreditation of programmes. It serves as a critical mechanism to ensure that educational providers maintain standards that meet the expectations of the educational community and society at large (Duate and Vardasca, 2023). Library information resources are basically sources of information. These resources are mostly books, journals, newspapers and other editorials, encyclopedias, atlases, dictionaries, etc.

In order to achieve the objectives of parent institution, university library provides library services aimed at exposing the library users to various information resources available for their use. With the advent of Information and Communication Technology (ICT), there have been changes in the way libraries provide information resources. This advancement has created a shift from traditional information resources in print form to digital resources and has affected all aspect of information handling and management as information is being produced more electronically. (Quadri and Egbesinba 2015) observed that, information resources are a collection of print and non-print materials, systematically organised and made available to users.

Research Problem

It could be observed that accreditation of programmes in state university libraries in North-west, Nigeria are experiencing problems ranging from funds which are not readily available to improve learning facilities. Management seem not to meet up with the accreditation criteria, also some school records may not be adequately kept to ensure adequate information for accreditation, library facilities and lecture theatres seem not to be adequately ensured or provided by university management.

Preliminary investigation by researcher showed that accreditation of programmes in state university libraries in North-west, Nigeria are experiencing problems ranging from funds which are not readily available to improve learning facilities. Management seem not to meet up with the accreditation criteria, also some school records may not be adequately kept to

ensure adequate information for accreditation, library facilities and lecture theatres seem not to be adequately ensured or provided by university management.

Research Questions

The study was guided by the following questions;

1. what is the status of accreditation of programmes in the state universities in North-west, Nigeria?

2. what is the extent of availability of library information resources for accreditation of programmes in state universities in North-west Nigeria?

3. what are the challenges faced by the state universities in North-northwest, Nigeria on the availability of library and information resources for accreditation?

Review of Related Literature

Accreditation of Programmes

The concept of accreditation can be closely related to that of quality assurance in education. In recent times, various developments have taken place relative to the monitoring, evaluation and enhancement of the quality of different gears of higher education. It is in this vein, that accreditation bodies operate to guarantee that students receive an education continually with standards for entry into practice in their respective faculties and disciplines. Accreditation is defined as a type of quality assurance process under which services and operations of tertiary educational institutions and programmes are evaluated by an external independent body to determine if existing standards are met. Accreditation according to Obadara, and Alaka, as cited in Obiako, (2022) is the process of self-study and external quality review used in higher education to scrutinize an institution and/or its programmes for quality standards and need for quality improvement.

It is a process of examining the availability and adequacy of resources, merit rating of resources and programmes in order to enhance quality of output Enefu and Okolo, (2021). This means that accreditation involves the process of ensuring that curricula, physical facilities, personnel, funds and so on to meet the needs of the university to achieve its stated philosophy and objectives. In other words, accreditation is awarded to higher education programmes that meet the education requirement to set standards. It centers on a review of a program's content and delivery that includes area such as relevance, coherence, challenge, assessment, staffing, quality assurances and resources.

Many institutions and department had failed accreditation by National Universities Commission (NUC) just because the libraries failed to meet the standard for information materials in those disciplines. It is important to assert that a university cannot exist and function properly without the presence of a library. This was the view of Afolabi (2014) in his study when he described a university and its library to be interdependent. This is because each is clearly indispensable of the other and this is the main reason why a university is established alongside with its library at all costs. Furthermore, Bello (2014) has it that accreditation of programmes offered by universities is key to ensuring standards across the institutions.

Library Information Resources

In the library system, there are different types of library resources which users can consult during the process of research, although some users most recently prefer the use of electronic resources thereby neglecting library resources available. In retrospect therefore, library resources are mostly sources of information. The information resources in the library are books, journals, newspaper including other educational resources, not excluding encyclopedias, atlases, year book, dictionaries among others.

Recently with the advent of the Internet, digital forms of information resources have become very prominent. Digital sources encapsulate online libraries with journals, the encyclopedia like Wikipedia, blogs, video logs (YouTube), (Murugan, *et.al*. 2019). University library is a library attached to a university to provide access to information resources in order to support teaching, learning and research activities in the university. It is the nerve center that supports academic programs in the university environment through the provision of information resources and services.

The library is the educational focal point of every university therefore; its vital role is to assist the university to achieve its objectives and goals. Every university library activity must support the curriculum to fulfill the objectives of its parent institution. (Anyaegbu and Wali 2020) maintains that services offered by the university libraries include provision of an organized collection of printed and non-printed, staff trained to provide and interpret such materials and the physical facilities necessary to support such a collection, staff and students. Several studies highlight the funding challenges in Nigerian university libraries that directly undermine accreditation readiness.

Uzoagba and Okiche (2018) observe that although libraries are a core criterion in the NUC's evaluation, "the corresponding provision of funds" for libraries frequently lags, causing "frustration" among library administrators. Similarly, Adetunla and Familusi (2017) report that funding is often withheld and only released close to accreditation visits: "fund is not released until accreditation is approaching," which suggests that library improvements may be superficial or temporary rather than sustained. These financial bottlenecks hinder libraries' capacity to maintain current collections, adequately staff, and develop infrastructure, all of which are critical for meeting NUC benchmarks.

Research Methodology

The study adopted descriptive survey research design. The survey research is suitable for this study because data generated was collected and used to describe and interpret issues on the library information resources availability, and accreditation of programmes in state universities in North-west, Nigeria. The population of the study is 264. This consists of librarians from the state universities and head of departments of the programmes that participated in the 2023 NUC accreditation exercise in North-west, Nigeria.

The researcher considered four (4) universities that are relatively secured. These are Yusuf Maitama Sule University Kano (YUMSUK), Sule Lamidi University Jigawa Musa 'Yaradua University, Katsina, Kaduna State University (KASU). This is due to the insecurity situation in Sokoto, Kebbi, and Zamfara states.

Results and Discussions

Research Question One: What is the status of accreditation of programmes in state universities in North-west Nigeria?

Table 1 Status of Accreditation of Programmes in State Universities.

S/N	Courses Accredited	N	FULL	INTERIM	DENIED	AWAITING
1	Agriculture	32	1 (0.6%)	0 (0%)	0 (0%)	1 (0.6%)
2	Arabic	32	3 (1.9%)	1 (0.6%)	0 (0%)	0 (0%)
3	History and Strategic Studies	32	2 (1.2%)	0 (0%)	0 (0%)	0 (0%)
4	Hausa	32	3 (1.9%)	1 (0.6%)	0 (0%)	0 (0%)
5	Islamic Studies	32	2 (1.2%)	0 (0%)	0 (0%)	0 (0%)
6	Architecture	32	1 (0.6%)	0 (0%)	0 (0%)	0 (0%)
7	Computer Science	32	4 (2.5%)	0 (0%)	0 (0%)	0 (0%)
8	Mass communication	32	0 (0%)	1 (0.6%)	0 (0%)	0 (0%)
9	Estate Management	32	0 (0%)	1 (0.6%)	0 (0%)	0 (0%)
10	Environmental Management	32	1 (0.6%)	0 (0%)	0 (0%)	0 (0%)
11	Education Mathematics	32	6 (3.7%)	1 (0.6%)	0 (0%)	0 (0%)
12	Education Islamic	32	2 (1.2%)	1 (0.6%)	0 (0%)	1 (0.6%)
13	Education Economics	32	1 (0.6%)	0 (0%)	0 (0%)	1 (0.6%)
14	Library and Information Science	32	3 (1.9%)	0 (0%)	0 (0%)	1 (0.6%)
15	Education Biology	32	4 (2.5%)	0 (0%)	0 (0%)	1 (0.6%)
16	Education Chemistry	32	4 (2.5%)	0 (0%)	0 (0%)	1 (0.6%)
17	Education Physics	32	5 (3.1%)	0 (0%)	0 (0%)	0 (0%)
18	Education English	32	4 (2.5%)	0 (0%)	0 (0%)	0 (0%)
19	History	32	2 (1.2%)	0 (0%)	0 (0%)	1 (0.6%)
20	Law	32	4 (2.5%)	0 (0%)	0 (0%)	1 (0.6%)
21	Economics	32	2 (1.2%)	1 (0.6%)	0 (0%)	1 (0.6%)
22	Accounting	32	5 (3.1%)	0 (0%)	0 (0%)	0 (0%)

23	Business Administration	32	2 (1.2%)	1 (0.6%)	0 (0%)	1 (0.6%)
24	Entrepreneurship	32	3 (1.9%)	0 (0%)	0 (0%)	0 (0%)
25	Chemistry	32	4 (2.5%)	0 (0%)	0 (0%)	1 (0.6%)
26	Physics	32	4 (2.5%)	0 (0%)	0 (0%)	0 (0%)
27	Mathematics	32	4 (2.5%)	0 (0%)	0 (0%)	0 (0%)
28	Biochemistry	32	4 (2.5%)	0 (0%)	0 (0%)	1 (0.6%)
29	Biological Sciences	32	4 (2.5%)	0 (0%)	0 (0%)	0 (0%)
30	Microbiology	32	2 (1.2%)	0 (0%)	0 (0%)	1 (0.6%)
31	Anatomy	32	2 (1.2%)	0 (0%)	0 (0%)	0 (0%)
32	Public Administration	32	3 (1.9%)	0 (0%)	0 (0%)	0 (0%)
33	Sociology	32	1 (0.6%)	0 (0%)	0 (0%)	1 (0.6%)
34	Pharmacy	32	0 (0%)	0 (0%)	0 (0%)	1 (0.6%)

Table 1 shows the respondents view on the status of accreditation of programmes in state universities in North West Nigeria. The result showed that majority of the programmes got full accreditation in year 2023 in the following order 6 (3.7%) Education Mathematics, 5 (3.1%) Education Physics, 5 (3.1%) Accounting, 4 (2.5%) Computer Science, 4 (2.5%) Education Biology, 4 (2.5%) Education Chemistry, 4 (2.5%) Education English, 4 (2.5%) Law, 4 (2.5%) Chemistry, 4 (2.5%) Physics, 4 (2.5%) Mathematics, 4 (2.5%) Biochemistry, 4 (2.5%) Biological Sciences, 3 (1.9%) Arabic, 3 (1.9%) Hausa, 3 (1.9%) Library and Information Science, 3 (1.9%) Entrepreneurship, 3 (1.9%) Public Administration, 2 (1.2%) History and Strategic Studies, 2 (1.2%) Islamic Studies, 2 (1.2%) Education Islamic, 2 (1.2%) History, 2 (1.2%) Economics, 2 (1.2%) Business Administration, 2 (1.2%) Microbiology, 2 (1.2%) Anatomy. Other programmes that got interim accreditation were 1 (0.6%) Arabic, 1 (0.6%) Hausa, 1 (0.6%) Mass communication, 1 (0.6%) Estate Management, 1 (0.6%) Education Mathematics, 1 (0.6%) Education Islamic, 1 (0.6%) Economics, 1 (0.6%) Business Administration. Those awaiting accreditation were 1 (0.6%) Business Administration, 1 (0.6%) Education Islamic, 1 (0.6%) Education Economics, 1 (0.6%) Library and Information Science, 1 (0.6%) Education Biology, 1 (0.6%) Education Chemistry, 1 (0.6%) History, 1 (0.6%) Law, 1 (0.6%) Economics, 1 (0.6%) Business Administration, 1 (0.6%) Chemistry, 1 (0.6%) Biochemistry, 1 (0.6%) Microbiology, 1 (0.6%) Sociology and 1 (0.6%) Pharmacy.

Whereas, none of the programmes were denied accreditation in the year 2023 in these state universities. Although none of the sampled state-university pharmacy programmes were denied accreditation in 2023 (NUC/PCN public records), literature and technical reports indicate this outcome often results from targeted pre-visit mobilization and fulfilment of minimum checklist items rather than sustained institutional transformation; consequently,

accreditation status should be interpreted alongside evidence of continued funding, staffing, facilities, and documentation improvements.

Research Question Two: What is the extent of Availability of Library Information Resources for accreditation of programmes in State Universities in North-west Nigeria?

Table 2: Extent of availability of library information Resources for accreditation of programmes in State Universities in North-west Nigeria.

S/N	Statements	HA (3)		MA (2)		NA (1)		N	FX	Mean	Decision
		Fq	%	Fq	%	Fq	%				
1	Books	157	97.5	4	2.5	00	-	161	479	2.97	Very High
2	Journal	152	94.4	9	5.6	00	-	161	474	2.94	Very High
3	Database	137	95.1	24	14.9	00	-	161	459	2.85	Very High
4	e-books	139	86.3	22	13.7	00	-	161	461	2.86	Very High
5	e-Journals	140	87.0	21	13.0	00	-	161	462	2.86	Very High
6	e-database	115	71.4	46	28.6	00	-	161	437	2.71	Very High
7	CD-ROM	78	48.4	45	28.0	38	23.6	161	362	2.25	Very High
8	Magazines	120	74.5	41	25.5	00	-	161	442	2.74	Very High
9	News Letters	102	63.4	55	34.2	4	2.5	161	420	2.61	Very High
10	Dictionaries	112	69.6	46	28.6	3	1.9	161	431	2.67	Very High
11	Encyclopedias	101	62.7	57	35.4	3	1.9	161	420	2.61	Very High
12	Directories	65	40.4	67	41.6	29	18.0	161	358	2.22	Very High
13	Monographs	27	16.8	43	26.7	91	56.5	161	258	1.60	Moderate
14	Almanacs	24	14.9	20	12.4	117	72.7	161	229	1.42	Moderate
15	Student Projects	141	87.6	20	12.4	00	-	161	463	2.87	Very High
16	Thesis	139	86.3	22	13.7	00	-	161	461	2.86	Very High
17	Conference Proceedings	123	76.4	38	23.6	00		161	445	2.76	Very High
18	Atlases	48	29.8	72	44.7	41	25.5	161	329	2.04	Very High
19	Year Book	46	28.6	53	32.9	62	38.5	161	306	1.90	Very High

20	Annual Reports	91	56.5	54	33.5	16	9.9	161	397	2.46	Very High
21	News Papers	118	73.3	35	21.7	8	5.0	161	432	2.86	Very High
22	Others	61	37.9	47	29.2	53	32.9	161	330	2.05	Very High

Average Weighted Mean =2.50 (Very High)

Table 2 shows the extent of availability of library information resources for accreditation of programmes in State Universities in North-west Nigeria. The extent of availability of library information resources was very high for 20 out of 22 library information resources investigated and had moderate mean level of availability for Monographs (1.6) and Almanacs (1.42). The general level of availability of library information resources for accreditation of programmes in State Universities in the North-West Nigeria had average weighted mean value of 2.50.

This is an indication of high extent of availability. The finding of this study—which shows a high extent of availability of the assessed resources—corresponds with previous empirical evidence in Nigerian university libraries. Uzoagba and Okiche (2018) reported that universities often improve the provision of essential learning resources, especially when preparing for accreditation exercises, which frequently results in an observable "increase in library information resources and library face-lift." Similarly, Adetunla and Familusi (2017) found that accreditation activities commonly stimulate better acquisition patterns and enhanced resource availability, even in situations where library funding is inconsistent.

This implies that the high extent of availability observed in the present study is a product of deliberate institutional efforts to meet accreditation requirements, reflecting the positive influence accreditation exercises can have on ensuring adequate resource provision despite systemic challenges.

Research objective Three: What are the problems of accreditation of programmes in state universities in North-west, Nigeria?

Table 3: Problems of Accreditation of Programmes in State Universities.

S/N	Statement	SA	A	D	U	N	Mean	Standard Deviation	Decision 3.30
1	Funds are not readily available to provide library facilities.	60 (37.3%)	54 (33.5%)	14 (8.7%)	1 (0.6%)	192	3.34	.701	Agreed
2	Faculty members are not cooperating with library to achieve accreditation of programmes.	48 (26.7%)	60 (37.3%)	18 (11.2%)	3 (1.9%)	192	3.18	.757	Agreed
3	School records may not be adequately kept to ensure adequate information for accreditation.	56 (34.8%)	58 (36.0%)	14 (8.7%)	1 (0.6%)	192	3.31	.693	Low
4	Library facilities and lecture theatres are adequately provided by university management.	42 (26.1%)	61 (37.9%)	22 (13.7%)	4 (2.5%)	192	3.09	.785	Low
5	Some universities in Nigeria seem not to meet up with the National Universities Commission, criteria, that are the NUC bench mark and fail accreditation.	49 (30.4%)	58 (36.0%)	18 (11.2%)	4 (2.5%)	192	3.17	.785	Low

6	University management does not comply to subscribe database before accreditation of programmes.	33 (20.5%)	68 (42.2%)	24 (14.9%)	4 (2.5%)	192	3.00	.755	Low
7	Limited time to prepare for accreditation of programmes.	48 (29.8%)	48 (29.8%)	27 (16.8%)	6 (3.7%)	192	3.06	.876	Low

Key: Strongly Agree (SA); Agree (A); Disagree (D); Undecided (U).

Table 3 shows that seven items were listed for professional librarians to respond on the problems of Accreditation of Programmes in State Universities in North-west, Nigeria. The result indicated that majority 60 (37.3%) of the respondents strongly agreed that funds are not readily available to provide library facilities. Respondents with 60 (37.3%) agreed that faculty members are not cooperating with library to achieve accreditation of programmes. Also, 58 (36.0%) of the respondents agreed that school records may not be adequately kept to ensure adequate information for accreditation. Respondents with 61 (37.9%) agreed that library facilities and lecture theatres are adequately provided by university management and equally majority of the respondents 58 (36.0%) agreed that some universities in Nigeria seem not to meet up with the National Universities Commission, criteria, that are the NUC bench mark and fail accreditation.

The respondents 68 (42.2%) equally agreed that university management does not comply to subscribe database before accreditation of programmes. Respondents with 48 (29.8%) also agreed that limited time to prepare for accreditation of programmes.
The finding of the study shows that 48 respondents (29.8%) agreed that there is limited time to prepare for programme accreditation.

This result agrees with earlier studies. Adetunla and Familusi (2017) found that many universities only begin serious accreditation preparations shortly before visitation because institutional support often comes late. Likewise, Uzoagba and Okiche (2018) reported that facility and resource upgrades occur mainly at the last minute, reflecting poor continuous readiness.
Inference: This indicates that limited preparation time is a widespread systemic challenge, suggesting that accreditation efforts in many Nigerian universities are reactive rather than sustained.

Discussion of Findings

Research Question One: What is the Status of Accreditation of Programmes in State Universities in North-West Nigeria.

The findings of research question one revealed positive result of accreditation status offered by Yusuf Maitama Sule university. Out of 14 programmes investigated, an overwhelming majority (13) courses have secured full accreditation. This suggests that, the university has demonstrated a strong commitment to meeting the standards set by the National Universities Commission NUC, of ensuring quality education provided to the student. This is in line with the study of Hazelkorn (2018) who discussed the need for quality assurance to adapt to the changing landscape of higher education, including the rise of online learning, transnational education, and the increasing diversity of learners overall will assure the success of programmes accreditation.

Similarly, Bello (2014) posited that accreditation of programmes offered by universities is a key to ensuring standards across the institutions. This is in agreement with Nkiro and Yusuf (2019) who postulated that accreditation will suffer if the academic libraries are not well stocked.

Research Question Two: What is the perceived influence of availability of library information resources on accreditation of programmes in state universities in North-west, Nigeria?

The findings revealed a strong perceived influence of library information resources on accreditation of programmes comprising of available print and digital information resources, access to current data-base, prioritisation of core courses, quality and currency of journals among others influenced accreditation of programmes. This finding is in agreement with the views of Roberts as cited in Ternenge and Kashimana (2019) who opined that availability of electronic resources provides access to authoritative, reliable, accurate and timely access to information.

Corroborating this finding, Bara and Ubogu as cited in Ijeoma (2022); Oyedapo and Ojo (2022); Dukper, Sakibu and Arthur (2018); and Osinulu (2020) who out that the extent of usage of library information resources by students was high. Similarly, Owolabi, et-al (2016) maintained that electronic information resources provide access to current and up-to-date information, faster and easier access to information, and access to a wider range of information. This finding agrees with (Edem and Egbe 2016) who in their study opined that electronic information resources offer postgraduate students the chance to access relevant and current information from different subject areas.

Research Question Three: What are the problems of accreditation of programmes in state universities in North-west, Nigeria?

The finding of the study as regard to problems of accreditation of programmes has it that financial constraint (insufficient funds), lack of cooperation between library and university management, poor record keeping, infrastructural deficits, non-compliance with NUC standard, irregular subscription of database, time constraint were among the problem encounter by the prgrammes accreditation. This observation is parallel with the findings of Mambo &

Comfort (2022) who commented that the challenges of accreditation of programmes are not directly connected to the university management, but rather to the library managements which is linked to the absence of user training and education programs, lack of reliable electrical resources, poor library budgets for running and maintenance of library electronic security systems, absence of full automation of information resources, poor library rules and regulations, poor control and close supervision.

In their findings Burudi and Ndegwa (2021) asserts that universities should establish mobile phone resource centers where mobile phone users can get technical assistance, as well as invest in good Internet connectivity covering the entire university area, including student residences, to enable access to library materials even from outside the libraries, thus decongesting the libraries, and to install adequate power sockets in and outside the libraries to allow mobile phone users to use the library resources through their phones. The result of the study is important for the fact that, if such measures will be taken, it resolves many challenges that has to do with accreditation of programmes.

Conclusion

Based on the findings of the study, it could be concluded that majority of programmes in state universities in North-west Nigeria, has obtained full accreditation in 2023, and while others secured interim accreditation none was denied. The findings of the study identified challenges facing state university libraries in North-west Nigeria. The finding of the study also found that inadequate funding for university libraries, fostering collaboration, improve record keeping, investing in infrastructure, adhering to NUC criteria and allocating sufficient time for preparation of accreditation in state universities in North-west, Nigeria

Recommendations

Based on the findings and conclusions drawn from the study, the following recommendations are made:

1. It is recommended that regular review and update of accreditation document, provision of training and support for library staff and faculty members should be improved.

2. There should also be the need to provide integrated library system (ILS) and online public access catalogs (OPAC) for seamless searching, provide search filters and facets for efficient resource discovery.

3. There is need to increase funding, collaboration between faculty members and libraries, improve record keeping, investment in infrastructure and adhere to NUC criteria. We

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IMPACT OF INTERNET ACCESS ON THE USE OF LAW LIBRARY INFORMATION RESOURCES BY STUDENTS AT AHMADU BELLO UNIVERSITY, ZARIA

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Abstract

This study examines the impact of internet access on the utilization of law library information resources by students at Ahmadu Bello University, Zaria. With the increasing shift toward digital information sources, traditional libraries especially academic law libraries face declining patronage. This study was guided by three research questions which are: Are law students of Ahmadu aware of the library resources in the department, and how often do students visit the library? What are the perception of law students in Ahmadu Bello University, Zaria on the differences that exist between resources in the law library and those found online and What challenges do law students in Ahmadu Bello University, Zaria encounter in using information resources from the law library? This study employed a qualitative research approach, using exploratory qualitative research design. The study population consisted of all 400-level law students at Ahmadu Bello University, Zaria. Semi-structured interviews were used to collect data from seven final-year law students who were purposively sampled due to their willingness to participate in the study. A tape recorder was used to collect participants' opinions. Findings revealed that internet access has significantly influenced students' use of the law library, primarily due to ease of access, lack of awareness of available library resources, and the perception that the library is outdated. This study concludes that to remain relevant, law libraries must adopt digital strategies, improve service delivery, and actively promote their resources. Recommendations include the digitization of library collections, enhanced user education, and improved librarian-user engagement.

Keywords: Internet Access, Law Library, Library Utilization, Information Users, Digital Resources

Introduction

The rapid expansion of internet access has transformed the way information is sought, shared, and utilized across all sectors of society. In academic settings, this shift has had a particularly profound impact on libraries, challenging their traditional role as primary gateways to knowledge. Once considered indispensable "warehouses of information," academic law libraries now face declining use as students increasingly turn to the internet for faster, more convenient access to information.

Research suggests that the internet functions as a vast "virtual library" (Adegoke, 2009), offering a wide range of resources, including books, journals, legal databases, and multimedia content accessible anytime and anywhere. This convenience has led to a cultural shift among students who prefer online sources over physically visiting libraries, even when the quality or reliability of online information may vary. According to Ashiemar (2007), the spread of broadband and mobile connectivity has made internet use nearly ubiquitous, further reducing students' perceived need for library visits.

Law libraries traditionally hold specialized resources essential for legal scholarship and practice such as textbooks, law reports, legislation, digests, and legal databases (Biradar&Kumber, 2013). These curated, authoritative collections are critical for supporting legal education and ensuring that future lawyers can competently navigate complex legal materials. However, despite these resources, students often overlook their value due to lack of awareness, perceived obsolescence, or dissatisfaction with library services. These disconnect raises questions about the relevance of law libraries in the digital age.

At Ahmadu Bello University, Zaria, the problem is particularly acute: many students report rarely visiting the law library or relying solely on internet searches to meet their academic needs. This trend is concerning given the essential role of accurate and up-to-date legal information in legal education and practice. Without strategic intervention, the law library risks further decline in relevance, despite ongoing investments from institutional sponsors such as the National Universities Commission (NUC) and the Tertiary Education Trust Fund (TETFund).

This study therefore investigates the impact of internet access on the utilization of law library information resources by law students at Ahmadu Bello University, Zaria. It aims to understand students' information-seeking behaviors, perceptions of the library's relevance, and the challenges they face when using library resources. The ultimate goal is to identify strategies that can help the law library remain relevant and valuable in the 21st century.

To guide this study, the following research questions were raised:

1. Are law students of Ahmadu Bello University, Zaria aware of the library resources in the department, and how often do students visit the library?
2. What are the perception of law students in Ahmadu Bello University, Zaria on the differences that exist between resources in the law library and those found online?
3. What challenges do law students in Ahmadu Bello University, Zaria encounter in using information resources from the law library?

Literature Review

The emergence of the internet has transformed information-seeking behavior worldwide, challenging the traditional role of academic libraries. The concept of the internet as a "virtual library" (Adegoke, 2009) reflects its capacity to deliver vast amounts of information on demand. Students increasingly favor online resources for their ease of access, convenience, and immediacy qualities that traditional libraries often struggle to match. Ashiemar (2007) highlights how the proliferation of broadband and mobile internet has made online information nearly ubiquitous, encouraging users to bypass physical libraries entirely. This shift is particularly significant for law libraries, which historically have been vital for supporting legal education and practice.

Law libraries house specialized resources such as textbooks, law reports, legislation, digests, legal databases, and reference tools (Biradar&Kumber, 2013). These curated, authoritative materials are essential for training legal professionals who must navigate complex and precise legal systems. However, the increasing reliance on internet sources threatens to undermine the role of law libraries, as students may turn to unverified or non-authoritative online resources instead. Previous research has emphasized the indispensability of law libraries to the legal profession. Dada (2011) and Ogunfolu (2006) describe the law library as the "laboratory" of legal education, underscoring its role in supporting legal research, client counseling, advocacy, and scholarly work. Yet despite this importance, many libraries in Nigeria face declining patronage. Factors contributing to this decline include outdated collections, limited digitization, insufficient user education, and poor service quality.

Studies also highlight user behavior as a critical factor in library utilization. Uhegbu (cited in the original paper) notes that information-seeking behavior varies across user groups, shaped by factors such as profession, education level, and information needs. For university students, especially those in their final year of law studies, the expectation of fast, reliable, and convenient access to information often leads them to prefer online sources over in-person library visits. At the same time, the quality of internet resources poses challenges. Unlike law library collections that prioritize authoritative, up-to-date, and jurisdiction-specific legal materials, the internet hosts a wide range of sources with varying degrees of credibility. Bhardwaj (2012) points out that online legal information systems, while convenient, require careful evaluation to ensure reliability a skill not all students possess. Given these tensions, academic law libraries face a critical need to modernize. Belniak (2014) emphasizes the importance of integrating digital legal databases into library services to meet user expectations and maintain relevance.

Efforts to digitize collections, subscribe to online legal databases such as Westlaw, HeinOnline, or LexisNexis, and provide remote access are crucial strategies for competing with the convenience of the internet. However, technological solutions alone are insufficient. User education and outreach are equally important. Librarians must proactively raise awareness of the library's resources, train students in effective legal research skills, and provide welcoming, high-quality service to counter negative perceptions of libraries as "old-fashioned" or inaccessible. This study builds on these insights by examining how internet access affects the use of law library resources among final-year law students at Ahmadu Bello University, Zaria. By exploring students' perceptions, usage patterns, and challenges, the study seeks to identify practical strategies for ensuring that the law library remains an essential resource in an era of widespread internet access.

Research Methodology

This study adopted a qualitative research approach, using a descriptive, exploratory qualitative design. This design allowed the researcher to capture rich, detailed accounts of students' experiences and perspectives that would be difficult to quantify. The study population consisted of all 400-level law students at Ahmadu Bello University, Zaria. To select participants, purposive sampling was used, focusing on students with sufficient experience of both the internet and the law library.

Seven students were selected based on their willingness to participate and their ability to provide diverse perspectives on the research questions. Data were collected using an interview guide. Interviews were conducted in person at times convenient for participants. Each interview lasted approximately 30 to 45 minutes and was audio-recorded with the participants' consent to ensure accurate transcription. Data collected was analyzed using narrative and thematic approach.

Results and Discussions of the findings

The following section presents the results of this study. It is presented in line with the research questions which are as follow:

Are law students of Ahmadu aware of the library resources in the department, and how often do students visit the library?

This research question sought to determine if students of law department are aware of the library resources and how often do students visit the library. From analysis of the collected data to answer this question, a theme emerged from the narratives of the participants of this study which is: Lack of awareness of law Library resources and not visiting the library often. A prominent theme among participants was their limited awareness of the breadth and depth of resources available in the law library. Many students admitted to either never visiting the library or using it solely as a reading space without exploring its collections which suggests a significant communication gap between the library and its users.

> *"I have never been to the law library, simply because I feel the library has nothing to offer me. It's just full of old books."* (*P6, p2, p7)*

> *"I visit the library to read, but I don't really know much about what resources are there apart from newspapers and textbooks."* (*P1, p4, p5, p6)*

What are the perception of law students in Ahmadu Bello University, Zaria on the differences that exist between resources in the law library and those found online?

This research question sought to determine the perception on the differences that exist between resources in the library and those found online by law students in Ahmadu Bello University, Zaria. The themes that emerged from the data analysed are; Preference for Internet Due to Ease of Access and perception of the law library as outdated and irrelevant.

Students overwhelmingly reported that the internet offers a more convenient, efficient, and accessible platform for retrieving information compared to the information resources found at the law library. They expressed that the convenience of remote access and search speed has made the internet the preferred option for many.

> *"When I can lie in bed and get what I'm looking for online, why go to the library?"* (*p5, P3, p2)*

"The process of borrowing from the library is long and tiring. With the internet, I can get more options faster." (*p2. P7, p5, p4)*

Perception of the Law Library as Outdated or Irrelevant

Several participants described the library as "old-fashioned," noting that many of its materials appear outdated, brittle, or irrelevant to contemporary legal studies. This perception contributes to a decline in library patronage and trust in the relevance of its holdings.

"Most of the books are old and torn. My lecturers even tell us not to use materials older than five years." (*P4, p5, p1)*

"Only old people still use the library. It feels like it hasn't changed with the times." (*P1, p2, p3. P5)*

What challenges do students of law Ahmadu Bello University, Zaria encounter when using the Library

This research question sought to identify the challenges encountered by students of law department Ahmadu Bello University, Zaria while using the information resources in the library. Participants detailed that various structural, operational, and interpersonal challenges are what discouraged them from using the library. These included disorganized shelving, unhelpful or unfriendly staff, and outdated search systems. These operational difficulties contribute to students' preference for online resources. Though some participants still recognize the law library's potential value.

"Finding a book can take forever, especially if it's not in the OPAC. You have to ask around or search manually." C*P2, p3, p4, p5, p6*,)

"Some librarians act like you're bothering them. It's discouraging." (*P1, p2, p3, p5)*
"The library is far and uncomfortable. I'd rather use my phone." (P2, p6, p7)

Recognition of the Law Library's Potential Value

Despite criticism, some respondents acknowledged that the law library contains valuable resources that are not easily accessible online, such as local law reports, government publications, and institutional theses. This indicates that with modernization and improved outreach, the law library can still serve a vital academic function.

"If the library can digitize its materials and make them easier to access, I think more people would use it." (*p2, p3*,)

"Law reports and legal digests are important, and I know they're better accessed through the library." (*P1, p2, p5, p6)*

Discussions of the findings

This study explored the impact of internet access on the use of law library information resources by law students at Ahmadu Bello University, Zaria. The findings highlight a clear shift in student behavior, with internet use largely displacing traditional library use. A major theme that emerged was lack of awareness about the library's collections. Many students did not know the range of resources available, using the space only for reading or ignoring it entirely. This confirms Uhegbu's (2004) argument that information users' behavior depends on their awareness and understanding of available resources. It suggests the library has not effectively communicated its value or educated users on how to navigate its holdings.

Ease of access emerged as a decisive factor. Students overwhelmingly preferred the Internet for its speed, convenience, and 24/7 availability. This aligns with Adegoke's (2009) description of the internet as a "virtual library" offering vast, accessible information. While these features appeal to users, they pose a serious competitive challenge to traditional libraries, which have more limited hours, slower search processes, and physical access barriers. Participants' perception of the library as outdated is also significant. The idea that the library is "old-fashioned," with aging, brittle books and irrelevant materials, undermines its authority and relevance. As Ashiemar (2007) and Bhardwaj (2012) note, libraries must adapt to the digital age by updating and digitizing collections to compete with online alternatives. Failure to do so reinforces the perception that the internet is superior, even if its information is not always authoritative.

The challenges in using the library includes complex search systems, poor shelving, staff attitudes, and inconvenient distance which further discourage the use of the library. Participants described frustrating, time-consuming processes and unfriendly service, echoing literature that identifies poor user experience as a barrier to library utilization (Biradar&Kumber, 2013). Despite these criticisms, respondents recognized the value of specialized legal resources available in the library, such as law reports, digests, and theses.

These resources often cannot be reliably replaced by general internet searches. This finding suggests that the law library retains critical relevance, but must modernize, improve access, and promote its unique strengths to regain user trust. Overall, the study reveals that while internet access provides convenience and breadth of resources, it also challenges the library to reimagine its services. Libraries must not only digitize their collections but also invest in user education, staff training, and marketing to remain essential components of academic life.

Conclusion

This study concludes that to remain relevant in the 21st century, the law library must evolve into a modern information center that competes with the convenience of the internet while showcasing its unique, authoritative resources. The findings of this study highlights a critical gap between the potential value of the law library and students' actual use of it. Therefore, bridging this gap requires not only technological solutions but also improved service delivery, user education, and proactive outreach.

Recommendations

The following recommends were provided by this study:

1. Librarians should conduct workshops, seminars, and targeted campaigns to raise awareness of available resources and train students in effective legal research.
2. Libraries should digitize its collections and enable remote access to meet users' expectations for convenience.
3. The library should simplify its search and lending processes to reduce user frustration and time spent locating materials and also staff should be trained to provide respectful, friendly, and helpful service that encourages repeat visits.

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COMPARATIVE STUDY OF ORGANISATIONAL STRUCTURES, POLICIES, ICT ADOPTION AND SERVICE DELIVERY IN SELECTED AMERICAN AND NIGERIAN UNIVERSITY LIBRARIES

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Abstract

University libraries are vital components of educational institutions, serving as centers of knowledge and enhancing learning and research among students and staff. This paper discusses a comparative study of university libraries in Nigeria and America, discovering their services, organizational structures, policies, ICT adoption and histories. The study identifies similarities and differences in how these libraries function, adapt to technological advancements, and cater to the diverse needs of their respective student populations. In both Nigeria and America, University libraries play vital roles in supporting academic curricula, promoting teaching and learning, and providing access to a wealth of learning resources. Common practices include offering collections of printed books, reference materials, and multimedia resources. However, they also exhibit distinctive features in their adoption of digital technologies, staffing levels, and access to funding and resources. While Nigerian University libraries often face with funding constraints and limited access to digital resources, America counterparts embrace technology with enthusiasm, providing e-books, online databases, and interactive learning tools. These differences reflect the diverse educational landscapes and resource availability in each country. The findings underscore the resilience and dedication of University libraries in both nations, striving to meet the evolving needs of students and staff in an ever-changing educational landscape. The concludes by advocating for continued efforts to support these libraries, recognizing their essential paper role in nurturing well-rounded individuals, fostering research skills, and inspiring lifelong learners.

Keyword: Histories, ICT, Organisational structure, Policies, Services, University libraries

Introduction

A university library is established to serve three purposes, to support teaching and learning, the research and the community services around the university. It is a system with divisions and units that are properly organized and managed to provide services to meet the objectives and goals of the university. The library is generally regarded as the heart of a university and so it must provide quality services that will promote the standard of education and research. A library is a "collection of books and other forms of records and resources housed, organised, and interpreted to meet the broad varying needs of students, staff and others for information, recreation and inspiration". Academic library for a developed country, serve as a tool for intellectuals' development which in turn to economics, political development and social happiness and survival. Intellects in its various dimensions mean the absence of ignorance of situations. In general library is used to provide information about its community. The acquisition of knowledge dispels ignorance; therefore, the main objective of library is to serve as a Centre for information where people acquired the needed knowledge to reduce their ignorance about their environment.

University library is a library that is established to take care of the information need of students, lecturers, researchers and other community of scholar. The Academy library continues to bring man in contact with the word in the fulfilment of its function as a repository of knowledge in all forms and shapes. It has also become over the years a dynamic Centre for research for economic development among nations, including both Nigerian and United States of America (Sobalaje, 2015). The history of Academic library development in Nigeria dates back to pre-independence time when the University of Ibadan and its library were established in 1948. Since Nigeria's independence in 1960, there has been a steady and sustained expansion in the establishment of educational institutions at all levels particularly universities as successive governments have continued to invest heavily in higher education (Adebayo, 2020; Olanrewaju & Adeyemi, 2019). It must be noted that Academic libraries, being integral academic parts of the universities and others higher institute of learning in Nigeria, emerged simultaneously with their parent institutions, which makes the total number of higher institutions in the country to equal the number of Academic libraries available in Nigeria.

According to Yacob-Haliso (2016), academic libraries are institutions established to meet the diverse information needs of students, lecturers, researchers, and the broader community of scholars. Similarly, Wolpert (2021) describes academic libraries as cost-effective providers of information services and knowledge products designed to support a resident academic community. However, achieving cost efficiency and sustainable service delivery remains one of the major challenges affecting the performance of academic libraries in Nigeria, primarily due to inadequate funding, technological constraints, and limited resource allocation (Adebayo, 2020). (Akintunde 2004) was of the viewed that libraries in many tertiary institutions have either accreditation or failed them because libraries are regarded as tools for Academic excellence. The academic institutions play a major role in the manpower development of any nation providing the high, as well as middle level manpower for the acceleration of social, economic and political advancement of a nation. According to Okiy (2007), quoting Edoka (2000) that the general functions of Academic libraries are as follows:

1. To provide; information materials required for the academic programs of the parent institution.
2. Research information resources in consonance with the needs of faculty and research students.
3. Information resources for recreation and personal self-development of users.
4. Study accommodation in a useful variety of locations.
5. Protection and security for these materials.
6. Specialized information service to appropriate segments of the wider community
7. To co-operate with other libraries at appropriate levels for improved information services.

Libraries in Nigeria and America (USA)

Nigeria has the largest number of University libraries in Africa, National Universities Commission accredited 380 University libraries. The Federal University Libraries 51, State University Libraries 61, Private University Libraries 148 and Distance Learning Centre's have 20 (NUC, 2023). While United States of America has over 3,697 University libraries both federal, state and private (IFLA, 2022)

Examples of University Libraries in Nigeria and United States of America

University Libries in Nigeria	**Year of Est.**	**University Libraries in America**	**Year of Est.**
1.Kenneth Dike Library, University of Ibadan	1948	1.HarvardUniversity Library	1638
2. Nnamdi Azikiwe Library, University of Nsukka Enugu	1962	2. Yale University library	1771
3. Hezekiah Oluwasanmi Library, Obafemi Awolowo university of Ile Ife	1962	3. Columbia University Library	1756
4. Kashim Ibrahim Library, Ahmadu Bello University Zaria.	1962	4. University Library of New York	1831
5. Central Library-Rivers State University of Science and Technology	1979	5.Geogia State University Library: Alanta, Geogia	1788
6. Babcock University Library, Ilishan Remo, Ogun State,	1999	6.Duke University Library, Durham North Carolina	1861

Source- NUC, 2023

History of Univesity Libraries in Nigeria and America

Names of Universities	History
1. Kenneth Dike Library, University of Ibadan	The history of Academic library development in Nigeria dates back to pre-independence times when the University of Ibadan and its library were established in 1948. Established in 1948, the University of Ibadan, UI as it is fondly referred to, is the first University in Nigeria. Until 1962 when it became a full-fledged independent University, it was a College of the University of London in a special relationship scheme. The University, which took off with academic programs in Arts, Science and Medicine, is now a comprehensive citadel of learning with academic programs in sixteen Faculties namely, Arts, Science, Basic Medical Sciences, Clinical Sciences, Agriculture, the Social Sciences, Education, Veterinary Medicine, Pharmacy, Technology, Law, Public Health, Dentistry, Economics, Renewable Natural Resources and Environmental Design and Management. The Faculties of the Basic Medical Sciences, Clinical Sciences, Public Health and Dentistry are organised as a College of Medicine. The University of Ibadan Library is named after Professor Kenneth Dike, the first indigenous Principal and former Vice-Chancellor. It was established out of the desires of the founding fathers and matriarch of the icon of higher education in Nigeria, to cut a niche for research and sound teaching in the University of Ibadan. It was a massive project with great vision of sustained quality services and enduring capacity for expansion. The library is ranked favourably in the comity of libraries in the Commonwealth. The Kenneth Dike Library contains over 700,000 volumes and seats 1,250 readers. It is open to all senior staff, and students, and to senior staff of the University College Hospital, Ibadan, as well as Alumni of the University.
2. Kashim Ibrahim Library, Ahmadu Bello University Zaria	Ahmadu Bello University, Zaria is one of Nigeria's first generation universities, opening its doors in 1962. Like other universities, its functions include teaching, research, and community service. With these as the propelling force, the Kashim Ibrahim Library (KIL) of Ahmadu Bello University, Zaria, was built to be the height of excellence in university education in Nigeria. It is reputed to be the "biggest and the best university in all of Nigeria, if not Africa." Situated in the Northern part of Nigeria, it is indeed Nigeria's largest and the North's most prestigious university with a student population of approximately 35,000. The library is located in the main campus and there are satellite libraries on other campuses. Nok (2006) describes the Ahmadu Bello University Library as the largest completed university library building in Sub-Saharan Africa, with an area of 1,582 metre and the capacity for 500,000 volumes and study space for 2,000. He states that, "its grandeur and size are not likely to be replicated in the Nigerian university library building scene for some to time to come.

	Today, online and CD-ROM searches are a common feature among staff and students of the University. With a staff strength of 115 professionals and 301 para-professionals, 92 non-professional staff in the entire university library system, the library management is striving to upgrade the IT skills of the staff to enable them cope with challenges of the information age(QAU, 2023)
3. Harvard University Library	Harvard Library was founded in 1638. At the beginning of its establishment, the library had only 400 books left by John Harvard. Harvard Library is considered as the oldest library in the United States, the largest university library and the largest academic library network in the world. Harvard Library ranks the third largest collection in the United States, after the Library of Congress and the Boston Public Library. Its collections include nearly 20 million volumes, 400 million manuscripts, 10 million photographs, and one million maps. Its largest main library is the Widener Library, which is the landmark building of Harvard Yard. Harvard Library is open to current Harvard affiliates, providing services for 6700 undergraduates, 14,500 postgraduates, 2400 faculty members and 10,400 scientific researchers including affiliated hospitals. Additionally, some resources and spaces are open to the public. According to the statistics in 2013, 733,890 books were circulated, 131,041 consultations answered, 20,000 researchers supported, 1700 introductory services held, 42,000 pictures viewed, 17,000 files downloaded, 47,000 documents scanned and transmitted, and 48,700 copies were interlibrary-borrowed. The cumulative opening time reached 55,176 hours for a total of readers of about 19,000. (Zhao, Lin. & Zhang, 2019)
4. Columbia University Library	The Columbia University Libraries began with the 1756 donation of the estate and library of Joseph Murray to the university, then known as King's College. Columbia University Libraries is a top-tier academic research library, serving as one of the world's most important centers of research and learning. The libraries build, sustain, and make discoverable collections that transcend traditional boundaries of format and domain, keeping pace with a dynamic and rapidly evolving information environment and creating unique opportunities for users to encounter global thought. As vital partners in the University's research and learning ecosystem, the libraries connect users with rich and distinctive collections, foster meaningful learning experiences, and provide innovative research support for a large, diverse user population. The libraries' collection includes resources in more than 450 languages and primary source materials that span over 4,000 years of human thought. The collection is comprised of 13 million volumes, over 160,000 journals and serials, as well as extensive electronic resources, manuscripts, rare books, microforms, maps, and graphic and audio-visual materials. The libraries employ more than 350 staff and hosts over 4 million physical and 20 million virtual visitors each year. A leader in strategic partnerships for shared collections, collaborative collection development, and reciprocal borrowing and use, Columbia University Libraries is

	a key node in a network connecting users to a boundless multitude of resources around the world (John ,2018)

Policies and Regulations of Libraries in Nigeria and America

Policy/Regulation	Nigeria	America
Collection Development Policy	The Resource Development librarian shall work in close coordination with the faculty liaison/Book Officer to select new resources, analyses the scope of the existing stock, and plan for future acquisitions in the respective subject areas.	Specifies guidelines for selecting and acquiring resources that align with the curriculum and educational objectives.
Hours of operation	Libraries are typically open from 8:00am to 10:00pm, throughout the week	Libraries are typically open 24hour (24/7).
Borrowing policies	Undergraduate (UG) 7 books for two weeks, Postgraduate (PG) 10, Senior Staff (S/S) 15 "for four weeks, Junior Staff 3 "for two weeks and Honorary/Alumni – can use the library for reference purpose only e.g. KASHIM IBRAHIM LIBRARY	Readers may borrow books for up to one semester (28 days for some items), but once other readers need to use them, borrowers will receive letters or e-mails informing them of an appointment. This book must be returned within 10 days to ensure that all readers have equal access to information.
Renewal policies	Books can be renewed for an additional 2 weeks if they are not in high demand.	Books can borrow the whole semester except if there is a request for another students e.g. Harvard library
Fines	Library customers who lose library books shall pay the cost of replacement at the current price in addition to 10% handling charges. ,Overdue fines for defaulting customers shall be as determined by the library management.	if the fine is not paid in time, it will appear on the final bill. If the users are professors or employees, the library will send a ticket to them through the finance department. Failure to pay a fine will affect the right to borrow and use. The fine is usually $0.5 or $2 per day, the book reserved is $0.02 per minute, and the laptop

		overdue is $14.4 per day. If it is lost or not returned, the amount of the fine is the total amount of the price plus the fine, or the minimum of $100.
Access to the library	Students and staff have free access to the library.	Students and staff have free access to the library.
Code of Conduct	Sets expectations for library users regarding behavior, noise levels, and respecting others' rights to use library resources.	Establishes guidelines for appropriate behavior in the library, such as maintaining a conducive study environment.
Internet and Computer Use Policy	To fulfill its mission of providing access to information of all types in a wide range of format, the Library provide access to internet services, digital repository, C-D, search online and offline database and OPAC. The Library ICT policy shall deal with the overall management of electronic resources and services in the library.	They borrow computer charger, headphones to the client,
Copyright Policy	Defines how copyrighted materials can be used within the library, including photocopying, scanning, and copyright compliance	Ensures compliance with copyright laws and guidelines for using copyrighted materials for educational purposes.
Printing and photocopy	The Library shall charge for printing of pages.	Free

Food and Drink Policy	Are not allowed(ABU, 2014)	The consumption of food and drinks, within reason, is permitted in many library locations. However, library customers are asked to be considerate of others and to avoid consuming food items that create messes, smells, and/or noise. Library customers are expected to dispose of all trash and take responsibility for cleaning spills, food crumbs, etc. Food ordered for delivery to the library should be picked up outside of the library. ➢ Snack food, sandwiches, and drinks in closed containers are permitted in all areas of the library.eg ASU Library

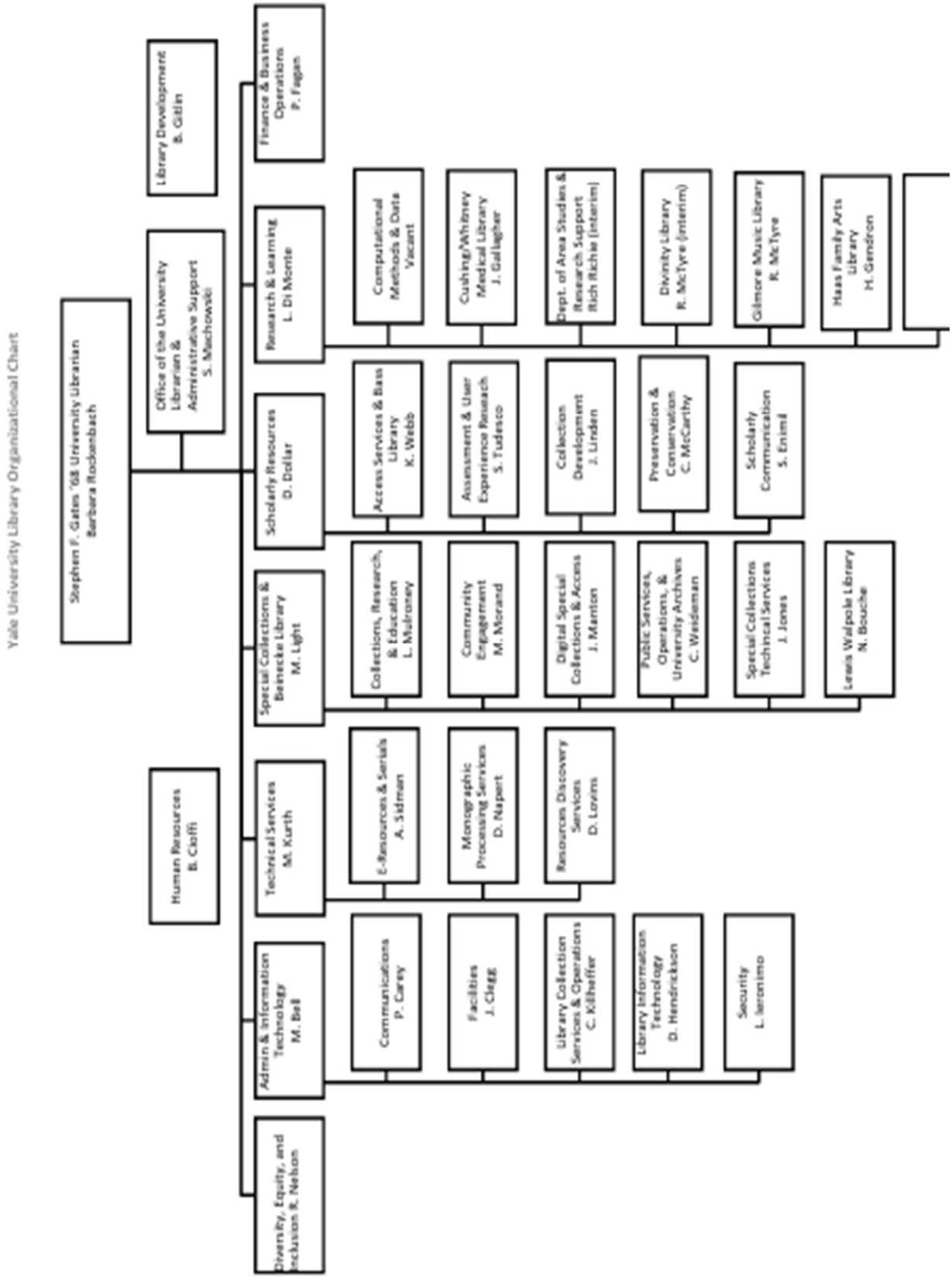
Source- Harvard Library 2020.

The organizational structure of American university libraries can vary from one university to another.

1. **University Librarian**: This is the highest-ranking individual in the library's organizational hierarchy. The UL is responsible for the overall management, administration, and strategic planning of the library. They often report to the university administration and collaborate with other academic departments.
2. **Deputy Librarian:** Depending on the size and complexity of the library, the deputy librarian who oversee specific areas such as collections, technology, services, or administration. These positions are responsible for managing their respective departments and collaborating with the library departmental, faculty and other liaison libraries.
3. **Department Heads or Managers:** The library is typically divided into various departments or units, each focusing on different aspects of library services. Some common departments include:
   - **Collection Development:** Responsible for acquiring, managing, and organizing the library's physical and digital collections.
   - **Public Services:** Manages user interactions, reference services, circulation, and user education.
   - **Technical Services:** Handles cataloging, metadata creation, and processing of library materials.
   - **Digital Initiatives and Technology:** Focuses on digital resources, online platforms, and technological infrastructure.
   - **Archives and Special Collections:** Manages rare materials, manuscripts, and historical archives.

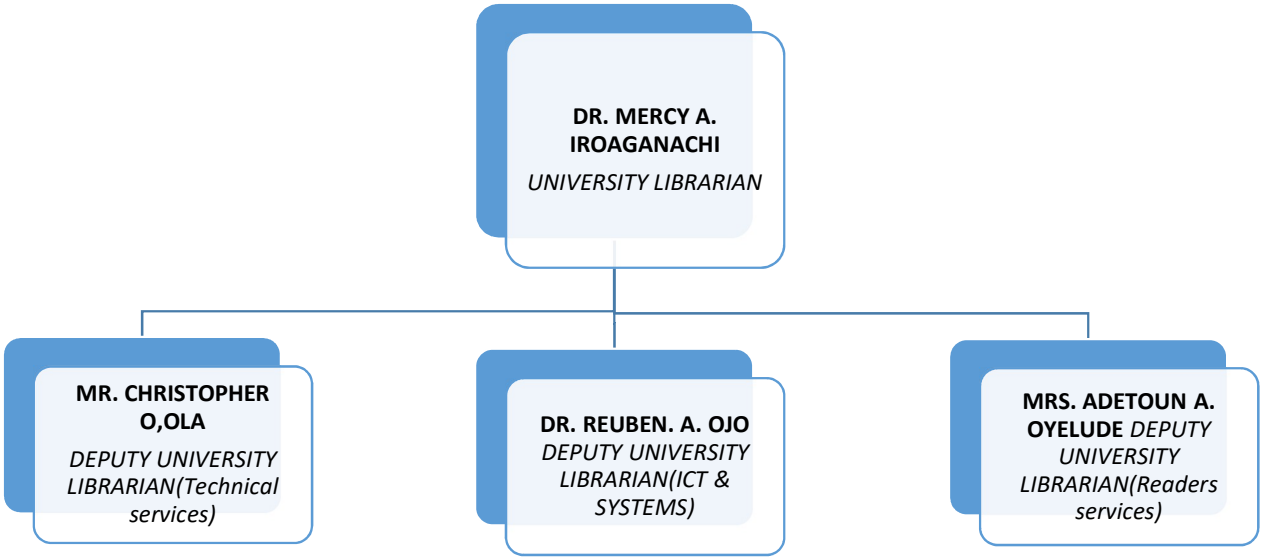
- **Outreach and Engagement:** Develops programs to engage the university community and promote library resources.

4. **Librarians and Staff:** Within each department, there are librarians and staff members who perform specific roles. Librarians are often subject specialists and provide research assistance, teach information literacy, and contribute to collection development. Staff members handle various tasks such as shelving, circulation, maintenance, and administrative support.
5. **Advisory Boards:** Some university libraries might have advisory boards consisting of faculty, students, and community members. These boards provide input on library services, collections, and strategic planning.
6. **Faculty Liaisons:** Many university libraries have librarian liaisons assigned to different academic departments or disciplines. These liaisons work closely with faculty to provide specialized research support, collaborate on collection development, and integrate information literacy into the curriculum.
7. **Collaboration with IT and Academic Departments:** University libraries often collaborate with the university's IT department for technology infrastructure and support. They also work with academic departments to ensure that library services and resources align with the university's educational goals.

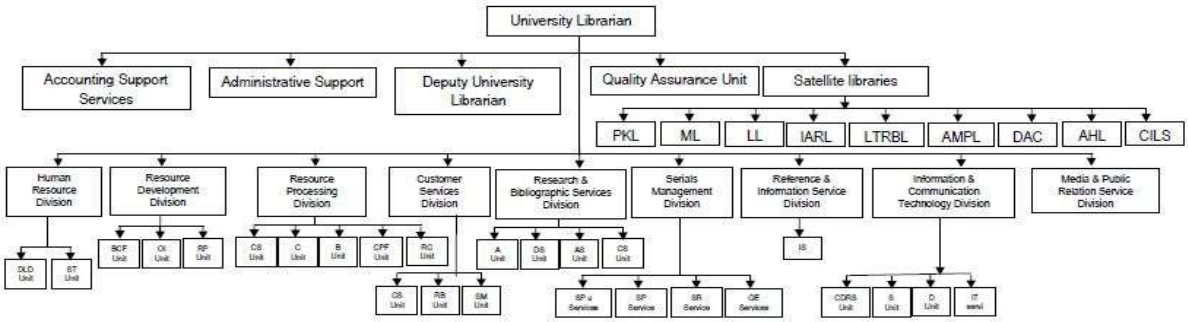

Yale University Library Organizational Chart
Stephen F. Gates '68 University Librarian
Barbara Rockenbach
Office of the University Librarian & Administrative Support
S. Machowski
Library Development
B. Gitlin
Finance & Business Operations
P. Fagan
Research & Learning
L. Di Monte
Computational Methods & Data
Vacant
Cushing/Whitney Medical Library
J. Gallagher
Dept. of Area Studies & Research Support
Rich Richie (interim)
Divinity Library
R. McTyre (interim)
Gilmore Music Library
R. McTyre
Haas Family Arts Library
H. Gendron
Scholarly Resources
D. Dollar
Access Services & Bass Library
K. Webb
Assessment & User Experience Research
S. Tudesco
Collection Development
J. Linden
Preservation & Conservation
C. McCarthy
Scholarly Communication
S. Enimil
Special Collections & Beinecke Library
M. Light
Collections, Research, & Education
L. Mulroney
Community Engagement
M. Morand
Digital Special Collections & Access
J. Manton
Public Services, Operations, & University Archives
C. Weideman
Special Collections Technical Services
J. Jones
Lewis Walpole Library
N. Bouche
Human Resources
B. Ciolfi
Technical Services
M. Kurth
E-Resources & Serials
A. Sidman
Monographic Processing Services
D. Napert
Resources Discovery Services
D. Lovins
Admin & Information Technology
M. Ball
Communications
P. Carey
Facilities
J. Clegg
Library Collection Services & Operations
C. Kilheffer
Library Information Technology
D. Hendrickson
Security
L. Ieronimo
Diversity, Equity, and Inclusion R. Nelson

Organisational Structure of Nigerian University Library

Kenneth Dike Library, University of Ibadan



ORGANIZATIONAL CHART OF THE AHMADU BELLO UNIVERSITY LIBRARY COMPLEX



Key:

Satellite Libraries: PKL- President Kennedy Library; ML-Medical Library; LL-Law Library; IARL- Institute for Agricultural Research Library; LTRBL-Lee T. Rails Back Library; AMPL-Abdullahi Mohammed Public Library; DAC- Division of Agricultural Colleges Library; AHL-Arewa House Library; CILS-Centre for Islamic and Legal Studies Library

Human Resources Division: DLB-Departmental Library Division Unit; ST- Staff Training Unit

Resource Development Division: BCF-Bibliographic Clearing and Filling Unit; OL-Ordering and Invoices Unit; RP-Receiving and Processing Unit

Resource Processing Division: CS-Catalogue Services Unit; CU-Classification Unit; B-Bindery Unit; CPF-Card Production Verification and Filling Unit; RC-Retrospective Conversion Unit

Customer Services Division: CS-Circulation Service Unit; RB-Reserve Book Services Unit; SM-Shelf Maintenance Services Unit

Research & Bibliographic Services Division: A-Africana Unit; DS- Document Services Unit; AS-Arabic Services Unit; CS-Carrel Services Unit

Serials Management Division: SPu-Serials Public Services; SP-Serials Processing Services; SR-Serial Recording Services; GE-Gifts and Exchange Services

Reference & Information Service Division: IS-Information Services

Information & Communication Technology Division: CDRS- CD-ROM Search Services Unit; S-Systems Unit; D-Digitization Unit; IT-Internet Training Unit;

Services of University Libraries in The USA and in Nigeria

Library services refer to the various activities, programs, and assistance offered by libraries to meet the informational, educational, recreational, and research needs of their patrons. These services aim to provide access to various materials, support learning and literacy, facilitate research, and foster community engagement. Library services can vary widely depending on the type of library of the universities, the resources they have available, and the needs of their users.

Here are examples of library services of following Universities:

Names of Universities	Services
KASHIM IBRAHIM LIBRARY SERVICES	➢ Resource Development ➢ Customer Services ➢ Resource Processing ➢ Reference & Information Service ➢ Serials Management ➢ Research & Bibliographic Services ➢ Human Resources ➢ Information & Communication Technology ➢ Media & Public Relations
HARVARD LIBRARY SERVICES:	1. **Teaching, Learning and Research Services** The mission of Harvard Library is: to advances scholarship and teaching by committing itself to the creation, application, preservation and dissemination of knowledge. Harvard Library is excellent in integrating teaching, learning, and research.
	2. **Refined Services** The refinement of Harvard Library's service exists everywhere. In the library of Harvard Business School, according to the different needs of readers, it can provide simple self-service and deep-seated one-to-one consulting services, such as solving difficult problems, providing information, prediction of discipline dynamics, tracking service of academic activities, literatures, academic evaluation and so on.
	3. **Characteristic Services** The collections of Harvard Library have different characteristics, with different service objects and contents. Taking Yenching Library as an example, the library is aimed to collect and sort out academic and research literatures about East Asia.
	4. **Services for Special Groups** Harvard Library is committed to providing equal services to all readers, so it strives to provide the disabled readers with possible services, including on-site borrowing, retrieval, online search, copying, reference and any other booking services. All libraries have accessible facilities for disabled readers. Every library website has a detailed introduction of facilities and equipment for

	disabled readers, such as entrances and exits, elevators, toilets, as well as workstations, photocopying, printing, scanning equipment and multimedia resources for wheelchair users.
	5. Borrowing Services: Readers may borrow books for up to one semester (28 days for some items), but once other readers need to use them, borrowers will receive letters or e-mails informing them of an appointment. This book must be returned within 10 days to ensure that all readers have equal access to information.
	6. International Exchanges: In addition to the close cooperation and exchanges with the libraries of universities in the United States (especially among the eight Ivy League members), Harvard Library have also exchanged frequently with other libraries all over the world. For example, in 2004, Harvard Hilles Library donated 150,000 books to the Sun Yat-sen University Library in China. In 2006, the first Sino-American University Library Director Forum was co-sponsored by Peking University Library and Harvard Library.
	7. Consultation Services Harvard Library website provides contact information for each employee, which can be consulted by e-mail, telephone and other means. The library website provides online consultation services. Readers can leave messages and ask questions online and get answers from professionals. For example, on the Harvard Library Reference Platform (Ask a Librarian), users can ask questions and browse. Generally, they can get reply within 24 business hours.
	8. Management System Like other libraries, books borrowed must be returned within the stipulated date. Although there is no limit on the number of books borrowed, once the book in hand is reserved by other readers, it must be returned within 10 days. If it is overdue, it will be fined and the right to borrow may be cancelled.

Source - Zhao, Lin. & Zhang, Y. 2019

Information and Communication Technology used for Nigerian University Libraries and American University Libraries:

Libraries employed technologies to speed up their daily activities and reduce their operating costs. Many repetitive activities were upgraded using technologies. ICT allows integration of library activities and increases efficiency and enables users to have remote access to information and around the clock access. New technologies provide unlimited information from different sources and facilitate reformatting data from different sources (Sivakumaren, Geetha, & Jeyaprakash,).

The American Library Association (1983) defines IT as "the application of computers and other technologies to the acquisition, organization, storage, retrieval and dissemination of information. The computers are used to process and store data, while telecommunications technology provides information communication tools, which make it possible for users to access databases and link them other computer networks at different locations." IT and ICT (Information and Communication Technologies) are used somewhat interchangeably. The following table contained examples of ICT used in American university libraries and Nigerian University libraries:

Nigerian University Libraries	Information and Communication Technology(ICT)
	1. **Computer Systems and Internet Connectivity:** The availability of computer systems and internet connectivity in Nigerian University libraries has transformed access to information. Students can now conduct research and access a vast array of educational resources from the comfort of their library spaces. The internet also facilitates communication and collaboration among students and lecturers at their comfort zone. Computers are also used to automate manual library functions. Acquisitions, cataloguing, circulation, and serials control are now automated, with much library software available in the market. Online public access catalogues (OPAC) have replaced the card catalogue. The libraries studied here have yet to join other libraries in bringing benefits of the above advances in information technology to their patrons. 2. **CD-ROM:** The libraries have CD-ROMs. CD-ROM is a storage device for many databases. Some books and journals are published in CD-ROM, and have CD-ROMs attached. 3. **Digital Catalogs and Databases:** With the adoption of digital cataloging systems and databases, Nigerian University libraries have modernized their book management processes. Students can easily search for books, e-books, and other materials using keywords or filters, expediting the retrieval of relevant resources. The use of digital databases has also expanded the collection of academic journals and research materials accessible to students E.g. KOHA, OPAC, JSTOR, 4. **E-Books and Digital Libraries:** E-books have gained popularity in Nigerian University libraries due to their accessibility and portability. 5. **Multimedia Resources:** To address various learning styles and engage students effectively, Nigerian University libraries integrate multimedia

	resources into their collections such as Audio books, educational videos, and interactive software complement traditional learning materials, making learning more interactive and engaging for students.eg Kenneth Dike Library, Ibadan University and Bayero University Library, Kano 6. **Interactive Whiteboards and Projectors:** Interactive whiteboards and projectors have transformed traditional classroom settings into interactive and dynamic spaces. In library classrooms, educators can present multimedia content, conduct group discussions, and facilitate collaborative learning activities, creating immersive learning experiences. Eg. Kashim Ibrahim Library at Learning Common, Kaduna State University Library 7. **Libraries' Websites and Online Portals:** Nigerian University libraries maintain their websites or online portals to keep students and faculty informed about library services, upcoming events, and available resources. These websites serve as valuable resources for students, providing access to library catalogues, research guides, and online learning materials. 8. **E-mail:** This is a component of Internet connectivity. It is used for instant communication. Nigerian University libraries have an e-mail address. 9. **Radio Frequency Identification (RFID) Technology:** RFID technology has developed library management in some Nigerian University. By utilizing RFID tags on books and student IDs, libraries can automate book checkouts, returns, and inventory management, leading to improved efficiency and better service delivery 10. **Antenna/Mast:** The libraries have antenna/masts installed at various points on their campuses. These serve as telephone links between the institutions and service providers. With the mast, municipal area networking (MAN) can be carried out. People can then access information from their offices or workstations outside the library. (Etebu, 2010).
American University Libraries	1. **Online Catalogs and Databases:** University libraries often have online catalogs and databases that allow users to search for books, journals, articles, and other resources available in the library's collection. These systems are user-friendly and provide advanced search capabilities.eg HOLLIS, CLIO 2. **Electronic Resources and E-books:** Many libraries offer electronic resources such as e-books, e-journals, and digital databases. These resources can be accessed remotely by users with a valid university login, making it convenient for research and study. 3. **Digital Archives and Repositories:** Universities often digitize historical documents, manuscripts, photographs, and other archival materials. These digital archives allow researchers to access rare and valuable materials online. 4. **Collaboration Spaces:** Libraries have evolved to offer collaborative spaces equipped with modern technology. These

	spaces may have large screens, interactive whiteboards, and group study areas that allow students to work together effectively. 5. **Computer Labs:** Libraries frequently provide computer labs with access to software applications relevant to different fields of study. These labs may offer both Windows and Mac computers to cater to various user preferences. 6. **Wireless Internet Access:** Most university libraries offer free Wi-Fi access, allowing students and faculty to connect their personal devices and access online resources anywhere within the library. 7. **3D Printing and Maker Spaces:** Some libraries have incorporated 3D printing facilities and maker spaces where students and researchers can experiment with technology, design, and construction. 8. **Virtual Reality (VR) and Augmented Reality (AR):** Some libraries have started exploring VR and AR technologies for educational purposes. These technologies can provide immersive learning experiences and visualization tools. 9. **Library Apps:** Many libraries have developed mobile apps that provide easy access to library resources, services, and even real-time availability of study rooms and computers. 10. **Online Tutorials and Learning Resources:** Libraries often create online tutorials and guides to help users make the most of their resources. These resources can range from how to search for academic articles to how to properly cite sources. 11. **RFID Technology:** Radio-frequency identification (RFID) technology is used for efficient check-out and check-in of books. It allows for automated tracking of library materials and reduces the need for manual handling. 12. **Data Visualization Tools:** Libraries might offer tools and resources for data visualization, helping researchers interpret and present complex data effectively.

Summary: The bellow is the summary of comparative analysis between Nigerian University Libraries and American University Libraries

Similarities Between Univesirty Libraries in Nigeria and America

Similarity	**Nigeria & America**
Purpose	University libraries in both Nigeria and America are designed to provide students and staff with access to information and resources that can help them succeed in university and community life.
Collections	The collections University libraries in Nigeria and America are similar, with emphasis on books, journal, magazines, newspapers, audiovisual materials, and online database.
Policies and regulations	The policies and regulations of University libraries in Nigeria and America are also similar, with a focus on providing students and staff with free access to the library, allowing students and staff also to borrow information resources
Organizational structure	The organizational structure of University libraries in Nigeria and America are also similar, with a head librarian who is responsible for the overall management of the library and a team of librarians and library assistants who are responsible for providing library services to students and staff.
Learning Spaces	Both provide conducive learning spaces where students and staff can study, read, and conduct research in a quiet and comfortable environment.

Differences Between University Libraries in Nigeria and America

Difference	**Nigeria**	**America**
History	Nigerian university libraries were first established in 1948 -1962	The American university were established in 1638
Staffing	University libraries in Nigeria have fewer professional librarians and more para professional librarian than University libraries in America.eg 115 and 305	University libraries in America are generally, more professional librarian than those in Nigeria.eg Yale university library has over 500 professional librarians
Funding	University libraries in Nigeria may receive less funding than University libraries in America.	University libraries in America receive more funding from the government than those in Nigeria.
Technology	University libraries in Nigeria may have less access to technology than University libraries in America.	University libraries in America generally better equipped with technology than those in Nigeria.eg HOLLIS is used both as catalog and database
Collection Size and Diversity	Some University libraries in Nigeria may have smaller collections with limited diversity due to resource constraints.	University libraries in America often have larger and more diverse collections, catering to a wide range of subjects and interests.eg Harvard library has more than 20 million collections

Conclusion

University libraries remain indispensable components of the broader educational framework in both Nigeria and the United States of America. Without effective library systems, no meaningful academic or research endeavor can be successfully sustained. As the intellectual backbone of higher education institutions, libraries play a crucial role in enhancing knowledge acquisition, research competence, and professional skills necessary for national development. In both countries, university libraries contribute significantly to achieving the overarching goals of higher education, which include the production of skilled and relevant manpower for national growth, the inculcation of sound moral and societal values, and the development of intellectual capacity that enables individuals to engage critically with their local and global environments. Therefore, strengthening and adequately supporting university libraries is essential for fostering academic excellence, promoting innovation, and ensuring sustainable educational and socio-economic advancement

Way Forward

The following recommendations were made based on the conclusion of the study:

1. Nigerian university libraries should require more financial support from both government and institutional authorities to improve their infrastructure, expand digital collections, and provide access to up-to-date learning and research materials comparable to their American counterparts.

2. Library staff and users in Nigerian University should require continuous training to enhance their digital literacy and technological competencies. Regular workshops, seminars, and capacity-building initiatives should be organized to ensure that librarians are proficient in emerging technologies such as artificial intelligence tools for information retrieval, digital cataloguing systems, and data management platforms.

3. Comprehensive and adaptive library policies should be developed to align with global standards, addressing issues such as resource sharing, open access initiatives, and collaborative cataloguing. These policies should be periodically reviewed to reflect emerging trends in library and information science.

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DATA-DRIVEN COLLECTION DEVELOPMENT IN LIBRARIES: A CASE STUDY OF FEDERAL COLLEGE OF EDUCATION, YOLA, AND COLLEGE OF EDUCATION, HONG LIBRARIES. ADAMAWA STATE

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Abstract

This study explores the implementation of data-driven collection development (DDCD) practices in academic libraries in Nigeria, specifically at the Federal College of Education, Yola, and the College of Education, Hong. However, challenges persist, including the underutilization of borrowing statistics and mixed confidence in data analysis skills. In the contemporary landscape of library and information science, data-driven collection development (DDCD) represents a significant advancement in resource management. By utilizing both quantitative and qualitative data, libraries can align their collections with user needs, a necessity given the exponential growth of information resources and evolving user expectations. Research Questions include: To what extent are data-driven collection development practices applied in the libraries? What challenges affect the implementation of data-driven collection development in the selected libraries? This study employs a descriptive survey methodology, utilizing questionnaires to gather insights from library staff regarding the application and challenges of DDCD practices. The findings reveal a significant reliance on data analytics tools, with 71.21% of respondents employing them frequently, while 75.75% analyze user feedback. In conclusion, by addressing these challenges, libraries can foster more effective, responsive collections that meet the evolving demands of their communities. Recommendations include enhancing training programs, improving borrowing statistics utilization, strengthening predictive analytics integration, upgrading technological infrastructure, and diversifying collections based on user feedback.

Keywords: Data-driven collection development, academic libraries, user feedback, predictive analytics, Nigeria

Introduction

In the contemporary landscape of library and information science, the transition to data-driven collection development (DDCD) represents a significant advancement in how libraries curate and manage their resources. DDCD utilizes both quantitative and qualitative data to inform decisions regarding the selection, assessment, and administration of library materials. This approach is increasingly essential due to the exponential growth of information resources, evolving user expectations, and budgetary constraints that many libraries face today (Johnson, 2018). As libraries strive to provide relevant and impactful resources, the adoption of DDCD practices enables them to align their collections with actual user needs rather than relying solely on traditional methods or librarian intuition (Booth, 2011). This study focuses on the implementation of DDCD in two academic libraries in Adamawa State: The Federal College of Education, Yola, and the College of Education, Hong. These institutions serve diverse educational communities but encounter various challenges that hinder effective resource management. Key variables influencing the implementation of DDCD practices include the use of data analytics tools, the incorporation of user feedback, the utilization of borrowing statistics, and the technological infrastructure available in the libraries.

The reliance on data analytics tools is critical for understanding user behavior and resource utilization. With 71.21% of library professionals reporting frequent use of such tools, it is evident that data analytics play a crucial role in shaping collection strategies (Crawford & Syme, 2018). However, despite this strong inclination, a significant portion of libraries still underutilizes borrowing statistics, indicating a gap that needs to be addressed (Booth, 2011). Furthermore, collaboration with educational institutions is vital, as 83.33% of library staff engage in aligning collections with curriculum needs, highlighting the importance of integrating academic requirements into collection practices (Cox, Pinfield, & Rutter, 2019). Additionally, the technological readiness of libraries is a pivotal variable that impacts the success of DDCD. Many libraries in Nigeria face infrastructural challenges, which can impede the effective collection and analysis of data.

Issues such as outdated systems and limited access to reliable data sources prevent libraries from fully capitalizing on the benefits of data-driven practices (Imburgia, 2020). Moreover, budgetary constraints further complicate the situation, with 12.12% of library staff reporting insufficient funding for acquiring necessary data-driven tools (Omeluzor & Ojukwu, 2024). This research will investigate the extent to which DDCD practices are applied in the Federal College of Education, Yola, and the College of Education, Hong, while also identifying the challenges faced in implementing these practices. By focusing on the variables of data analytics utilization, user feedback integration, borrowing statistics, and technological readiness, this study aims to provide insights that can enhance the collection development strategies of these libraries. Ultimately, the findings will contribute to ensuring that library resources are not only relevant and diverse but also effectively meet the evolving demands of their educational communities.

Statement of the Problem

Even though data-driven collection development is becoming more and more popular worldwide, many academic libraries in Nigeria continue to use antiquated techniques that do not fully represent the demands of their patrons. Implementing data-driven practices effectively is hampered at the Federal College of Education, Yola, and the College of Education, Hong, by issues such as restricted access to trustworthy data, a lacklustre technology infrastructure, and budgetary limitations. This condition often leads to poorly coordinated collections, underutilized resources, and challenges in justifying budget allocations. These libraries run the

risk of failing to satisfy the changing scholarly and research demands of their communities if they don't take a data-driven approach.

Research Questions

1. To what extent are data-driven collection development practices applied in the Libraries?
2. What challenges affect the implementation of data-driven collection development in the selected Libraries?

Literature review

One of the most important roles in libraries is collection development, which is the methodical creation of library collections to satisfy patron demands. Libraries are increasingly using data-driven methods to guide their collection development goals in the digital age (Crawford & Syme, 2018). In order to inform collections and collection development policy, data-driven decision making (DDDM) entails gathering and evaluating data (Pereira, 2021). This study of the literature looks at data-driven collection development in libraries from Nigerian, African, and international viewpoints. Libraries all throughout the world are using data to influence their decisions regarding the development of collections, the distribution of resources, and weeding initiatives (Breeding, 2024). To support the institutional curriculum, academic librarians make well-informed decisions based on their professional training, faculty input, and subject-matter expertise. One such source of information for determining subjects of significance for institutional curricula is the course catalogues of colleges and universities (Sutton et al., 2024).

Libraries employ a number of techniques to gather information for collection evaluation, such as focus groups, citation analysis, user surveys, circulation statistics, and collection analysis software (Spisak, 2021). Collection development processes are also being informed by altmetrics, which are data from the social web. Large volumes of data can be tapped into using big data analytics to learn about user preferences, resource usage trends, and new developments (Crawford & Syme, 2018). Additionally, libraries are employing data to support decisions on collection retention, space utilisation, and shared print and communal collections (Pereira, 2021). Libraries throughout Africa are helping their nations flourish. Libraries must gather quantitative data on their output, including services and usage, as well as user demographics, to become more visible as development partners. They can also present themselves as reputable, neighbourhood organisations that understand their areas and serve as resources for businesses in need of growth (Lynch et al., 2021).

Tools for capacity building have been created by the Digital Imaging Project of South Africa (DISA) to facilitate innovative approaches to research and education. In addition to giving South African archivists and librarians access to South African materials of high sociopolitical importance, DISA sought to provide them with expertise in digital imaging. In South Africa, collection development has been practiced in a central place and not by individual public libraries (Peters & Pickover, 2001; Andile, 2025). The planned, ongoing, economical, and preferred acquisition of high-quality, pertinent content to satisfy user needs is known as collection development in Nigeria. As stated by Omeluzor and Ojukwu (2024). In Nigerian university libraries, artificial intelligence (AI) may help with data-driven decision-making. AI is capable of analysing vast amounts of data to offer insightful information on resource popularity and usage patterns. The selection, ordering, payment, resource sharing, and culling of resources are all included in collection development. To meet the diverse information demands of patrons, academic libraries also seek to enhance the calibre of their collections.

Data can be used by libraries to show how they affect communities. AI may be used by libraries to examine vast amounts of data and learn about user preferences. (Emasealu, 2021). Data-driven methods offer libraries the chance to enhance their collection creation procedures. Libraries can work together to support choices about collection retention and manage their combined holdings. Library employees can learn how to use data visualisation tools and develop their data storytelling abilities (Stemper & Gibney, 2021). The growth of data-driven collections is revolutionising libraries around the world, and their adoption presents many potential opportunities for libraries in Nigerian and African contexts. Libraries can enhance their collection development procedures and better meet the requirements of their patrons by taking advantage of the opportunities that are accessible (Crawford & Syme, 2018).

Data-Driven Collection Development Practices Applied in the Libraries

One of the main responsibilities of collection development in libraries is to methodically create collections that satisfy patron needs. Libraries are increasingly using data-driven methods to guide their collection development goals in the current digital era. The extent to which libraries are using data-driven collection creation techniques is examined in this review, which also highlights the several ways that data is utilised to improve decision-making in this field (Pacific University Libraries, 2024).

Global Application of Data-Driven Collection Development

Data is being used by libraries all across the world to make educated choices about resource allocation, collection development, and weeding procedures. To make well-informed choices that complement the curriculum, academic librarians integrate their professional training, faculty insights, and subject-matter expertise. Additionally, they employ evidence-based acquisition techniques. Course catalogues from colleges and universities are excellent sources for finding subjects that fit the curriculum (Ashikuzzaman, 2025).

Methods and Tools for Data Collection and Analysis

Libraries use a variety of techniques to acquire information for collection evaluation, such as:

a. Surveys of users to learn about their needs and preferences.
b. Circulation data to monitor the use of resources.
c. Use focus groups to collect qualitative input.
d. Citation analysis to evaluate resource effect.
e. Tools for collection analysis to assess the advantages and disadvantages of the collection.
f. Altmetrics, which present information derived from social media usage (Morrisey, 2025).

Course description analysis is now simpler due to the development of data and text mining techniques. Additionally, several libraries are leveraging analytics technologies to create internal dashboards.

Specific Applications of Data-Driven Collection Development

Several facets of collection development are being approached using data-driven methodologies:

a) **Educating Acquisition Decisions:** Decisions about the purchase of library collections are informed by big data analytics.
b) **Collection Assessment:** Using usage analytics, big data approaches are used for collection assessment.
c) **Usage data:** Decisions about collection development and weeding are influenced by borrowing data.
d) **Recognising User Needs:** By gaining insight into user preferences, big data analytics enables better collection and development choices.
e) **Predictive analytics:** To foresee future developments in collections, libraries employ predictive analytics.
f) **Personalisation:** Information is utilised to create user-centred, customised collections.
g) **Optimising Resource Allocation:** Data helps librarians allocate funds across disciplines, topic areas, formats, and genres in an efficient manner.
h) **Managing Combined Holdings:** Libraries are working together to support collection retention decisions and manage their combined holdings (Bryant, 2024).

The Role of Analytics in Collection Management

Selectors can manage subscriptions for electronic resources and make decisions about buying or de-accessioning physical objects with the help of analytics-driven approaches. Libraries are re-evaluating their offerings and gaining fresh perspectives on the worth and applications of collections by utilising data and data visualisation. Future resource demand can be predicted with the use of statistical methods and predictive analytics (Scott and Vogus, 2019).

Case Studies and Examples

a) Texas Tech University uses a machine learning tool called ALIEN to predict how often particular volumes will be requested in the future based on interlibrary loan data.

b) A study at IGDTUW, Delhi, India, used circulation records to analyze the usage of books and develop a policy for selecting and removing books. The study found that a significant percentage of books were unused, and there was a gap between faculty-recommended titles and student needs (Sengar et al, 2025)

Skills and Training for Library Staff

Employees at libraries are upgrading their skills to handle and evaluate data more efficiently. They are learning how to use data visualisation tools and developing their storytelling abilities. In order to meet the demands of managing research data, organisations are also offering training courses.

The Transition to Data-Informed Choices

Libraries are realising more and more that evidence should be the basis for decisions and that data should be utilised as a tool to assist those decisions. The focus is on contextualising the use of data without sacrificing other qualitative methods of knowledge (Bryant, 2024).

Libraries are increasingly using data-driven collection building techniques to improve decision-making on purchases, evaluation, budget allocation, and user needs. Libraries can optimise their collections and services by using data-driven processes, which are bolstered by analytics tools and approaches. Libraries may make sure that their collections are current, easy to use, and in line with the changing requirements of their communities by utilising data (Shinde et al., 2024).

Challenges Faced by Data-Driven Collection Development in Libraries

By facilitating decisions based on empirical evidence, data-driven collection development (DDCD) has revolutionised the way libraries create and oversee their collections. Libraries can better match resources to user requirements by using citation data, circulation statistics, usage analytics, and user input. There are several serious drawbacks, from data integrity issues and a lack of data analysis skills to technological and financial ones. Implementing long-lasting and successful data-driven initiatives requires an understanding of these difficulties.

1. **Problems with Data Integrity:** Maintaining data integrity is quite difficult. Data integrity protects against unauthorised changes, deletions, or revisions by guaranteeing that data is correct and dependable throughout its existence. Typographical errors, scanning problems, inconsistent manual data entry, and inaccurate metadata can all jeopardise the accessibility and integrity of records. Reputable data sources, user access to personal information, frequent information updates, and the destruction of outdated or anonymous data are all ways that libraries can ensure data integrity (Imburgia, 2020).
2. **Lack of Data Analysis Skills:** Many library workers lack training in using programs like Power BI and Tableau. Analysis is meaningless without analysis, and many librarians today lack the analytical expertise required to function effectively in a world of dynamic content curation. While library professionals bring valuable talents to data management, they frequently need to improve their data storytelling skills and use visualisations to effectively explain data discoveries (Kirkwood 2016).
3. **Budgetary Constraints:** Managing budget constraints is a significant barrier to library collection growth. Libraries must use available finances to purchase resources that fulfil the requirements of their patrons. The high cost of digital subscriptions and licenses for e-books and online databases can quickly deplete a library's funds. Insufficient finances and staffing are major issues in research data collection management.
4. **Technological Infrastructure:** Libraries need enough technological infrastructure to facilitate access and use of digital resources. Limited resources, training opportunities, and collaboration platforms may prevent successful data stewardship (Wang, 2024).
5. **Collection Quality and Diversity:** Collection quality is a key concern for demand-driven acquisition (DDA) methods. Relying on a DDA strategy may worsen the difficulties of diversity and inclusion. Academic libraries have a distinct focus that necessitates consideration of the collection's long-term research usefulness, which may be unclear to current users or librarians (Ramsey, 2024).

Methodology

The design and procedure used for the study are discussed in the following headings:

This study is a descriptive survey of Data-driven collection development in Libraries: A Case study of Federal College of Education, Yola, and College of Education, Hong Libraries. Adamawa State is using a questionnaire. It is a descriptive survey research because it is based principally on the views of the respondents in the population of the study. Descriptive survey research is a quantitative research design that seeks to collect, analyze, and interpret data from a sample to describe the characteristics, opinions, attitudes, or behaviors of a population. It does not manipulate variables but rather observes and records existing conditions, providing a snapshot of a phenomenon at a particular time (Creswell & Creswell, 2018).

The purpose of descriptive survey research is to answer questions such as "what is," "what exists," or "what are the perceptions," rather than to establish causal relationships. This design often relies on structured questionnaires, interviews, or checklists to gather data systematically, making it particularly useful in the social sciences, education, and library and information science. By focusing on describing trends and patterns, descriptive surveys enable researchers to generalize findings from a sample to a larger population with a reasonable degree of confidence (McCombes, 2023).

The research is limited to the academic libraries in Federal College of Education, Yola, and College of Education, Hong. The population of the study includes 66 staff members of both Colleges of Education Libraries. The sample was categorized into two strata: 39 males and 27 females. The researcher adopted a purposive sampling technique, which is under the non-probability sampling technique, where you choose to examine the entire population (i.e, the total population) that has a particular set of characteristics. This section presents the findings from the study, analyzed using descriptive statistics in the form of frequencies and percentages. The results are structured according to the research questions and are discussed in relation to the study's objectives. These include the calculations of percentages and tables that were necessary. A percentage of 99.9% - 50% was considered as accepted by the respondents, while 49.9% - 0.00% were considered rejected by the respondents.

The instrument used for data collection was primarily a questionnaire developed by the researcher. The data that was collected and analyzed by the use of Statistical Percentage for Social Software 20.0 (SPSS). Data collected was analysed using Statistical Package for Social Sciences (SPSS); therefore, descriptive statistical instruments such as percentages and tables were used to present the results. Tables were used to present the data collected from both the Colleges of Education library staff, and were administered through questionnaires. The values were used for frequency and percentage: $\frac{45 \times 100}{66} \approx 68.18$

The presentation, analysis, and interpretation of data are presented in the tables

Research Question 1: To what extent are data-driven collection development practices applied in the libraries?

Table 1: Percentage response of data-driven collection development practices applied in the libraries.

S/N	Questions	Not at All	Rarely	Often	Very Often	Total
1.	To what extent do you use data analytics tools?	3 4.54	12 18.18	47 71.21	4 71.21	66 F 100%
2.	How frequently do you analyze user feedback (e.g., surveys, focus groups) to inform collection decisions?	2 3.03	4 6.06	10 15.15	50 75.75	66 F 100%
3.	How often do you incorporate borrowing statistics in your collection assessment?	16 24.24	16 24.24	17 25.75	17 25.75	66 F 100%
4.	To what extent do you collaborate with schools to align collection development with curriculum needs based on data?	0 0.00	5 7.57	6 9.09	55 83.33	66 F 100%
5.	How regularly do you use predictive analytics to anticipate future collection needs?	2 3.03	34 51.51	20 30.30	10 15.15	66 F 100%

Key: Not at All, Rarely, Sometimes, Often, Very Often

The research question examines the extent of data-driven collection development practices in libraries. Findings indicate a strong use of data analytics tools, with 71.21% of respondents employing them "Very Often," reflecting a significant reliance on data for collection strategies. Additionally75.75% frequently analyze user feedback, showcasing a commitment to integrating patron insights.

However, 24.24% of participants do not utilize borrowing statistics, highlighting a gap for improvement. Collaboration with schools is strong, as 83.33% engage "Very Often" in aligning collections with educational needs. While 51.51% use predictive analytics "Often," there is room for further integration. Overall, libraries are effectively adopting data-driven methods, but can enhance practices, particularly in borrowing statistics and predictive analytics, to strengthen collection development.

Research Question 2: What are the challenges affecting the implementation of data-driven collection development in the selected libraries?

Table 2: Percentage response of challenges affecting the implementation of data-driven collection development.

S/N	Questions	Not at All	Rarely	Often	Very Often	Total
1.	How would you rate the accuracy and reliability of the data you use?	1 1.51	10 15.15	55 83.33	0 0.00	66 F 100%
2.	How confident do you feel in your data analysis skills?	15 22.72	33 50.00	7 10.60	11 16.66	66 F 100%
3.	How adequate is your library's budget for acquiring data-driven tools?	8 12.12	50 75.75	5 7.57	3 4.54	66 F 100%
4.	How would you describe the technological infrastructure available in your library for data management?	33 50.00	20 30.30	7 10.60	6 9.09	66 F 100%
5.	How satisfied are you with the diversity and quality of your library's collection?	26 39.39	35 53.03	3 4.54	2 3.03	66 F 100%

Key: Not at All, Rarely, Sometimes, Often, Very Often

The research question investigates perceptions of data accuracy, confidence in data analysis skills, budget adequacy for data-driven tools, technological infrastructure, and satisfaction with collection diversity and quality in libraries. The results reveal that 83.33% of respondents trust the accuracy and reliability of their data, indicating strong confidence in decision-making.

However, confidence in data analysis skills is mixed, with 50% neutral and only 10.60% feeling "Very Confident," suggesting a need for skill development. While 75.75% find their budget adequate for data-driven tools, 12.12% feel it is insufficient, indicating room for improvement. Half of the respondents rate technological infrastructure as "Adequate," but concerns remain about its effectiveness. Additionally, 39.39% express dissatisfaction with the diversity and quality of collections, highlighting an area for growth. Overall, while libraries have a solid foundation in data practices, there is potential for enhanced training, better technological resources, and improved collection diversity to meet user needs more effectively.

Discussion of findings

The findings indicate a strong commitment to data-driven collection practices among the libraries studied, with 71.21% of respondents utilizing data analytics tools and 75.75% actively analyzing user feedback. However, the fact that 24.24% do not utilize borrowing statistics reveals a significant gap in their data-driven approach. This underutilization suggests a missed opportunity to leverage borrowing metrics for informed decision-making. Additionally, collaboration with educational institutions is evident, as 83.33% of library staff align collections with curriculum needs. This aligns well with the recommendation to enhance training programs, as improving staff confidence in data analysis could further increase the effective use of borrowing statistics, thereby addressing the identified gap.

The research highlights several challenges in the implementation of data-driven collection development, with only 51.51% of respondents currently using predictive analytics, indicating a need for further integration of these tools. Despite a general trust in data accuracy, only 10.60% of respondents feel "Very Confident" in their data analysis skills, suggesting that training programs are crucial for boosting staff capabilities. Additionally, while budget adequacy is viewed positively, 12.12% of respondents report insufficient funding, which could hinder the necessary upgrades to technological infrastructure. Addressing these challenges through enhanced predictive analytics integration and improved technological support will be essential for libraries to optimize their collection strategies effectively.

Conclusion

In conclusion, the shift towards data-driven collection development (DDCD) represents a significant evolution in library practices, particularly in addressing the unique challenges faced by academic libraries in Nigeria. While DDCD offers a structured approach to resource selection and management, it also highlights the necessity for libraries to adapt to the digital age through the effective use of data analytics. Despite the potential benefits, such as improved alignment with user needs and enhanced resource allocation, various obstacles—such as data integrity issues, budget constraints, and a lack of data analysis skills—hinder successful implementation. For libraries in Nigeria to fully leverage DDCD, investment in technology and training, as well as strategies to ensure data reliability, are essential. Embracing these changes will not only strengthen library collections but also ensure they remain relevant and responsive to the evolving demands of their communities.

Recommendations

Libraries must carefully handle the many issues that impede the adoption of data-driven collection creation if they hope to reap its full benefits. Libraries may create strong, adaptable collections that efficiently and fairly serve their communities by bolstering infrastructure, encouraging moral behaviour, broadening the range of evaluation techniques, and arguing for funding and technical assistance (Arup, 2025).

i. **Enhance Training Programs and Improve Borrowing Statistics Utilization**
To address the extent of data-driven collection development practices applied in the libraries, it is essential to implement targeted training sessions for library staff. These workshops should focus on building confidence in data analysis skills, particularly in using data analytics tools and effectively interpreting borrowing statistics. Furthermore, developing standardized protocols for collecting and analyzing borrowing statistics will empower libraries to integrate these metrics into their collection development strategies, enabling them to identify trends and better meet user needs.

ii. **Strengthen Predictive Analytics Integration and Upgrade Technological Infrastructure**
In response to the challenges affecting the implementation of data-driven collection development, libraries should prioritize the adoption and integration of predictive analytics. This involves investing in user-friendly software and providing training on its application for forecasting collection trends. Additionally, assessing and upgrading the technological infrastructure is crucial to ensure libraries have the necessary systems in place to enhance data collection, analysis, and accessibility. This dual approach will facilitate more effective and informed decision-making in collection management.

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INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTS) INTO ACADEMIC LIBRARIES: BENEFITS AND CHALLENGES

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Abstract

This study investigates the integration of Information and Communication Technologies (ICTs) in Kashim Ibrahim Library, Ahmadu Bello University, focusing on their role in enhancing digital resource use, service responsiveness, and librarians' performance. This study aimed at investigating the perception of academic librarians of the ICT Division of Kashim Ibrahim Library on ways by which ICTs integration enhanced the use of the digital resources of the library. This study adopted a quantitative research methodology and a survey design to obtain data from 50 academic librarians using a structured questionnaire. Data obtained were analysed through frequency counts and mean scores on a four-point Likert scale. Findings reveal that the library's strategies for ICT adoption recorded a high overall mean ($\bar{x}$ = 3.54), highlighting strong commitment to staff training, budgetary allocation, and internal digital skill development. The benefits derived from ICT use, such as improved access to up-to-date information and enhanced operational efficiency, showed a moderate to high positive impact ($\bar{x}$ = 3.45). However, challenges including infrastructural deficiencies, poor funding, and low staff literacy persisted, reflected by a moderate grand mean ($\bar{x}$ = 3.23). The study concludes that while Kashim Ibrahim Library demonstrates commendable progress in ICT integration, sustainability demands continuous investment in infrastructure, capacity development, and participatory ICT governance. It recommends the implementation of comprehensive strategies, periodic evaluations, and strengthened collaborations with stakeholders to ensure consistent technological advancement and responsive service delivery in academic libraries.

Keywords: ICT integration, academic libraries, Kashim Ibrahim Library, digital resources, library services, Nigeria.

Introduction

The integration of Information and Communication Technologies (ICTs) into academic libraries, particularly universities, polytechnics, and colleges of education, has great benefits to the institutions because it supports academic programmes, expands library activities, particularly sourcing, cataloguing, classification, storage, and dissemination of acquired and subscribed information resources. It also affects how these libraries provide access to information at a very high speed, seamlessly, and with ease. All that is required is just a click away to multiple resources and sources of information necessary for improved decision-making. In addition, the integration of ICTs enables verification of library engagement outcomes, inclusion, and provides responsive library services for academic and non-academic purposes.

Globalization has also made academic libraries vital components of tertiary institutions through their contributions of local content, providing research and learning collaboration platforms, and instituting distinct models that cater to collection development, processes, organisation, and sharing of information in diverse formats to support teaching, learning, research, and community development. Benefits, such as feedback mechanisms, are relied upon to provide and support the creation of new knowledge and evidence-based practices. The integration of ICTs into academic libraries is illuminating the academic libraries and the services provided as information hubs that offer access to varied and trusted information resources (Odong, Magara, & Lutaaya, 2024).

Coincidentally, reasons why integrating ICT into academic libraries revolve around the mandate of the library to enhance use and make operations more globalized. That is, to enable access to resources and services beyond physical walls (Edom & Ihim, 2021). This made ICT serve as a powerful enabler of development, bridging physical and virtual boundaries, and strengthening collaboration between institutions, governments, and global agencies. These are some of the espoused benefits over the challenges faced by academic libraries since the turn of the post-21st century (Umeh et al., 2023).

Academic libraries face enormous challenges when they want to transform their spaces into dynamic learning and engaging environments that promote both formal and informal education (Rakte, 2025). It is glaring that such challenges are caused by inadequate funding (Adeniran, Nwalo, & Ajani, 2020), lack of technical skills and training (Agboke & Oladokun, 2025), user digital literacy gaps (Shikali & Muneja, 2024), digital divide (Yusuf, 2023), and system integration and sustainability issues such as updates, license renewals, and infrastructural obsolesces (Odong et al., 2024).

Resolving such problems no doubt may vary from one institution to another, but the institution committed to the course should prioritise ICT investment purposefully for the library through annual budgets, government agencies, private and non-governmental organisations, to secure funds and/or share infrastructure. Continuous staff training should also be strengthened using professional development programmes and workshops for competencies in areas of ICT proficiency, technical, services, and customer relationships. Therefore, providing user education and digital literacy to enhance library users' experience, ICT skills, research, and end users' assessment can guarantee the decisions of the appropriate scalable and integrated library systems that are best for the library operations.

As academic libraries engage with stakeholders, collaboration, resource sharing, and evaluation in terms of performance can be identified to ensure user satisfaction and enhance service delivery (Adeniran et al., 2020). With such performance indicators prioritised, academic libraries can fully harness the potential of ICTs to improve information access and academic productivity.

Brief on the study area

Kashim Ibrahim Library (KIL) is the headquarters of the Ahmadu Bello University Library Complex of the University Main Campus in Samaru. The complex was established for administrative convenience, organization, and management of 11 satellite libraries, 12 faculty libraries, and over 104 departmental and unit libraries, as well as 12 libraries in institutes and special centres in the University (Kasa & Abdulsalam, 2020).

The library has over 100 professionals (academic librarians) serving in the complex, and as the headquarters houses nine divisions, among the divisions is the Information and Communication (ICT) Division. The ICT Division has four units; The MTN Connect Library designated for undergraduate students, the PG e-library designated for postgraduate students, the Learning commons that is open for virtual and physical academic discussions for postgraduate students, lecturers and conferencing, and the electronic classroom designated for the training of academic staff and postgraduate students on subscribed resources, research toolkits and creation of awareness for the utilisation and familiarization with ICTs tools and platforms for academic engagements.

Statement of the problem

Despite the benefits of integration of ICTs into academic libraries to facilitate the institution and stakeholders to create new knowledge, provide access to existing knowledge, and encourage learners, lecturers, and researchers to prioritize making their contributions to knowledge visible, retrievable, and storable. The state of improving academic library services is very slow and frustrating because it makes the benefits that should be drawn from utilizing academic libraries almost deficit. From the extant literature, authors blamed low effectiveness and inefficiency on the lack of integration of ICTs in libraries across developing countries.

These have also denied library users from accessing a wide range of information resources available and accessible through digital technologies (Adeniran et al., 2020, Rawayau, 2024). This study examines the benefits and challenges of integrating ICTs in the Kashim Ibrahim Library of Ahmadu Bello University, enhancing the obligations of the library towards library use and responsive services.

Study objectives

The main objective is to investigate the perception of academic librarians of the ICT Division of Kashim Ibrahim Library on ways by which ICTs integration have been able to enhance use of the digital resources of the library. The specific objectives are:

1. Examine the strategies used by Kashim Ibrahim Library to enhance ICTs use
2. Determine the benefits derived by using ICTs in Kashim Ibrahim Library
3. Identify challenges hindering effective utilization of ICTs facilities for responsive service provision in Kashim Ibrahim Library

Literature Review

Strategies Used to Enhance ICT Use in Academic Libraries

Diverse literature has been able to establish that tertiary institutions are able to recognise that many library services are not functioning as expected. The circumstances have led to the adoption of new strategies centred on ICT-based operations. These strategies must be implemented thoughtfully to succeed. For example, creating an inviting electronic library environment helps motivate users (e.g., comfortable, accessible virtual spaces). Studies show that key factors promoting ICT use include user attitude, staff ICT competence, and favourable communication or information about the technology (Achugbue, Ahimbisibwe, Odong, & Azih, 2024).

Consequently, academic libraries are encouraged to establish ongoing instructional programmes aimed at developing soft skills in staff and users, raising awareness of library holdings, products, and services. These are strategies that bring sympathy and empathy to the library. Eye-catching changes are recorded when ICTs are integrated along with the strategies because they improve library service delivery, shift from optional to essential infrastructure (Khanam, 2023).

Critical strategies that are ICT-based, enumerated by Agboke and Oladokun (2025), that should not be neglected include: providing adequate ICT infrastructure; training and retraining staff; personalising services for users; and joining resource-sharing networks or consortia. Of significance is an ICT policy framework that illuminates the crucial roles that delineate the roles and responsibilities of stakeholders to support the utilisation and sustainability of ICT services (Rawayau, 2024).

Benefits of ICT in Academic Libraries

The benefits of ICT adoption in academic libraries are significant and influence both the library institution and its users. ICT supports inclusivity, ease of access, speed of service, independence in learning, up-to-date resources and increased outreach. According to Khanam (2023) ICT enhances the quality of library services and facilities through access to digital resources, collaborative learning opportunities, and improved library management. These are tremendous benefits that ICTs have brought to academic libraries.

Information and Communication Technology (ICT) has also helped libraries evolve into broader “information access points”, facilitating community participation, extending access beyond local confines, and helping to address the digital divide (Agboke & Oladokun, 2025). In addition, ICT tools enable the combining of data from multiple sources to support research outputs and the development of new subject fields.

Challenges Hindering Effective Utilisation of ICT in Academic Libraries

Despite the clear benefits, there remain substantial challenges which hinder full ICT utilisation in academic libraries. These include insufficient planning, weak infrastructure, limited staff skills, inadequate funding, lack of coherent ICT policy, resistance to change, poor maintenance culture, restricted internet access, and use of unlicensed software (Rawayau, 2024). Other specific issues hindering effective utilisation of ICT among academic libraries include the high inertia cost of ICT setup, products and infrastructure, rapid obsolescence of installed equipment, frequent need for training updates for people who use the infrastructure, and gross logistic support deficits.

In many developing country contexts, slow uptake of ICT is heavily influenced by funding constraints, inadequate staff capacity, and unstable logistical support (Agboke & Oladokun, 2025).

A recent study during the COVID-19 pandemic by Shikali and Muneja (2024) showed that although academic libraries adopted remote and digital services rapidly, major barriers for students included limited internet access, inadequate ICT devices and low digital and information literacy.

Methodology

This study adopted a quantitative research methodology to enable it systematically investigate the perception of academic librarians of the ICT Division of Kashim Ibrahim Library on ways by which ICTs integration have been able to enhance use of the digital resources of the library. To achieve the thrust, survey research design was adopted to gather information from all the academic librarians of the ICT division. A total of 50 academic staff who are engaged in the were constituted the target population, because the number of academic staff in the population are manageable a simple random sampling technique of probability was used to elicit data using closed-ended questionnaire which served as instrument for data collection that contained aspects of use, benefits and challenges to ICTs used in simplified language and objectives of the study. These 50 academic librarians were purposively sampled and produced a response rate of 100%. The data collected were analysed using frequency counts on four Likert-scale type adopted (4 – strongly agreed, 3 – agreed, 2 – disagreed, and 1 – strongly disagreed) and their subsequent means scores used to further present and interpret the implications of the findings. A benchmark mean of 2.5 and above was established for assessing the performance of ICTs in Kashim Ibrahim Library according to the study objectives. Similarly, a decision rule was adopted to rank and interpret the grand average mean computed. The rule ranged from $\leq$ 2.49 to imply ICT has low impact, 2.5 to 3.49 implied that ICT has moderate impact and 3.50 to 4 implied that ICTs have very high impact on the scale of 4 for the assessment of enhancing academic library use, espouse benefits and overturning challenges.

Results and Discussion

The outcome of the data collected on the integration of ICT in Kashim Ibrahim Library are presented in tabular formats. A four level Likert scale types was used to analysed the response on single item bases and combined grand mean average per table for purpose of making inference on the benefits and challenges Kashim Ibrahim Library faced while responsively integrating ICT into her facilitating and information dissemination services. The results and discussions based on the implications of the findings to the objectives of the study are hereby given:

Table 1: Perception of Academic Librarians on Strategies that Enhance the Use of ICTs

Strategy that enhance use of ICTs	Response based on Likert Scale type				Mean ($\bar{x}$)
	SA	A	D	SD	
Allocation of at least 10% of the library budgets to ICT facilities development	41	3	2	4	3.62
Encouraging staff to acquire computer literacy	42	1	2	5	3.60
Internal training of staff to boost soft skills	42	3	3	2	3.70
Developing and implementing ICT policy	40	2	2	6	3.52
Partnering with external agencies to provide ICT-based services	40	2	2	6	3.52
Engaging staff to appraise the benefits of ICTs in library operations	38	4	2	6	3.48
Updating staff on recent developments in ICT innovations as it pertained to library development	40	2	3	5	3.54
External training of staff on ICT literacy programmes	35	5	3	7	3.36
Grand mean average					**3.54**

Key: SA = strongly agree, A = Agree, D = Disagree, SD = strongly disagree
Source: Field Survey, 2025

Table 1 reveals how librarians in Kashim Ibrahim Library perceive strategies that promote ICT adoption. The grand mean ($\bar{x}$ = 3.54) indicates that the overall perception is high — librarians largely agree that the listed strategies are effective in enhancing ICT use. Among the individual items, internal training of staff to boost soft skills ($\bar{x}$ = 3.70) ranked highest, showing that staff capacity building remains the most influential factor for sustaining ICT operations. This finding agrees with Agboke and Oladokun (2025), who emphasised that continuous staff training is the foundation of ICT service delivery in academic libraries. Similarly, Umeh, Adebayo, and Okoro (2023) reported that human capital development directly influences ICT utilisation and innovation in library services.

Other high-scoring strategies include allocation of at least 10% of the library budget to ICT facilities development ($\bar{x}$ = 3.62) and encouraging staff to acquire computer literacy ($\bar{x}$ = 3.60). These results highlight the critical role of financial commitment and digital competence. Odong, Magara, and Lutaaya (2024) found that sustainable budgetary allocations for ICT infrastructure are necessary for achieving functional and responsive library systems in African universities.

Moderate mean values were recorded for developing and implementing ICT policy and partnering with external agencies ($\bar{x}$ = 3.52 each). This reflects awareness among librarians that effective ICT implementation requires structured policies and partnerships with external bodies, consistent with Rawayau (2024), who asserted that policy clarity and institutional collaboration are vital for digital transformation in libraries. The least mean ($\bar{x}$ = 3.36) for external training of staff implies that fewer librarians access training opportunities outside the institution, possibly due to funding limitations. The implication is that institutional training initiatives may be more sustainable in resource-constrained contexts.

These findings imply that Kashim Ibrahim Library commitment to human capacity development and funding is essential to sustain ICT-based library services. They library is however, expected to consistently provide internal training and adequate budgetary support to the ICT division, so that the desired digital transformation of the library operations do not stagnate despite awareness of its importance.

Table 2: Benefits of ICTs to Kashim Ibrahim Library

Benefits of ICTs	Response based on Likert Scale type				Mean ($\bar{x}$)
	SA	A	D	SD	
Provision of speedy and easy access to information and services	41	6	2	1	3.74
Provide remote and physical access to the library resources and services	31	6	5	8	3.20
Provide round-the-clock access to the library	30	8	5	7	3.22
Provide unlimited access to different sources acquired by the library	33	9	4	4	3.42
Provide up-to-date information	39	6	3	2	3.64
Provide flexible platform that accommodate diverse users information needs	32	10	3	5	3.38
Support reformation and combination of data from numerous sources	30	9	5	6	3.26
Facilitate self-education	36	8	4	2	3.56
Support library cooperation and networks	34	9	3	4	3.46
Enhance efficiency and effectiveness of library operations and services	38	7	3	2	3.62
Grand mean average					**3.45**

Key: SA = strongly agree, A = Agree, D = Disagree, SD = strongly disagree
Source: Field survey, 2025

The results in Table 2 show that respondents perceived ICT as offering substantial benefits, with a grand mean of 3.45, suggesting moderate to high positive impact. The highest-rated benefit, provision of speedy and easy access to information and services ($\bar{x}$ = 3.74), demonstrates librarians' recognition of ICT's role in improving efficiency and reducing barriers to information. This corroborates the findings of Khanam (2023) that ICT integration

enhances user satisfaction by enabling instant information retrieval and access across multiple databases.

Other strong benefits include up-to-date information ($\bar{x}$ = 3.64) and enhancement of efficiency and effectiveness of operations ($\bar{x}$ = 3.62). These align with Achugbue et al. (2024), who found that ICT-driven libraries deliver timely and reliable information that supports teaching, research, and administrative processes. Likewise, Shikali and Muneja (2024) showed that digital platforms improved access and learning continuity during the COVID-19 disruptions, confirming ICT's value in resilience and service innovation.

Moderate means were recorded for facilitating self-education ($\bar{x}$ = 3.56), supporting library cooperation and networks ($\bar{x}$ = 3.46), and providing flexible platforms for diverse information needs ($\bar{x}$ = 3.38). These suggest that ICT promotes independent learning and collaboration — attributes also reported by Iwuchukwu and Emuchay (2023), who argued that ICT has redefined academic libraries as learning commons. The lower mean for remote and physical access ($\bar{x}$ = 3.20) indicates that, although ICT expands accessibility, infrastructural gaps such as poor internet connectivity and inconsistent power supply still hinder full realisation of ICT benefits (Odong et al., 2024).

The study affirmed that ICT division is the Kashim Ibrahim Library backbone that can strengthen the library and support with the provision of equitable, efficient, and requisite round-the-clock information access platforms. However, the moderate scores obtained from respondents revealed the need for continuous infrastructure upgrading and user-support services to sustain the benefits of ICT over time.

Table 3: Overcoming ICT Challenges in Kashim Ibrahim Library

	Response based on Likert Scale type				Mean ($\bar{x}$)
	SA	A	D	SD	
Overturn the low level of staff computer literacy	30	5	10	5	3.29
Provide additional telecommunication facilities	33	3	8	6	3.26
Address the ICTs infrastructural deficiencies	35	6	5	4	3.44
Promote ICT-based awareness programmes	30	5	8	7	3.16
Train and retrain staff on specific ICT skills	30	6	10	4	3.24
Include staff in the development and implementation of ICTs use to overcome resistance	28	10	3	9	3.14
Ensure that ICT facilities are expandable and support migration to carter for the frequent changes and modifications of ICTs	27	6	4	11	2.98
Address the funding challenges	32	7	5	6	3.30
Grand mean average					**3.23**

Key: SA = strongly agree, A = Agree, D = Disagree, SD = strongly disagree
Source: Field survey, 2025

Table 3 addresses strategies for overcoming challenges that limit effective ICT use. The grand mean ($\bar{x}$ = 3.23) shows a moderate consensus among librarians that the listed strategies are necessary for improvement. The highest-rated item, addressing ICT infrastructural deficiencies

($\bar{x}$ = 3.44), suggests that infrastructure remains the greatest barrier. Similar findings by Agboke and Oladokun (2025) confirmed that outdated systems and inadequate equipment impede ICT performance in Nigerian academic libraries.

Other notable strategies include addressing funding challenges ($\bar{x}$ = 3.30) and overturning low levels of staff computer literacy ($\bar{x}$ = 3.29), highlighting persistent human-resource and financial constraints. Rawayau (2024) also observed that poor funding and low digital literacy among staff remain core impediments to ICT sustainability. The relatively lower means for ICT-based awareness programmes ($\bar{x}$ = 3.16) and including staff in ICT policy development ($\bar{x}$ = 3.14) suggest limited participatory planning, which may weaken institutional ownership of ICT innovations.

The lowest mean, ensuring ICT facilities are expandable and support migration to newer technologies ($\bar{x}$ = 2.98), indicates challenges in scalability and system updates. Shikali and Muneja (2024) similarly noted that libraries in developing regions struggle to upgrade software and hardware regularly due to cost and vendor dependency. These results implied that to overcome ICT challenges in Kashim Ibrahim Library, both the university librarian and the Vice-Chancellor are expected to be deliberate with ICT investment for the library and division. It should done strategically in sustainable infrastructure, create staff development pipelines, and institute participatory ICT governance frameworks. Without such measures, ICT adoption risks being reactive rather than transformative.

Conclusion

The study conclude that Kashim Ibrahim Library like other academic libraries needs ICTs because they are mutually indispensable. Specifically, Kashim Ibrahim Library demonstrates progressive but uneven ICT integration. The high mean values in Tables 1 and 2 indicate a strong perception of ICT's value and benefits, yet the moderate mean in Table 3 underscores persistent structural and capacity-related constraints.

Recommendations

The following recommendations are proffered:

1. The central library working committee of KIL should develop implementable strategies that address both internal and external factors influencing ICT use. These strategies should encourage positive staff attitudes toward ICT integration and foster greater engagement with library modernization efforts.
2. The head of the ICT division should establish regular evaluation procedures at each unit. Each unit head will identify the benefits of ICT integration that should be sustained and report these to the University librarian to inform ongoing improvement and planning to the University management.
3. The head of the ICT division of the library should institute measures that strengthen the collaborative relationship between the division and its stakeholders so that the library can obtain the financial and material support and overcome most of its challenges.

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EXPLORING FORESHADOWING IN DIALOGUE THROUGH THE CHARACTERS OF SAY TOKYO KID AND SALUBI IN WOLE SOYINKA'S THE ROAD

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Abstract

Characters are very important pillars of drama; they are a product of the playwright's imagination. It is through characters that the playwright conveys their thematic preoccupations, either directly or indirectly, through their actions and inactions. This study consequently investigates foreshadowing as embedded in dialogues in two characters, Salubi and Say Tokyo Kid. It portrays how the duo indirectly foretold the fall of the protagonist, the professor in The Road, even when they did not see themselves as instruments through which an end would be brought to the deeds of the Professor from the outset. This work is investigative and descriptive. The approach uses close reading and focuses on textual analysis of the play The Road. It also draws on other plays and relevant scholarly works. Findings reveal clues about the protagonist's recompense to come in the witty dialogues of the two minor characters. These clues appear in different conversations. The study concludes that hints about future events in a play should not be overlooked, no matter the dramatic style or tone of the dialogue. It proposes that just as readers instinctively track every clue in a detective novel or crime film, the same attention should be adopted as default when reading any play especially for rehearsal, performance, deep appreciation or academic study.

Keywords: Drama, Character, Dialogue, Foreshadowing, Thematic Preoccupation.

Introduction

Of the three prominent classical playwrights, Aeschylus is often regarded as the one with the greatest innovation because of his introduction of the second actor. This paved the way for dialogue instead of monologues between two characters. The backbone of a playwright's art is dialogue. It is the playwright's central tool for storytelling, developing the plotline, expressing themes and character development in drama. Aristotle in *Poetics* elucidated the elements of drama, viz, plot, thought, character, diction, and spectacle. The outline has since been a blueprint for many writers since classical times. Drama, according to Yerima (2006), contains characters who act out the idea of the play. In lieu of this, it is the scripted conversation that enables bringing characters to life.

In drama as literature, characters' speeches are crafted to suit the demands of a storyline, driving interactions between characters. Zheltukhina (2016) stated that the creation and development of dialogues are central to dramatic arts as they determine how conversations between characters determine how it functions within acts and scenes. For a dialogue to achieve its fullest dramatic impact, it should leverage a wide range of communication tools, beyond just linguistic structures and styles, to maximize its expressive and narrative potential in a play (Yaxin & Shu, 2025). Hence, dialogue in drama is the artful exchange of words that breathes life into characters and advances the plot.

Roles of Dialogues in Drama

Plays, unlike other literary form, are intended to be read as literature or seen as theatre (Fergusson, 1977). This is why playwrights come up with befitting settings, plot and even characters that accentuate themes other than the other genres of literature. Dialogue is a vital tool in this process, driving the narrative and bringing the story to life through spoken interaction on stage.

In addition to forming a storyline, it also serves other ends, especially during performances that the actors rely on to keep the play moving. Also, dialogues in drama serve multiple purposes; they expose characters' personalities, motives, and relationships with one another, enriching the narrative and driving the performance. It also builds tension, either resolves or builds conflict. As stated by Yerima (2006), a play without a conflict will bore its audience. Conflict, however and foreshadowing are interconnected dramatic devices; they heighten the audience's engagement. In light of this, foreshadowing is intricately linked to conflict.

Foreshadowing

Callahan (n.d) says that the "I knew it" feeling, the clues were right, I just didn't pay attention to it, are subtle ways foreshadowing plays out. It is a dramatic device employed by a playwright to sustain the interest of an audience or of the reader of a play. It is giving a hint of a future occurrence in the audience or a reader's mind or the audience's (Mitra, 2007). Foreshadowing creates a sense of anticipation. This dramatic tool, playwrights and filmmakers adapt to provide clues about where a plot is headed.

Soothsayer: Beware the ides of March
Caesar: What man is that?
Brutus: A soothsayer bids you beware the ides of March
Caesar: Set him before me; let me see his face

Cassius: Fellow, come from the throng; look upon Caesar
Caesar: What say'st thou to me now? speak once again
Soothsayer: Beware the ides of March. (Shakespeare, 1991)

The question "why" and "what" will swell up in the mind of the audience who is watching or the reader, why should Ceaser beware of the Ides of March, perhaps the question what, what will happen on that day. The audience will therefore be anticipating. What the playwright in *Julius Ceaser* employed to create such expectancy is foreshadowing**.** In essence, foreshadowing creates suspense and fulfills it.

It can come in different forms, as prophecy, what a character says about himself, or the remark a character passes or conceives of another character or might be in the stage direction. The presence of a character with a supernatural ability of prophecy foretelling an action that befalls a character or how a plot will unfold, this happens with precision. Characters with such roles are usually flat characters like the Soothsayer in William Shakespeare's *Julius Ceaser* and Baba Fakunle in the instance of Ola Rotimi's *The Gods Are Not To Blame.*

"This boy, he will kill his own father and then marry his own mother" (Rotimi, 1971)
In addition, the central and governing theme of waiting in the play *Waiting for Godot* was hinted at already from the simple line Vladimir one of the characters uttered in the first act.
"**Vladimir:** We're waiting for Godot" (Beckett, 1954)

Simple as it may be and as one may probably overlook or pay little attention to when watching play or reading the play, it established the central idea of waiting as a central focus that propels the audience or the reader to anticipate who Godot is and the kind of man Godot is and when he comes around and the question of why they await him.
Furthermore, the playwright's instruction, setting, character, actions or props hint at a future event or happening, it can be symbolic or not. In Lorraine Hansberry's *A Raisin in the Sun* (2013)

The Younger living-room would be a comfortable and well-ordered room if it were not for a member of indestructible contradictions to this state of being. Its famishing are typical and undistinguished and their primary feature now is that they have clearly had to accommodate the living of too many people for too many years - and they are tired.
(Hansberry, 2013).

The "tired" and living room condition of the Younger family hints at the family's struggles with poverty, confinement, and unfulfilled dreams, while the "indestructible contradictions" foretell the tensions among family members-Walter's.

Wole Soyinka's *The Road* revolves around a Professor and his morbid fascination with death. With the professor, the protagonist and the owner of the *Aksident Store* and the other layabouts in these categories, the drivers, touts, drummers, chanters, or singers. It was a typical car park setting next to a church and a cemetery. Part of these characters included Salubi, an unemployed passenger driver and SayTokyo Kid a driver of timbers and the leader of touts. With characters as the foundation of a drama, their role is brought to life through the interplay of dialogues.

Character Analysis of Salubi and Say Tokyo Kid

Salubi:

He was a minor character in the play. He is often seen alongside his friend Samson and their dialogue supplies much of the play's humor through their banters and bickering. One reputation preceded him as the play began, even without knowing what his means of livelihood was, the reputation that he pays no attention to his oral hygiene. Salubi wishes to be a private driver; he has a uniform, but he is without a license. He approaches the Professor, who runs the *Aksident Store,* notorious for his illegal operations of selling forged licenses and accident spare parts.

Professor sees him as a pawn and at every instance of asking the professor to forge him a license. He is asked to get a driving job but he retorts, "A man cannot get a job without a license" (pg 4). Drawn to the Professor's promises of forging him a license, his fear and mistrust of the professor's mythical obsessions keep him at arm's length. He passes the knife to Say Tokyo in the last scene. It is safe to assume that Salubi had been with the knife since the inception of the play.

Say Tokyo Kid

He was a foil character to Salubi, Samson and even the Professor. He thrives on expediency and intimidation. The captain of thugs consulted by Chief-In-Town a politician who comes to ask for protection, also a driver but he is known to drive to timbers, high-quality timbers. He says, "You know I drive nothing but timber," pragmatic.

Observant he was as he was the first one who noticed Murano, the god apparent, acts funny (pg 89). He comes to the joint but does not reckon on staying long in the same place as the professor, as he was rather indifferent to the mythical antiques of the professor, their relationship being transactional. When the professor reenacted the ritual to make him commune with "The Word", he confronted the professor, told him that he is fooling around where he has no business (pg 93). Say Tokyo is always ready to use coercion, assisted by Salubi. He stabs the Professor.

Foreshadowing in dialogues in *The Road*

These two characters' remarks about the Professor in the first part of the play foretell an end to the deeds of the Protagonist. In Say Tokyo Kid's dialogue with Samson before Professor comes in, the following excerpt:

> **Particulars Joe**: Say Tokyo Kid!
> **SayT.:** I'm all right boy.
> **Particulars Joe**: No dirty timber.
> **SayT.:** No borer in re ol bole.
> **Samson**: Oh what wouldn't I give for Professor to enter now.
> **Sayt**. [*spits.*]: That's what would happen if your professor came in. I don't give a damn for that crazy guy and he know it. He's an awright guy but he sure acct crazy sometimes and I'm telling you, one of these days, he's gonna go too far. (Soyinka, 1965)

The unusual traits and behavior of the insane ascetic Professor were not new to Say Tokyo; even as superstitious as Say Tokyo is, he intuited early on that the Professor's absurd traits would one day drag him to the furthest limit beforehand that those traits of the Professor would become the propelling force for him to go all the way to the edge.

Likewise, in another Salubi's response to Samson

> **Samson:** You are lucky Kotonou is asleep. The Professor put him in charge against that sort of thing. If he wakes up he will report you and the Professor will deal with you.
>
> **Salubi** [Scampering.]: Don't think you can frighten me with that, I don't care one *panla* for your Professor. He can't do me anything.
>
> **Samson:** Good. Very good. I'll tell him when he comes. I'll tell him about this morning. And he'll send the word to get you in the dead of the night.
>
> **Salubi:** Tell him if you like. One of these days the police will catch up with him. And they'll put him where he belongs- in the lunatic asylum of the prison. Don't think you can scare me with that word business (Soyinka, 1965, pg 32)

To Salubi, he expressed a strong certainty that the long arm of the law will catch up with him. The law would probably have caught up with the Professor long ago if police officers like Particulars Joe had not been in question but Salubi indirectly also hinted that one day the Professor would cross the unforgivable line.

These dialogue excerpts subtly points to the end of a former lay preacher turned corrupt entrepreneur so consumed by his search for the "Word", profanes the ultimate taboo of bringing the *Agemo* masquerade out of season for his death-obsessed mystic and in turn, he meets his end from one who would do anything to put an end to the sacrilege.

Conclusion

Often times as readers of the works of art or as audience, we even as members of the audience, we wait for grand gestures or especially the presence of a mysterious character to herald the fate of another character while we pay less attention to the subtle clues that drive the plot. These hints should consequently not be overlooked, irrespective of the dramatic style or the tone of a dialogue, as it is a deliberate effort by a playwright. This work has shown the extent to which playwrights devise foreshadowing as it is often purposeful to heighten the dramatic irony in drama as literature or as theatre.

People, however read plays for many overlapping reasons such as reading out of convenience or pleasure, studying and literary experience, preparation for performance because plays are written to be read and also performed, no matter what the context is, that a reader is reading from, the text is complete itself. Accepting that the playwright is deliberately hiding things in plain sight will limit the oversights for whichever reason one decides to read a work.

Since great playwrights do not write carelessly, every line in a work of art is believed to have earned its place. The playwright has agreed to give you, somewhere, every piece of information you will eventually need in order to understand the ending and the characters motives but almost never in an obvious way. Instead, the crucial clues are disguised as throwaway remarks, jokes, stage setting, props that seem merely atmospheric.

It is hereby prescribed that the careful way readers go through crime in an investigative novel, drama, or movie should be adopted on default especially when reading a play in preparation for performance, literary experience and studying or scholarship.

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EVALUATING THE EXTENT OF DESTRUCTION TO LIBRARY INFRASTRUCTURES AND COLLECTIONS IN CONFLICT AFFECTED AREAS OF NORTH EAST NIGERIA

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Abstract

This study assesses the impact of conflict on library infrastructure, collections, and infrastructure in North East Nigeria. The objectives of the study were formulated in line with the specific research question to include: To what extent of physical damage to library buildings in conflict-affected Areas, To What extent of window and door damage in conflict-affected library Buildings, to What extent have loss of library collections in conflict-affected library Buildings, to What extent have electrical and plumbing damage in conflict-affected library Buildings, What strategies and policies can be recommended for restoring libraries in conflict-Affected library Buildings of North-East, State Nigeria? A descriptive survey research design was used for the study. The entire population of the study was 28 librarians in conflict-affected library Buildings. The responses were used to answer the research questions. The instrument was structured on 5-point scale. The instruments were face validated by three experts, two experts from department of Library and Information Science and one from Measurement and Evaluation Unit, Department of Science Education, Federal University, Gashua. The findings reveal severe damage to library infrastructure, substantial loss of library collections, and damage to equipment and technology. The study highlights the importance of rebuilding and revitalizing libraries in conflict-affected areas to promote knowledge preservation, cultural heritage, and community engagement. Recommendations are made for rebuilding and rehabilitating library infrastructure, replacing lost collections, providing equipment and technology, building capacity for library staff, promoting community engagement, and developing policy and advocacy. The study contributes to the existing body of knowledge on the impact of conflict on libraries and library services.

Key: Library Infrastructure, Library Collection, and Library Equipment, Conflict-affected Arrears, Destruction.

Introduction

Libraries serve as essential institutions for education, research, and cultural preservation. However, in conflict-affected areas, they are often destroyed, looted, or neglected. This critical analysis examines existing studies on the destruction of library infrastructure, collections, and equipment in conflict zones, with a focus on identifying patterns, trends, and research gaps. The analysis compares global case studies with the situation in Northeast Nigeria, highlighting the severity of library damage and its implications for education and societal development. A consistent pattern in war-affected regions is the deliberate targeting of libraries, as seen in conflicts in Iraq, Syria, and Bosnia.

Libraries are often viewed as symbols of knowledge and culture, making them prime targets for groups aiming to erase historical and intellectual identity Abareh, (2014). In Northeast Nigeria, insurgents such as Boko Haram have destroyed public and academic libraries, particularly in Borno, Yobe, and Adamawa states (Abubakar, 2020). Research by Knuth (2012) highlights that in most cases, library destruction follows a pattern of arson, bombing, and looting, which aligns with findings from Northeast Nigeria, where insurgents have burned books, stolen electronic devices, and vandalized library buildings. Furthermore, UNESCO (2023) reports that in many African conflict zones, libraries suffer from secondary damage, such as neglect and abandonment, as communities prioritize basic survival over information access.

Another key trend is the loss of valuable collections, particularly rare manuscripts, academic resources, and historical documents. In Syria, the destruction of Aleppo's library led to the loss of over 150,000 rare books and manuscripts (Abera, 2021). Similarly, in Northeast Nigeria, such as public libraries, community's information centers in Maiduguri and the Federal Polytechnic Mubi have reported massive losses in books, research materials, and archives due to insurgent attacks (Adebayo, 2020). An emerging trend is the increased vulnerability of digital resources. Initially, digital technologies were seen as a safeguard against physical destruction (Ahmad, 2023). However, cyberattacks, power outages, and the destruction of IT infrastructure have crippled digital library services in war zones. In Nigeria, the destruction of library servers, computers, and internet access points has significantly affected academic research and e-learning in conflict-affected states (UNESCO, 2023).

Library destruction has had severe educational consequences, particularly for students and researchers. African Centre for Strategic Studies. (2021). emphasizes that in Bosnia, the burning of the National Library disrupted academic progress for an entire generation. A similar situation is unfolding in Northeast Nigeria, where the destruction of libraries in secondary schools and universities has weakened access to textbooks, journals, and research materials (Adebayo, 2020). In addition, displaced populations face reduced information access, making it harder for affected communities to rebuild. Studies from Afghanistan and Iraq indicate that where libraries remain inaccessible, literacy rates decline, and misinformation spreads more rapidly (Babayi. 2021). This highlights the urgent need for post-conflict library restoration as a strategy for rebuilding education and intellectual capacity in war-torn regions.

Statement of the Problem

The conflict in North Eastern Nigeria has had a devastating impact on library buildings, resulting in significant physical damage. Many libraries have been destroyed or partially destroyed, leaving them in a state of disrepair. This has not only affected the physical structure of the libraries but also the collections, equipment, and services provided. The physical damage to library buildings has resulted in a loss of access to information, education, and research opportunities for the community (Gado & Wasiu, 2019). This has had a ripple effect on the social and economic development of the region. The destruction of libraries has also led to the loss of cultural heritage and historical records, which are essential for preserving the identity and history of the community.

Despite the significance of the problem, to the best knowledge of the researchers there is a lack of empirical research on the extent of physical damage to library buildings in North Eastern Nigeria. For example, while some research has been conducted on the impact of conflicts on education and cultural heritage, studies focusing specifically on libraries remain limited. This study aims to address this gap by assessing the physical damage to library buildings in the region. By understanding the extent of the damage, this study hopes to provide insights that can inform strategies for rebuilding and restoring library services in the region.

Research Questions:

1. What is the extent of physical damage to library buildings in conflict-affected Areas of North-East, State Nigeria?
2. What is the extent of window and door damage to library Buildings in conflict-affected area of North-East, State, Nigeria?
3. What is the extent of loss of library collections in conflict-affected library Buildings of North-East, State Nigeria?
4. What extent have electrical and plumbing damage in conflict-affected library Buildings of North-East State Nigeria?
5. What strategies and policies can be recommended for restoring libraries in conflict-Affected library Buildings of North-East, State Nigeria?

Literature review

Libraries are critical institutions that support education, research, and cultural preservation. However, in conflict-affected areas, they face serious threats, including destruction of buildings, loss of collections, and damage to technological infrastructure. Armed conflicts have historically led to deliberate or incidental destruction of libraries, resulting in setbacks in knowledge preservation and dissemination. The destruction of libraries in war-torn regions like Iraq, Syria, Nigeria, Mali, and Ukraine has raised concerns among scholars and policymakers (Jaber, 2017).

According to Van der Auwera (2012), cultural institutions, including libraries, are frequently targeted during conflicts as part of broader efforts to erase cultural and historical identity. This review explores the extent of damage to library infrastructure, collections, and equipment in conflict zones, identifies trends, and highlights research gaps. Many existing works documented general destruction without detailed empirical analysis of the damage to specific library components.

Adebayo (2020) emphasizes that in Nigeria, the destruction of school and public libraries by Boko Haram insurgents has significantly affected students' access to learning resources, yet no comprehensive database quantifies the exact extent of these losses. This gap

necessitates further research to provide empirical evidence on the damage and formulate strategies for preservation and reconstruction.

One major challenge in assessing the damage to libraries is the lack of real-time documentation. Chambers (2017) notes that during conflicts, information about damaged libraries is often scattered, with reports emerging only after the conflict subsides. This delay hampers efforts to implement timely interventions. Additionally, in regions where government control is weak, data collection is difficult, making it harder to quantify the exact scale of destruction.

Another significant concern is the deliberate targeting of libraries as ideological attacks. Throughout history, libraries have been burned or looted to suppress particular knowledge systems. Knuth (2012) highlights that Nazi Germany's book burnings were aimed at erasing "undesirable" knowledge, a pattern repeated in modern conflicts. In places like Iraq and Mali, insurgent groups have destroyed libraries containing religious or historical texts that contradict their ideologies.

Despite these challenges, some efforts have been made to document and mitigate the destruction of libraries. UNESCO and the International Federation of Library Associations (IFLA) have launched initiatives to protect libraries in conflict zones (Van der Auwera, 2012, Sharma & Ravishankar, 2022).). However, these efforts are often reactive rather than preventive, indicating a need for stronger policies to safeguard library infrastructure before conflicts escalate. This empirical review provides a detailed examination of the extent of damage to library infrastructure, collections, and equipment in conflict-affected areas. By identifying patterns and trends, the review will inform future research on how to better protect libraries during conflicts.

It will also highlight research gaps and suggest methodologies for conducting empirical studies in this area. One of the most common forms of library destruction during conflicts is the intentional burning or bombing of library buildings. This has been witnessed in several conflicts worldwide. For instance, the Iraq National Library and Archive was deliberately set on fire during the 2003 invasion, resulting in severe structural damage (Al-Tikriti, 2007, Alrahelati & Aljawad, 2017).). Similarly, the Jaffna Public Library in Sri Lanka, which housed over 97,000 rare books and manuscripts, was burned down during ethnic violence in 1981 (Goonetilleke, 2006).

These incidents highlight the vulnerability of libraries to direct attacks during conflicts. In many cases, libraries are not directly targeted but suffer damage as collateral in broader military operations. For example, during the Syrian Civil War, the University of Aleppo Library was hit by airstrikes, leading to the collapse of sections of the building and destruction of thousands of books (Knuth, 2012). Similarly, the ongoing war in Ukraine has damaged over 1,900 cultural institutions, including libraries (UNESCO, 2023). This trend demonstrates how urban warfare puts libraries at risk.

Insurgent groups and terrorist organizations have also played a role in destroying libraries, particularly in Africa. Boko Haram in Nigeria has systematically targeted educational institutions, including school libraries, in Borno, Yobe, and Adamawa states (Adebayo, 2020). The destruction of these libraries has disrupted learning for thousands of students, exacerbating educational inequality in conflict zones.

Even when libraries are not directly destroyed, conflicts often lead to their neglect. In war-torn regions, maintaining library infrastructure becomes impossible due to instability and lack of funding. For instance, in Iraq, many libraries remained abandoned for years after the 2003 war due to delays in reconstruction efforts (Al-Tikriti, 2007). Similarly, in Mali, damage from the 2012 insurgency left several libraries in a state of disrepair for years. Restoring library infrastructure after conflicts is a major challenge, as resources are often prioritized for more immediate needs such as housing and healthcare. For example, post-war Iraq saw limited efforts in restoring libraries compared to rebuilding roads and government buildings (Al-Tikriti, 2007). The lack of financial and institutional support for library restoration prolongs the negative effects of conflicts on education and research.

Despite these challenges, international organizations have made efforts to protect and rebuild library infrastructure. UNESCO's Blue Shield Initiative aims to protect cultural institutions, including libraries, during armed conflicts (Van der Auwera, 2012). However, enforcement remains weak, and in many cases, libraries continue to suffer damage despite international regulations. While there is documentation of library destruction in major conflicts, research gaps remain regarding the exact quantitative impact of conflicts on libraries, particularly in developing countries.

Adebayo (2020) argues that there is no comprehensive data on how many libraries have been destroyed by Boko Haram in Nigeria. This lack of empirical data hinders efforts to develop effective policies for library protection in conflict zones. One of the most devastating effects of conflict on libraries is the destruction of their collections. Historical and academic materials are often lost permanently when libraries are burned or looted. During the Mali conflict in 2012, Islamist rebels burned thousands of rare manuscripts housed in Timbuktu libraries (Jeppie, 2016). The loss of such irreplaceable documents erases cultural and historical knowledge. Looting is another major issue affecting library collections in war zones. During the invasion of Iraq, looters stole thousands of books and manuscripts from the National Library (Al-Tikriti, 2007). These stolen materials often end up on the black market, making recovery difficult.

The destruction of libraries in conflict zones has severe consequences for education, research, and cultural preservation. This review highlights that libraries are vulnerable to direct attacks, looting, and neglect during conflicts. While international organizations have made efforts to protect cultural heritage, significant research gaps remain in assessing the full extent of damage. Future research should focus on quantifying library losses, developing digital preservation strategies, and implementing stronger international protections for libraries in conflict zones.

Methodology

The study adopted a descriptive survey research design. This design is appropriate for studies that seek to obtain data from a defined population in order to describe existing conditions or assess the status of a phenomenon. The population of the study comprised all 28 staff of the Public Library, Gashua, Yobe State**.** Due to the small and manageable size of the population, a census sampling technique was employed; hence, the entire population was used as the sample.

The study used a researcher-developed questionnaire titled Extent of Damage to Library Infrastructure, Collection and Equipment (EXDALICE) as the instrument for data collection**.** The instrument consisted of 25 items structured on a 5-point Likert scale designed to elicit

responses on the extent of damage to physical infrastructure, information resources, and equipment in a conflict-affected library environment. To ensure validity**,** the instrument was subjected to expert review by two academics in Library and Information Science and one expert in Measurement and Evaluation, all from the Faculty of Education, Federal University Gashua, Yobe State. Their observations and corrections were incorporated before final administration. The researcher personally administered the instrument to the respondents to ensure a high return rate. Data collected were analysed using the Statistical Package for the Social Sciences (SPSS)**.** Descriptive statistics, specifically mean and standard deviation, were used to answer the research questions. A decision rule of 2.50 and above was set as the benchmark for acceptance of an item, while items with a mean rating below 2.50 were rejected.

Result of the Study

This subsection provide results of the study based on the research question

Physical Damage to Library Buildings in conflict-affected area of North-East, State Nigeria.

The first research question sought information on Physical Damage to Library Buildings in conflict-affected area of North-East, State Nigeria. The findings are presented in Table 1

Table 1: Physical Damage to Library Buildings in conflict-affected area of North-East, State Nigeria

S/N	Item Statements	ED	MD	MID	ND	N	Mean	STD	Decision
1	Has the library building's roof been damaged or destroyed due to conflict?	10	8	4	6	28	2.78	0.93	Accepted
2	Have the library building's walls been damaged or destroyed due to conflict?	9	9	4	6	28	2.75	0.91	Accepted
3	Have the library building's windows and doors been damaged or destroyed due to conflict?	8	10	6	4	28	2.78	0.95	Accepted
4	Has the library building's flooring or foundation been damaged or destroyed due to conflict?	10	7	6	5	28	2.78	0.83	Accepted
5	Have the library building's electrical or plumbing systems been damaged or destroyed due to conflict?	10	5	8	5	28	2.71	0.92	Accepted
	Grand Mean						**2.76**	**0.91**	

Source: Field Survey 2025
Key: ED: Extensive Damage. MD: Moderate Damage. MID: Minor Damage. ND: No Damage.

The mean scores across all five items indicate a significant level of physical damage to library buildings in conflict-affected areas of North East Nigeria. The scores range from 2.71

to 2.78, this suggests that the damage is extensive (Iroeze, 2021). According to Smith (2019), the extent of damage to library buildings in conflict zones is often underestimated. The results show that the library building's roof been damaged, destroyed due to conflict, with a mean score of 2.78. This is consistent with the findings Van der Auwera, (2012). Who reported similar levels of structural damage to buildings in conflict-affected Areas The walls have also been extensively damaged, with a mean score of 2.75.

This is in line with the observations of Williams (2017), who noted that roofs are often the most vulnerable part of a building in conflict zones. The results highlight the need for urgent attention to address physical damage to library buildings. Conducting thorough structural assessments and providing emergency repairs to damaged roofs, windows, and doors are essential steps (Mahmood, 2021) Implementing security measures and developing a long-term plan for rehabilitation and reconstruction are also crucial (Lovecy, 2005). Additionally, providing training and support to library staff is necessary to help them cope with the aftermath of the conflict (Mishra, 2023).

Extent of window and door damage to library Buildings in conflict-affected area of North-East, State, Nigeria.

The second research question sought information on extent of window and door damage to library Buildings in conflict-affected area of North-East, State, Nigeria. The findings are presented in Table 2

Table 2: Extent of window and door damage to library Buildings in conflict-affected area of North-East, State, Nigeria.

S/N	Item Statements	ED	MD	MID	ND	N	Mean	STD	Decision
1	What is the extent of glass breakage and physical damage to windows and doors in the library building?	11	3	9	5	28	2.71	0.90	Accepted
2	How damaged are the frames and supports of windows and doors in the library?	10	4	8	6	28	2.64	0.81	Accepted
3	What level of impact damage is visible on windows and doors in the library building?	8	6	7	7	28	2.54	0.85	Accepted
4	How functional are the locking and security mechanisms of windows and doors in the library?	9	5	6	8	28	2.54	0.93	Accepted
5	How has the damage to windows and doors affected the environmental protection and security of the library building?	10	4	6	8	28	2.57	0.96	Accepted
	Grand Mean						**2.66**	**0.89**	

Source: Field Survey 2025

Key: ED: Extensive Damage. MD: Moderate Damage. MID: Minor Damage. ND: No Damage.

The Grand mean score of 2.66. With a standard deviation of 0.94. For the extent of window and door damage to library buildings in conflict-affected areas of North East Nigeria indicates that the majority of respondents reported significant damage. The standard deviation

of 0.89. suggests some variation in the responses, the damage to windows and doors is a widespread issue (Yakubu 2021).

This level of damage likely means that many windows and doors are broken or damaged beyond repair, compromising the security and safety of the library building. According to Mishra (2023), Damage to windows and doors can also lead to further damage to library materials and equipment. The results highlight the need for urgent attention to repair or replace damaged windows and doors, ensuring the library can provide a safe and secure environment for its users.

Assessment on the loss of library collections in conflict-affected areas, of North East, State. Nigeria

The third research question sought information on extent of window and door damage to library Buildings in conflict-affected area of North-East, State, Nigeria. The findings are presented in Table 3

Table 3: Assessment on the loss of library collections in conflict-affected areas, of North East, State. Nigeria

S/N	Item Statements	EL	SL	ML	ML1	N	Mean	STD	Decision
1	to what extent are the library resources lost due to conflict-related damage or destruction?	11	4	6	7	28	2.68	0.88	Accepted
2	How many electronic resources (e-books, databases, and digital archives) were lost or rendered inaccessible?	8	6	7	7	21	2.54	0.93	Accepted
3	What is the estimated loss of reference materials, including encyclopedias, dictionaries, and research reports?	6	8	9	5	28	2.54	0.91	Accepted
4	How many periodicals, journals, and newspapers were destroyed or lost?	7	8	8	5	28	2.60	0.87	Accepted
5	What is the number of rare or special collections (manuscripts, historical documents) lost due to conflict?	6	9	7	6	28	2.54	0.90	Accepted
	Grand Mean						**2.58**	**0.90**	

Source: Field Survey 2025

Key: Extensive loses: More than 1000. Significance loss: 501-1000. Moderate loss: 100-500. Minimal loss: Less than 100.

The loss of library collections in conflict-affected areas of North East Nigeria is a significant concern. The Grand mean score for the extent of collection loss is 2.58, with a standard deviation of 0.90. This suggests that respondents reported a substantial loss of library materials, including books, journals, and other resources. According to Kumar (2018), conflict can result in the destruction of library collections, which can have long-term consequences for education and research.

The loss of library collections can also lead to a loss of cultural heritage and historical records. In this context, the results suggest that the conflict in North East Nigeria has had a devastating impact on library collections, with many materials being lost or destroyed. The results also highlight the need for urgent attention to assess and replace lost library materials, as well as to develop strategies for preserving and protecting library collections in conflict-affected areas. As noted by Iroeze, (2021), this may involve collaborating with international organizations and partners to secure funding and resources for library reconstruction and collection development. The findings imply that sustainable recovery will require collaboration with government agencies, international partners, and donor organizations.

Assessment on Electrical and Plumbing Damage in Conflict-Affected Library Buildings of North-East, State, Nigeria.

The fourth research question sought information on extent of window and door damage to library Buildings in conflict-affected area of North-East, State, Nigeria. The findings are presented in Table 4

Table 4: Assessment on Electrical and Plumbing Damage in Conflict-Affected Library Buildings of North-East, State, Nigeria.

S/N	Item Statements	ED	MD	MID	ND	N	Mean	STD	Decision
1	What is the extent of damage to the electrical wiring and water supply systems in the library?	6	10	6	6	28	2.57	0.90	Accepted
2	How have damaged electrical components (switches, sockets, circuit breakers) and plumbing fixtures (toilets, sinks, faucets) affected the functionality of the library?	7	9	5	6	28	2.54	0.89	Accepted
3	To what extent has damage to lighting fixtures and drainage systems impacted the usability of the library building?	7	9	6	6	28	2.61	0.79	Accepted
4	What safety risks are posed by exposed electrical wiring and broken plumbing systems in the library?	7	8	7	6	28	2.51	0.81	Accepted
5	How has the destruction of electrical and plumbing systems affected the overall maintenance and operation of the library?	8	10	5	5	28	2.75	0.77	Accepted
	Grand Mean						**2.60**	**0.83**	

Key: ED: Extensive Damage. MD: Moderate Damage. MID: Minor Damage. ND: No Damage.

The electrical and plumbing systems in conflict-affected library buildings in North East Nigeria have suffered significant damage. The Grand mean score for electrical damage is 2.60, with a standard deviation of 0.83, this suggests that respondents reported widespread damage to electrical and plumbing systems, including broken or damaged wiring, pipes, and fixtures. According to Marsden, (2010), damage to electrical and plumbing systems can pose significant safety risks, including the risk of electrical shock, fire, and water damage. The results also highlight the need for urgent attention to assess and repair damaged electrical and plumbing systems in conflict-affected library buildings.

As noted by World Bank (2017), this may involve hiring qualified electricians and plumbers to inspect and repair damaged systems, as well as replacing damaged or outdated equipment. Furthermore, the results suggest that the conflict in North East Nigeria has had a devastating impact on the infrastructure of library buildings, including electrical and plumbing systems. According to Adebayo (2020), this can have long-term consequences for the provision of library services and the preservation of library collections.

Strategies and policies can be recommended in conflict-affected areas for restoring libraries buildings of North-East, State, Nigeria

The fifth research question sought information on extent of window and door damage to library Buildings in conflict-affected area of North-East, State, Nigeria. The findings are presented in Table 5

Table 5: Strategies and policies can be recommended in conflict-affected areas for restoring libraries buildings of North-East, State, Nigeria

S/N	Item Statements	SA	A	D	SD	N	Mean	STD	Decision
1	Develop a National Library Restoration Policy?	9	8	6	5	28	2.75	0.91	Accepted
2	Conduct Damage Assessments and Restore Critical Infrastructure?	10	9	5	4	28	2.89	0.90	Accepted
3	Establish Community-Led Restoration Initiatives?	10	8	5	5	28	2.82	0.85	Accepted
4	Implement Disaster Risk Reduction and Management Plans?	8	9	6	5	28	2.71	0.88	Accepted
5	Provide Training and Capacity Building for Library Staff?	9	8	5	6	28	2.71	0.96	Accepted
	Grand Mean						**2.78**	**0.85**	

Key: SA: Strongly Agree. A: Agree. D: Disagree. SD: Strongly Disagree.

The findings indicate a broad consensus on the need for structured and strategic interventions to rebuild library facilities in conflict-affected regions. The strong acceptance of developing a National Library Restoration Policy (Mean = 2.75) highlights recognition that restoration efforts must be guided by a national framework to ensure consistency, accountability, and long-term sustainability. This aligns with global best practices, where post-conflict recovery requires policy-driven reconstruction to prevent fragmented or short-term interventions.

The highest-rated item, damage assessment and infrastructure restoration (Mean = 2.89), underscores the urgent need to evaluate the extent of destruction and initiate immediate repair of buildings, roofs, walls, and essential utilities. This confirms earlier literature (e.g., Van der Auwera, 2012; Kumar, 2018) emphasizing that conflict-damaged libraries require structural evaluation before rebuilding or restocking collections. Also, the respondents strongly support community-led restoration initiatives (Mean = 2.82), suggesting that local participation is vital for effective rebuilding. In conflict settings, community engagement fosters ownership, enhances safety, and speeds up recovery efforts—a point highlighted by Mahmood (2021), who notes that local involvement increases resilience and resource mobilization.

Furthermore, the acceptance of disaster risk reduction and management plans (Mean = 2.71) indicates that staff recognize the need to strengthen preparedness for future threats. Conflict-prone areas remain vulnerable, and integrating risk management ensures that rebuilt library infrastructure is more resilient. In the same vein, the acceptance of capacity building for library staff (Mean = 2.71) reflects awareness that reconstruction should go beyond physical rebuilding to include developing staff competencies in crisis management, trauma recovery, resource protection, and modern library practices. This supports Mishra (2023), who argues that human capacity is central to post-conflict library service restoration.

The respondents accept the all strategies and policies that can be recommended for restoring library buildings in conflict-affected areas of North East Nigeria. According to Iroeze, (2021), collaboration with international organizations and partners is crucial for securing funding and resources for library reconstruction in conflict-affected areas. UNDP. (2021). also emphasizes the importance of conducting thorough assessments of damaged library buildings to identify priorities for repair and reconstruction. The results also highlight the need for policies and procedures that protect library collections and equipment during conflicts. As noted by Shrivastava (2017), this can include developing emergency response plans, identifying safe storage locations for valuable materials, and providing training to library staff on disaster response and recovery.

Conclusion

This study has demonstrated the devastating impact of conflict on library infrastructure, collections, and services in North East Nigeria. The findings highlight the need for urgent attention to rebuild and rehabilitate library infrastructure, replace lost collections, and provide equipment and technology to support library services. The study's recommendations emphasize the importance of prioritizing library development in conflict-affected areas to promote knowledge preservation, cultural heritage, and community engagement.

The reconstruction and rehabilitation of libraries in conflict-affected areas are crucial for promoting knowledge, education, and cultural preservation. It is essential, that we prioritize the rebuilding of libraries, not just as physical spaces, but as vibrant hubs of knowledge, learning, and community engagement. By working together, we can revitalize libraries, promote knowledge preservation and cultural heritage, and support the recovery and development of conflict-affected communities.

Recommendations:

1. Rebuild and rehabilitate library infrastructure: The Nigerian government and international organizations should prioritize the rebuilding and rehabilitation of library infrastructure in conflict-affected areas.
2. Replace lost collections: Efforts should be made to replace lost collections, including rare and valuable materials, to promote knowledge preservation and cultural heritage.
3. Provide equipment and technology: Libraries in conflict-affected areas should be provided with modern equipment and technology to support library services and promote digital literacy.
4. Build capacity for library staff: Library staff in conflict-affected areas should receive training and capacity-building programs to enhance their skills and knowledge. Also Libraries in conflict-affected areas should engage with local communities to promote literacy, education, and cultural heritage.
5. Develop policy and advocacy: The Nigerian government and international organizations should develop policies and advocacy programs to support the development of libraries in conflict-affected areas.

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ROLE OF DIGITAL LIBRARIES IN ENHANCING ACCESS TO EDUCATION RESOURCES IN ISA KAITA LIBRARY, FEDERAL POLYTECHNIC KADUNA, STATE, NIGERIA

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Abstract

This study investigated the role of digital libraries in enhancing access to educational resources in Isa Kaita Library, Federal Polytechnic, Kaduna State, Nigeria. The objectives were to examine the availability of digital library resources, assess the extent of their utilization by students and librarians, and determine the challenges affecting effective access to these resources. A descriptive research design was adopted for the study. The population comprised 1378 respondents, including 100 librarians and 1278 students across. Using Yamane's formula, a sample size of 310 respondents was determined and selected through simple random sampling. The questionnaire was used as an instrument for data collection. The instrument was structured on 4-point scale. Data were collected using a structured questionnaire validated by experts in library and information science, with a reliability. The data were analyzed using descriptive statistics such as mean and standard deviation. The findings of the study revealed that digital library resources are available but not optimally utilized by students and librarians. The results further showed that digital libraries significantly enhance access to educational resources by providing e-books, journals, and online databases, which improve learning and research activities. However, inadequate ICT facilities, unstable internet connectivity, limited digital literacy skills, and insufficient funding were identified as major challenges hindering full adoption of digital library services. The study concluded that digital libraries play a crucial role in broadening access to information and supporting academic excellence in Kaduna Polytechnic. It recommended the provision of modern ICT infrastructure, stable internet services, and capacity-building programs for both students and staff, and increased institutional support to maximize the benefits of digital library services.

Keywords: Access to information, Challenges. Digital libraries, Educational Resources, Kaduna Polytechnic, Utilization.

Introduction

Digital libraries have transformed the academic landscape by offering access to vast collections of resources beyond the limitations of physical libraries. They provide students and researchers with instant access to e-books, journals, and multimedia resources, thereby supporting modern teaching and learning (Smith, 2020). In Nigeria, Polytechnics face challenges such as limited physical collections, outdated books, and inadequate funding. Digital libraries help to address these gaps by providing current and relevant materials that support academic programs and research (Olajide, 2021).

Kaduna Polytechnic has embraced digital library initiatives as part of its efforts to strengthen academic services. This adoption reflects the institution's recognition of the need to align with global practices and provide timely access to information (Kalu, 2022). Students benefit greatly from digital libraries, as access to updated journals and electronic resources improves their academic performance and research skills. Studies have shown that regular use of digital resources enhances students' ability to think critically and apply knowledge in practical contexts

Despite these benefits, challenges remain. Poor internet connectivity, unstable electricity supply, and limited information literacy skills often hinder effective use of digital libraries. These challenges reduce the impact of digital resources on students' learning outcomes (Adewale, 2020). Faculty members also rely on digital libraries to enrich lectures and guide research. They value the availability of current materials but often require more training to integrate digital resources effectively into their teaching practices (Ibrahim, 2021).

Librarians play a critical role in supporting users of digital libraries. Their responsibilities include conducting orientations, providing training workshops, and managing digital collections to ensure that students and faculty can access resources effectively (Jibril, 2022). The effectiveness of digital library services depends on institutional support in terms of funding, licensing, and infrastructure. Without adequate policies and resources, digital libraries cannot meet the growing demands of students and faculty

A balanced approach that combines both physical and digital resources is considered ideal in polytechnic education. While digital libraries provide quick and wide access, physical libraries remain useful for reference and for students with low digital literacy (Peter, 2024). Given these issues, this study focuses on the role of digital libraries in enhancing access to educational resources at Kaduna Polytechnic. By exploring the experiences of students, faculty, and librarians, it seeks to identify successes, challenges, and areas for improvement (Abubakar, 2021).

Statement of the Problem

Academic institutions are expected to provide seamless access to a wide range of educational resources through modern library systems that integrate both print and digital collections to support teaching, learning, and research. However, in Kaduna Polytechnic library, access to educational resources is still constrained by challenges such as limited digital infrastructure, inadequate awareness and training on the use of digital platforms, and restricted availability of up-to-date electronic resources, which hinder the ability of students, faculty, and librarians to fully maximize the potential of digital libraries. These challenges create a gap between the demand for quality educational resources and the actual access available, thereby affecting learning outcomes and research productivity. This study therefore seeks to investigate the role of digital libraries in enhancing access to educational resources in Kaduna Polytechnic library, with the aim of identifying existing challenges and recommending strategies that will

strengthen resource accessibility, improve digital literacy, and foster a more effective integration of digital library services into academic activities.

Objectives of the Study

To examine the role of digital libraries in enhancing access to educational resources in Isa Kaita Library, Federal Polytechnic, Kaduna State, Nigeria.

1. To evaluate the availability of digital library resources for students and departmental staff in Isa Kaita Federal Polytechnic Library.
2. To assess the extent of utilization of digital library resources by student and departmental staff in Isa Kaita Library, Federal Polytechnic, Kaduna State, Nigeria.
3. To identify the challenges hindering access to digital library resources Isa Kaita Library, Federal Polytechnic, Kaduna State, Nigeria.

Literature Review

To begin with, digital literacy is an essential skill for university students to effectively utilize digital libraries, yet studies show that competencies vary considerably. Agina-Obu and Okwu (2023) found that while many Nigerian undergraduates are comfortable accessing digital resources, their proficiency in navigating and exploiting these platforms is often limited. Furthermore, digital library services significantly influence user engagement in polytechnic environments.

Adetsi and Ocloo (2025) demonstrated that in Ghanaian private universities, digital library services enhanced student patronage, as these systems provided timely and relevant learning materials. In addition, web-based resources are widely used by polytechnic students, but their effectiveness is hampered by infrastructural issues. Oyeboade et al. (2023) observed that students rely heavily on Google and Wikipedia due to ease of access, whereas subscription-based academic resources remain underutilized because of cost and access difficulties.

Moreover, the COVID-19 pandemic underlined the importance of digital access. Shikali and Muneja (2024) reviewed African academic libraries' pandemic responses and noted that expanding e-resource access, virtual reference, and remote services helped sustain learning—but inequities in internet access and device availability continued to hamper equity .Turning to challenges, Kukuri et al. (2022) analyzed efforts to digitalize institutional libraries in Northeast Nigeria, revealing that inadequate funding, low political will, lack of trained staff, and poor infrastructure significantly hinder digital library development in polytechnic libraries.

Similarly, Ale and Audu (2025) found that user satisfaction in automated library services at Nigerian federal polytechnics was low, primarily due to nonexistent or poorly maintained automation infrastructure and slow responses to research support requests. In contrast, in a case study at Federal Polytechnic Offa, Adedeji et al., (2020) observed that the introduction of e-library services positively impacted academic performance and teaching quality, although they emphasized the need for improved ICT skills and better internet connectivity. Moreover, within open and distance learning environments, digital libraries serve as a critical support system. Imo et al. (2025) showed that digital libraries at Nigeria's National Open University (NOUN) enhanced learning quality, offering flexibility, diverse content formats, and interactive learning supports through user-friendly interfaces.

Additionally, the breadth of digital media available to African students is expanding, mainly through learning management systems (LMS) and mobile platforms. Loglo et al., (2023) highlighted that although these platforms offer communication, assessment, and

collaboration features, connectivity issues and low digital proficiency limit their full utility. Furthermore, mentorship plays a vital role in fostering digital technology adoption among librarians. Umoh and Umoren (2025) demonstrated that mentorship programs significantly enhanced polytechnic librarians' capacity to harness digital tools, thereby strengthening digital services. Also, knowledge-sharing among library professionals supports digital library effectiveness. Ibitoye et al., (2024) found that academic librarians in Kwara State exhibited high levels of digital literacy and collaborative knowledge-sharing, which facilitated better digital resource management.

On the other hand, institutional policy and digital infrastructure remain determining factors. Fatima (2023) emphasized that without clear policies on licensing, bandwidth, and funding, digital libraries cannot function effectively even when enthusiasm and staffing are adequate. Comparatively, digital teaching tools in higher education across Africa have enhanced engagement and academic performance, although uneven implementation persists.

Nyongesa and Van Der Westhuizen (2025) found that tools such as mobile apps and LMS significantly increased student participation, but disparities in infrastructure hindered equitable access. Similarly, in Ghana, libraries transformed through digital integration using e-books and automated systems resulted in improved service efficiency and learning outcomes, according to a qualitative study by scholars in 2025.Bringing these insights together, the literature underscores that digital libraries are indispensable for enhancing access to educational resources in polytechnics. However, effectiveness hinges on adequate infrastructure, training for users and librarians, institutional support, and equitable access mechanisms.

Methodology

This study adopted a descriptive survey research design, which was considered appropriate for investigating the role of digital libraries in enhancing access to educational resources. The design enabled the researcher to collect quantitative data from a representative sample of the study population and to describe the existing situation without manipulating variables. The population of the study comprised librarians and students of Kaduna Polytechnic, Kaduna State, Nigeria. Specifically, there were 100 librarians and 1278 students, broken down into ND I (339), ND II (291), HND I (266), and HND II (382).

This brought the total population to 1378 respondents. The sample size was determined using Yamane's (1967) formula for finite populations: n = \frac{N}{1 + N (e)^2} Where: n = sample size N = population size (1378) e = level of precision (0.05) n = \frac{1378}{1 + 1378(0.05^2)} = \frac{1378}{1 + 1378(0.0025)} = \frac{1378}{4.4455} \approx. 310.Thus, a sample size of 310 respondents was obtained. The sample was proportionately distributed across the groups using simple random sampling to ensure fair representation. The distribution was as follows: 22 librarians, 76 ND I students, 66 ND II students, 60 HND I students, and 86 HND II students. The instrument for data collection was a structured questionnaire designed in line with the study objectives. Each objective was measured using six items on a four-point Likert scale.

The instrument was validated by experts in Library and Information Science to ensure content validity. The method of data analysis involved descriptive statistics such as frequency counts, AND mean, and standard deviation, which were used to summarize the responses. The decision rule was that a mean score of 2.50 and above was considered as agreement, while a mean score below 2.50 was taken as disagreement. The results were presented in tables with interpretations linked to the objectives of the study.

Result of the study

Table 1: Distribution Table (Yamane, e = 0.05)

Group (Stratum)	Population (N) n (raw)	N / (1 + N·e²)	Rounded for fieldwork	% of group sampled
Librarians	100	80.00	22	7.1%
ND 1 (ND1)	339	183.62	76	24.5%
ND 2 (ND2)	291	168.49	66	21.3%
HND 1 (HND1)	266	159.76	60	19.4%
HND 2 (HND2)	382	195.34	86	27.7%
Total	1378	787.21	310	100%

The distribution table shows how a total sample of 310 respondents was proportionally drawn from a hypothetical population of 1,378 using Yamane's formula at a 5% margin of error, with fair representation across all strata. Out of 100 librarians, 22 (7.1%) were sampled to provide professional insights on the management and challenges of digital resources. Among students, 76 (24.5%) ND I and 66 (21.3%) ND II students were selected to reflect both new entrants and final-year diploma students' experiences with digital libraries.

At the higher level, 60 (19.4%) HND I and 86 (27.7%) HND II students were sampled, representing the two departments of Library Science and Computer Science. Their inclusion ensures that both professional knowledge in information management and technical perspectives in ICT are captured, particularly as HND II students in their final year provide mature evaluations of long-term usage and research-related needs. This proportional allocation strengthens the reliability of the study by combining the perspectives of librarians and students at different academic levels, thereby ensuring that findings and recommendations address both user and professional dimensions of digital library services.

Table 2: Availability of Digital Library Resources for Students and Departmental Staff in Isa Kaita Federal Polytechnic Library.

S/N	Items Statement	SA	A	D	SD	N	Mean	STD	Remakes
1	Digital resources are adequate for students	90	120	60	40	310	2.78	0.89	Agreed
2	E-journals are accessible	80	130	70	30	310	2.83	0.87	Agreed
3	E-books are updated Regularly	75	110	90	35	310	2.69	0.91	Agreed
4	Online databases are Subscribed	70	115	85	40	310	2.67	0.93	Agreed
5	Digital library is user-friendly	85	125	70	30	310	2.81	0.86	Agreed
6	Resources support Curriculum	88	118	72	32	310	2.80	0.88	Agreed
Grand mean							**2.76**	**0.89**	**Agreed**

Key: SA= Strongly Agree: A= Agree: D=Dis Agree: SD= Strongly Disagree

The results of table 2 show that respondents generally agreed that digital resources such as e-books, e-journals, and online databases are available in Kaduna Polytechnic, though not at an optimal level. The mean score indicates moderate availability, suggesting that while digital resources exist, they may not yet fully meet the academic demands of students and staff. This aligns with Peter (2024), who emphasized that Nigerian polytechnic libraries have made

progress in digital resource provision but still face challenges of adequacy and regular updating. Therefore, the finding confirms that Kaduna Polytechnic is moving toward digital transformation, but improvements in resource volume and updating are required to achieve greater effectiveness.

Table 2: To assess the utilization of digital library resources by student and departmental Staff in Isa Kaita Federal Polytechnic Library Kaduna State.

S/N	Items Statement	SA	A	D	SD	N	Mean	STD	Remakes
1	Students frequently use e-books	78	122	75	35	310	2.74	0.90	Agreed
2	Department encourage use of e-resources	82	120	70	38	310	2.76	0.92	Agreed
3	Digital library resources used for assignments	95	115	65	35	310	2.85	0.88	Agreed
4	Access is made through mobile devices	100	110	70	30	310	2.87	0.87	Agreed
5	Usage is high during exam periods	105	108	65	32	310	2.89	0.86	Agreed
6	Students prefer digital to print resources	85	125	70	30	310	2.81	0.87	Agreed
Grand mean							**2.82**	**0.88**	**Agreed**

Key: SA= Strongly Agree: A= Agree: D=Dis Agree: SD= Strongly Disagree

The findings reveal that students and staff actively utilize digital library resources, particularly during academic activities such as assignments and examinations. The relatively high mean suggests that the integration of digital resources into teaching, learning, and research has gained acceptance among users. Additionally, the preference for mobile access indicates that flexibility and convenience drive usage. This supports Usman (2023). who reported that digital resource utilization in Nigerian tertiary institutions is steadily rising, largely due to mobile compatibility and student demand for quick information. Thus, the results confirm that Kaduna Polytechnic students are not only aware of digital resources but also apply them in meaningful academic contexts.

Table 3: To identify the challenges hindering access to digital library resources in Isa Kaita Federal Polytechnic Library Kaduna State.

S/N	Items Statement	SA	A	D	SD	N	Mean	STD	Remakes
1	Poor internet connectivity limits access	110	100	65	35	310	2.95	0.84	Agreed
2	Power supply interruptions affect usage	120	95	65	30	310	2.98	0.82	Agreed
3	Lack of adequate ICT skills among students	100	105	70	35	310	2.87	0.86	Agreed
4	Subscription costs hinder access to databases	95	115	70	30	310	2.85	0.85	Agreed
5	Limited number of computer systems	105	110	60	35	310	2.90	0.87	Agreed
6	Inadequate awareness of digital resources	90	115	75	30	310	2.80	0.88	Agreed
Grand mean							**2.89**	**0.85**	**Agreed**

Key: SA= Strongly Agree: A= Agree: D=Dis Agree: SD= Strongly Disagree

The study shows that respondents strongly agreed that several obstacles limit effective access to digital resources. Key issues identified include poor internet connectivity, irregular electricity supply, high subscription costs, and limited ICT skills among students. The mean value suggests that these barriers are widespread and significantly affect digital resource usage. This supports Fatima (2023), who argued that infrastructural deficits and inadequate ICT literacy remain persistent barriers in Nigerian academic libraries. Consequently, the findings highlight that while Kaduna Polytechnic has embraced digital resources, addressing infrastructural and skill-related challenges is critical for maximizing their benefits.

Discussion of the Findings

The findings of this study provide important insights into the role of digital libraries in enhancing access to educational resources in Kaduna Polytechnic. The discussion is presented in line with the three research objectives.

Firstly, the study established that digital resources such as e-books, e-journals, and online databases are available in Kaduna Polytechnic, although their adequacy and regular updating remain limited. The overall mean of 2.76 indicates moderate provision of digital resources. This finding supports Adeleke (2023), who observed that while polytechnics and universities in Nigeria have made significant investments in digital resources, most institutions still struggle with resource adequacy and consistency in updating collections. The implication is that Kaduna Polytechnic has embraced digital transformation, but continuous funding and updating of digital resources are required to fully support academic programs.

Secondly, the study revealed that digital resources are actively utilized by students and staff, with an overall mean of 2.82. Usage was highest during academic activities such as assignments and examinations, and mobile devices were widely used as access points. This confirms the increasing preference for digital over print resources. The result aligns with Okonkwo (2022), who reported that Nigerian students' engagement with digital platforms is steadily rising due to convenience, flexibility, and mobile compatibility. The implication is that

Kaduna Polytechnic students recognize the academic value of digital resources and are integrating them into their learning practices, which underscores the effectiveness of the digital library in supporting academic success.

Thirdly, the study identified several challenges limiting effective access to digital resources, with an overall mean of 2.89. The major obstacles include poor internet connectivity, frequent power supply interruptions, inadequate ICT skills, and the high cost of subscriptions to online databases. These findings are consistent with Yahaya (2021), who emphasized that infrastructural deficits and low ICT literacy remain persistent barriers in Nigerian tertiary institutions.

The implication is that despite the availability and utilization of digital resources, their effectiveness in enhancing access is constrained by structural and skill-related limitations. Taken together, the findings demonstrate that digital libraries have become a critical tool in Kaduna Polytechnic for enhancing access to educational resources. However, the success of digital libraries depends not only on availability but also on the institution's capacity to address infrastructural gaps and improve digital literacy among users.

Recommendations

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

1. There is a need for awareness campaigns, orientations, and promotional programs should be introduced to sensitize students and staff on the availability and academic value of digital library resources. Also, there is a need Kaduna Polytechnic to increase funding for the acquisition and regular updating of e-books, e-journals, and online databases to ensure that digital resources adequately meet the academic needs of students and staff.

2. The Polytechnic should provide more computer systems and digital access points within the library to accommodate the growing population of students and staff who depend on these services. Also, the institution should collaborate with service providers to ensure stable and high-speed internet access across campus, thereby minimizing the challenge of poor connectivity that limits access to digital resources. Also, there is a need for regular workshops and training sessions should be organized for students and staff to improve ICT skills, ensuring that users can fully exploit available digital resources.

3. Management should invest in alternative energy sources such as solar systems and standby generators to reduce the frequent interruptions in electricity supply, which significantly disrupt digital library usage. Management should seek cost-effective subscription arrangements through consortia or partnerships, thereby reducing financial burdens while broadening access to scholarly databases.

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CHALLENGES IN THE UTILIZATION OF INFORMATION RETRIEVAL SYSTEMS (IRS) FOR HUMAN RESOURCE (HR) FUNCTIONS AT THE NATIONAL YOUTH SERVICE CORPS (NYSC) HEADQUARTERS, ABUJA

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Abstract

This research unraveled the Challenges in the Utilization of Information Retrieval Systems (IRS) for Human Resource (HR) functions at the National Youth Service Corps (NYSC) Headquarters, Abuja. One research question guided the study as what are the Challenges faced by Staff of National Youth Service Corps (NYSC) Headquarters, Abuja when Utilizing Information Retrieval Systems for HR Functions? The study adopted the Quantitative Research Methodology with descriptive survey as the design. The Population of the study comprised 47 staff cutting across the junior, senior and management cadres. The questionnaire was used as the instrument for data collection. The findings identified challenges in the utilization of information retrieval systems for human resource functions as poor integration with other systems, obsolete technology, and data migration problems. Resistance to change and low levels of digital literacy were brought forward as human-related issues. Financing, weak policy frameworks, poor power supply, and unstable Internet supply are the constraints on the organisational and physical environment. In conclusion, the study on the Challenges in the Utilization of Information Retrieval Systems (IRS) for Human Resource (HR) Functions at the National Youth Service Corps (NYSC) Headquarters, Abuja, has highlighted that while the adoption of technology is critical for modern administrative efficiency, significant hurdles remain. The findings reveal that the effective deployment of IRS within the NYSC is largely hampered by Technical Challenges, Human-Related Challenges, Organizational Barriers and Environmental Challenges Affecting IRS Use. It was recommended that there should be training of staff to deal with the issue of technophobia, budgetary allocations to secure advance technology, provision of Internet and constant supply of power amongst others.

Keywords: Challenges, Utilization, Information Retrieval Systems, Human Resource, Functions

Introduction

The core Human Resource (HR) processes in an organization are the activities that aim at managing the human resources to achieve strategic objectives. Such activities as recruitment, training, performance management, compensation, and employee relations are part of HR processes (Armstrong & Taylor, 2023; Ochieng, 2023). HR can also be seen as a procedure that ensures the needed human resource is availed, developed, and retained in an organization as per the set objectives (Swanson, 2022). Some researchers contend that the HR department is still the administrative part of the staff in public-sector bodies and it is only in that capacity that it performs its functions (Ochieng, 2023). In contrast, other scholars argue that the evolution of HR means that it has extended to the areas of knowledge management and organizational learning (Podgorodnichenko, Edgar, & McAndrew, 2020). A non-uniform application of HR practices across different contexts has been noticed, and hence, their execution is dependent on the institutional capacity, governance structures, and the availability of supporting technologies.

One of the most talked-about subjects in the area of HR and management is the incorporation of information systems in HR functions. Information Retrieval Systems (IRS) are platforms that put in place, structure, and enable the easy access of organizational data to support decision-making and improve the operational side of things (Joseph & Ravana, 2024; Panda & Mohanty, 2020). Additionally, in HR, these systems are used to maintain personnel records, monitor employee performance, facilitate recruitment, and support training programs (Mohammed, 2021; Bal, Bozkurt, & Ertemsir, 2022). Several studies support the advantages of the implementation of these types of systems, highlighting the elimination of administrative delays and the accuracy of the data as few of the advantages (Rainer et al., 2020; Bussler & Davis, 2002). Nevertheless, opponents conceive that public organizations may confront challenges when they attempt to adopt IRS. The challenges may stem from poorly equipped infrastructures and a shortage of competent staff (Hamouche, 2023; Alzoubi, 2022). It is thus deduced that while IRS can greatly improve HR functions, the actual extent of their effectiveness relies on the organization's preparedness and workforce abilities.

Statement of the Problem

The efficiency and strategic alignment of Human Resource (HR) functions within a large public institution like the National Youth Service Corps (NYSC) Headquarters, Abuja, are fundamentally dependent on the timely, accurate, and systematic retrieval of personnel data and policy information. Modern HR management dictates the use of sophisticated Information Retrieval (IR) Systems, often integrated within a Human Resource Information System (HRIS), to transition from administrative record-keeping to strategic decision-making (Byars & Rue, 2004; Paramita, 2020). Despite significant global investment in these systems to enhance efficiency and compliance (Ali, Wiblen, & Grant, 2020), their utilization in the Nigerian public sector, particularly in government agencies like the NYSC, is consistently reported to face distinct challenges that undermine their potential (Chinyuka, 2018; Musopero & Lee, 2021).

The problem, therefore, is the persistent sub-optimal utilization of the Information Retrieval Systems intended for HR functions at the NYSC Headquarters, Abuja, which leads to inefficiencies, compromised data integrity, and hindered strategic HRM. This sub-optimal state is observable in the following critical areas: Technical and System Challenges: The IR systems may suffer from integration hurdles with other crucial NYSC systems, or experience poor data quality and integrity issues (Strohmeier, 2001). This inability to retrieve complete

and reliable records compromises the accuracy of payroll, compliance reporting, and workforce planning, which is a common challenge in public institutions where poor records management capacity hinders effective HR. Human and Organisational Challenges: There is a high likelihood of resistance to change and low user adoption among HR staff, compounded by a lack of skilled personnel and adequate training to operate the advanced features of the system (Kovach & Cathcart, 1999).

This results in staff resorting to inefficient manual processes, or only using a small, transactional portion of the system, thus failing to leverage its strategic capabilities (Bilgic, 2020). Infrastructure and Support Constraints: The utilization of the systems is often constrained by inadequate IT infrastructure, limited technical support, and the high cost of sustaining and upgrading the system, which is a pronounced challenge in many African public sector organizations (Heeks, 2006). Ultimately, the failure to fully utilize these systems results in delayed HR service delivery, compromised decision-making, and an inability to shift the HR function from a reactive, administrative role to a proactive, strategic partner in achieving the NYSC's mandate. This study is therefore necessary to diagnose the specific factors (technical, human, and organizational) that constitute the major challenges to the effective utilization of Information Retrieval Systems for HR functions at the NYSC Headquarters, Abuja.

Research Question

What are the challenges faced by Staff of National Youth Service Corps (NYSC) Headquarters, Abuja when utilizing Information Retrieval systems for HR Functions?

Literature review

Historically, technical challenges have greatly limited the opportunity for IRSs-based efficiency and user satisfaction in human resource management. With frequent system downtime, poor internet connectivity, and an underdeveloped technological infrastructure persistently being pointed out as problems in many institutions with limited digital preparedness, an IRS essentially requires the infrastructure of communication technology coupled with good servers and capacity to store high volumes of HR data. If any of these components are lacking, information retrieval via any IRS will take time and sadden users, thereby reducing HR efficacy. As emphasized by Lu (2025), unreasonably low infrastructure responsiveness on digital HR platforms inhibits their consistent use.

Dahlbom et al (2020) further support that even organizations with advanced IRS capacities face challenges when integrating with existing suboptimal infrastructures. The operational failure of technical infrastructure exists more as a challenge against any scalability or reliability, thus making it difficult for IRS to support real-time decision-making. The above constraints point to perpetual ICT infrastructure investment as an imperative to have IRSs that are reliable and usable; without these investments, technical challenges stay as a moderator damaging the connection between IRS deployment and HR efficiency.

Funding problems also constrain the IRS deployment and sustainability of HR challenges. The burden associated with purchasing new systems, licensing, associated training, and maintenance is hard sometimes impossible for many institutions to carry. Digital transformation has rigid budgetary systems and competing priorities that normally do not favor allocation of funds; hence, Ochieng (2023) observes that such challenges are more rampant among public sector organizations. More than the startups that establish initial costs for system

acquisition are recurrent liabilities of cost involved with software upgrades and technical support.

Sobolieva (2025) notes that failure to plan financially for system upgrades usually results in underrated IRS platforms falling obsolete with time, thereby losing their viability in transforming HR. Roul et al (2024) have likewise noted that organizations by and large tend to place urgent operational imperatives before technology investments, thereby incurring debts to obsolete systems unable to adjust to the evolving HR requirements. These sets of financial challenges will delay any IRS implementation while denying any institution the opportunity of exploiting IRS advances. Hence, financial sustainability remains another variably critical impediment in determining the usefulness of IRS applications in HR management.

The human factor challenge constitutes another limitation to the use of IRS. Staff members' resistance to change, lack of ICT skills, and general illiteracy in using systems severely hold back the proper acceptance of information retrieval technologies. According to Armstrong and Taylor (2023), digital transformation in HR has got to do also with behavioral and cultural changes, which staff must adapt to regarding new ways of working. However, one major reason why employees resist change is that they feel their jobs could become redundant, or they lack confidence in being able to use the digital platform.

Heslina and Syahruni (2021) further argued that low ICT competencies reduce employee engagement with HR systems, as staff members prefer manual processes they are familiar with. In addition, Jayadeva, Shikhare, and Verma (2022) highlight that user training is often superficial, focusing only on initial orientation rather than sustained capacity building. Such underprepared staff, in turn, shy away from IRS platforms and their adoption suffers. These barriers related to human factors further demonstrate that the effectiveness of IRS is influenced not only by technical design but also by the readiness and adaptability of its users.

Organizational challenges further complicate the use of IRS in human resource management. Bureaucratic structures and the slow adoption of innovations, especially in public institutions, hinder timely decision-making and implementation of systems. Hamouche (2023) has observed that organizations with rigid hierarchies often experience lengthy approval processes for technology investments and thus miss opportunities for digital transformation. Belcourt et al (2022), argue that the inability of companies to respond with agility to market demands slows down the integration of IRS into HR practices, with many companies still bound by age-old administrative processes.

Bureaucracy impacts the procurement processes too, where protracted chains of approval decelerate the acquisition and installation of IRS platforms. Another issue is the overly cautious attitudes of public institutions towards technological innovations, relying on traditional systems that they feel are less risky. Such organizational hindrances contribute to the underutilization of IRS by waning institutional commitment, necessary for successful adoption. Bureaucratic inertia does indeed act as a big moderating force limiting IRS ability to produce intended HR outcomes.

Finally, IRS at full potential development is assured by some impediments like data protection and security, privacy-related issues, and sustainability challenges. Factors such as data breaches, unauthorized access to data, and not complying with data protection laws create a level of hesitation when it comes to digital platforms for HR. According to Kumar et al

(2024), since IRS systems handle sensitive employee information, for a sustainable trust the need to guarantee privacy by using encryption and blockchain frameworks. Bernard and Balog (2023) also emphasized the need for accountability and transparency in IRS design from the angle that any ethical issue can erode an institution's credibility.

Besides security considerations, sustainability challenges come into the picture when the organization does not secure long-term funding for IRS enhancement and becomes heavily dependent on external consultants for system maintenance. An observation by Vrontis et al (2023), claims that an overreliance on outside expertise deteriorates institutional capacity building, thus creating vulnerability in system continuity. The lack of sustainable strategies leads to circumspect systems with diminished user trust. Within the framework of the conception, these challenges will serve as moderating variables in shaping the relationship between IRS adoption and efficiency within HR, weakening or thwarting the intended outcomes. These challenges then require a holistic approach by all the parties that bring technical, financial, human, organizational, and security-related aspects together.

Research Methodology

The quantitative research methodology was used for this research with the descriptive survey design. The population of the study comprised 47 staff cutting across junior, senior and management staff. Total enumeration sampling technic was used for this study because the population is small and manageable. The questionnaire was used as the instrument for data collection. The data collected were analyzed using simple frequencies and percentages presented in tables for easy comprehension

Results and Discussion

Research Question: What are the challenges faced by Staff of National Youth Service Corps (NYSC) Headquarters, Abuja when utilizing Information Retrieval systems for HR Functions?

The study sought to investigate the challenges faced by staff of the National Youth Service Corps (NYSC) Headquarters, Abuja when utilizing Information Retrieval Systems for Human Resource functions. Table 1 to Table 4 gives the result of this survey.

Table 1: Technical Challenges Associated with IRS Use

S/No	Item	Frequency	Percentage (%)
1	Poor system integration	17	41.5
2	Outdated technology	15	36.6
3	Data migration issues	9	22.0
	Total	**41**	**100.0**

Source: Field Survey, 2025

As seen in Table 1, poor system integration (41.5%) and outdated technology (36.6%) are the most pressing technical challenges affecting IRS use at the NYSC Headquarters, while 22.0% cited data migration issues. In fact, these issues demonstrate that legacy infrastructures and fragmented systems do not allow for optimal performance. These were similar findings by Dahlbom et al. (2020), who argued that integration gaps and outdated software limit the potential of HR analytics and IRS systems. This finding is similar to Memon et al., (2022), who found out that insufficient technological upgrades to often lead to inefficiencies in HR data management systems, these outcomes also apply.

Table 2: Human-Related Challenges Affecting IRS Use

Item	Frequency	Percentage (%)
Resistance to change	20	48.8
Limited digital literacy among HR staff	21	51.2
Total	**41**	**100.0**

Source: Field Survey, 2025

In Table 2, 51.2% of the respondents said that digital illiteracy among HR staff was the most important impediment; 48.8% of cases referred to the resistance to change. These results show that human factors profoundly limit the implementation of IRS. This outcome goes with Hamouche (2023), in which he found that employee resistance and inadequate IT competency usually delay the digital transformation in HR units. It also supports Heslina and Syahruni (2021), emphasizing that the outcome of technology performance would be mostly directed by the human resource competency.

Table 3: Organizational Barriers Hindering Effective IRS Utilization

Item	Frequency	Percentage (%)
Insufficient budget allocation	24	58.5
Weak policy frameworks	17	41.5
Total	**41**	**100.0**

Source: Field Survey, 2025

According to the findings in Table 3, 58.5% of respondents mentioned underfunding as the first organisational hindrance, followed by 41.5% who indicated underwhelming policy frameworks. Overall, this conveyed that IRS expansion was constrained on fiscal and regulatory grounds. Such findings agree with Sobolieva (2025), who reported that strategic investments and well-defined governance structures were essential for successful digitalisation of HR. It also echoed with Mohammed (2021), highlighting that even the best possible HRIS would not give enduring efficiency if not supported by proper policy.

Table 4: Environmental Challenges Affecting IRS Use

Item	Frequency	Percentage (%)
Poor power supply	25	61.0
Unstable internet connectivity	16	39.0
Total	**41**	**100.0**

Source: Field Survey, 2025

In Table 4, 61.0% of respondents indicated poor power supply as one of the environmental challenges, whereas 39.0% reported unstable internet connectivity as the other major challenge. These infrastructural deficiencies are common constraints in public sector digitisation. This is in line with findings by Vahdat (2022), who noted that power and connectivity problems severely disrupt IT-based HR functions in developing contexts. Likewise, Lu (2025) asserted that sustainable IRS deployment within HR departments requires reliable infrastructure.

Conclusion

The study on the Challenges in the Utilization of Information Retrieval Systems (IRS) for Human Resource (HR) Functions at the National Youth Service Corps (NYSC) Headquarters, Abuja, has highlighted that while the adoption of technology is critical for modern administrative efficiency, significant hurdles remain. The findings reveal that the effective deployment of IRS within the NYSC is largely hampered by Technical Challenges, Human-Related Challenges, Organizational Barriers and Environmental Challenges Affecting IRS Use. Furthermore, human capital challenges such as a lack of technical training for HR staff and a palpable resistance to shifting from manual to digital processes continue to undermine the system's potential. Additionally, administrative and funding constraints play a major role. The study indicates that insufficient budgetary allocation for system maintenance and software upgrades, coupled with bureaucratic bottlenecks, prevents the NYSC from maintaining a state-of-the-art information retrieval environment. Therefore, for the NYSC to fully leverage Information Retrieval Systems for optimal HR management, there must be a holistic overhaul that addresses not just the procurement of hardware, but also the consistent training of staff and the improvement of supporting infrastructure. Addressing these challenges is not merely a technical necessity but a strategic imperative to ensure the scheme can effectively manage its vast network of staff and corps members in a timely and secure manner.

Recommendation

In order to overcome the challenges unraveled by the study, it is recommended that NYSC solve these technical and organisational impediments through the provision of expeditious budgetary allocation for technological upgrades, improved system integration, stronger policy frameworks, and robust ICT infrastructure with reliable internet connectivity, power supply and training of its staff. These will provide a conducive environment for effective IRS utilisations and sustainable HR operations at the NYSC Headquarters.

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