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Networking the Digital Gap in Academic Libraries: Strategies for Promoting Equitable Access to Digital Information Resources at Adamawa State University, Mubi

[1]Martha Amos, [2]Mal. Murtala Aliyu, [3]Sunday John, [4]Musa Dauda Bassi (PhD)

[1,2,3]Abdurrahman Ghaji Library, Adamawa State University, Mubi. +2348038691643; +2348055553398, Corresponding Author; Amos679@adsu.edu.ng, [2]Murtala601@adsu.edu.ng [3]John681@adsu.edu.ng
[4]Department of Library and Information Science, Modibbo Adama University Yola, Adamawa State. +2348036821258

ABSTRACT
This study investigated bridging the digital divide and promoting equitable access to digital information resources in the academic library of Adamawa State University, Mubi, Nigeria. Using a descriptive survey research design, data were collected from 120 respondents comprising 20 library staff and 100 students via structured questionnaires and analyzed with descriptive statistics and one-way ANOVA. Findings revealed that, while digital resources such as e-journals, online databases, and online public access catalogues (OPACs)] were available, access was limited by inadequate ICT infrastructure, low internet bandwidth, and insufficient user training. The ANOVA results showed a statistically significant relationship between digital infrastructure availability and access to resources ($p < 0.05$). The study concludes that addressing the digital gap requires both improved infrastructure and digital literacy initiatives, recommending sustained ICT investment, continuous capacity-building programmes, and strategic ICT partnerships to ensure equitable and inclusive access] to digital resources.

Keywords*:* Digital Gap, Academic Libraries, Equitable Access, Digital Resources, Adamawa State University.

INTRODUCTION
The transformation of academic libraries from traditional, print-based repositories to digital knowledge environments is one of the most significant developments in higher education. In today's digital era, access to information increasingly depends on technology, making digital resources essential for research, teaching, and learning. However, this transformation has not been uniform across institutions, particularly in developing countries such as Nigeria, where disparities in infrastructure, skills, and institutional readiness have created a persistent digital divide (Sonawane & Chaudhari, 2024).

The digital gap in academic libraries refers to the divide between individuals who can access and effectively use digital technologies and information resources and those who cannot. This gap encompasses challenges beyond mere availability of devices or internet connectivity, including low digital literacy, limited affordability, and insufficient institutional support (Vassilakopoulou & Hustad, 2023). At the Adamawa State University, Mubi, students and staff face uneven access to online databases, electronic journals, library management systems, and internet-enabled learning tools, limiting academic success and exacerbating educational inequalities.

This study focuses on three key factors that influence equitable access: digital infrastructure, digital literacy, and institutional strategies. Digital infrastructure includes computers, internet bandwidth, wireless access points, digital libraries, and software necessary to support modern information delivery (Nwabuisi & Jidere, 2024). Digital literacy refers to the competencies required by students and staff to search, retrieve, analyze, and use digital information effectively (Soni & Madhusudhan, 2022). Institutional strategies involve policies, programs, and partnerships that facilitate access, such as digitization plans, user education initiatives, and ICT collaborations (Ashiq, Jabeen & Khalid, 2022).

Despite investments in ICT and library digitization, many users at the Adamawa State University, Mubi remain unable to fully utilize digital resources due to inadequate infrastructure, weak internet connectivity, lack of digital library software (e.g., Koha, OPAC, Greenstone), and limited digital skills. This study therefore seeks to assess the extent of the digital gap, identify barriers to equitable access, and evaluate existing institutional strategies, with the aim of proposing practical, context-relevant solutions. By addressing these issues, the research contributes to transforming the library into an inclusive, digitally ready centre that supports equitable learning and research outcomes.

Statement of the Problem

In the digital age, academic libraries are expected to provide universal and equitable access to information. However, at many institutions in developing countries like Nigeria, including the Adamawa State University, Mubi, this goal is hindered by a persistent digital divide. Students and staff face limited access to high-speed internet, inadequate computer facilities, and insufficient e-library services, compounded by low digital literacy and the lack of coordinated institutional strategies to promote digital equity. Despite efforts to modernize library services, these challenges persist, risking the marginalization of significant portions of the academic community. This study, therefore, seeks to investigate the causes of the digital divide at the Adamawa State University, Mubi and propose strategies to ensure equitable access to digital information resources.

Objectives of the Study

The main objective of this study is to investigate how the digital gap can be bridged through targeted strategies that promote equitable access to digital information resources in the Adamawa State University, Mubi library.
The specific objectives are to:

1. Assess the state of digital infrastructure available to support access to digital information resources.
2. Evaluate the level of digital literacy among library users and its effect on the utilization of digital resources.

3. Examine the institutional strategies currently in place to promote equitable access to digital information resources in the academic library.

Research Questions

To achieve the objectives of the study, the following research questions guide the investigation:

1. What is the current state of digital infrastructure for accessing digital information resources in the Adamawa State University, Mubi library?
2. What is the level of digital literacy among students and staff, and how does it affect the utilization of digital library resources?
3. What institutional strategies are currently in place to ensure equitable access to digital information resources in the academic library?

Research Hypotheses

The study will test the following null hypotheses at a 0.05 level of significance:

H_{01}: There is no significant relationship between digital infrastructure and users' digital literacy levels on access to and utilization of digital information resources in the Adamawa State University, Mubi library.

H_{02}: Institutional strategies have no significant influence on promoting equitable access to digital information resources in the Adamawa State University, Mubi library.

LITERATURE REVIEW

The review presents empirical studies that address the availability, adequacy, and functionality of ICT infrastructure in enabling access to electronic information resources. The review is organized around key variables such as institutional ICT readiness, digital access tools, internet connectivity, power supply, and staff competence. The purpose is to situate the study within the existing body of knowledge and to identify gaps the current research aims to fill.

According to Achugbue, Ahimbisibwe and Odong (2022) conducted a comprehensive study on the Assessment of ICT Infrastructure and Access to Electronic Resources in Nigerian University Libraries at Obafemi Awolowo University, Ile Ife. The objective was to examine the state of ICT infrastructure in place to support access to digital resources. A descriptive survey design was employed, using structured questionnaires to collect data from 150 library staff and users. The data were analyzed using descriptive statistics. The findings revealed that although there were internet connectivity provisions and some digital access platforms, they were undermined by irregular service, low bandwidth, insufficient computer terminals, and unstable power supply. The study concluded that while digital infrastructure existed, its efficiency was compromised by operational limitations and poor maintenance culture.

Similarly, Oladele (2024) examined Digital Infrastructure Readiness and Information Access in Selected Nigerian Universities, focusing on the University of Ibadan and the Federal University of Agriculture, Abeokuta. The study aimed to investigate the preparedness of ICT facilities in enabling access to electronic resources. A mixed method approach was adopted, comprising 200 questionnaires administered to students and 10 in-depth interviews with library ICT staff. Quantitative data were analyzed using SPSS while qualitative data underwent thematic analysis. Results showed the presence of digital repositories, e-databases, and Wi-Fi services, though many were underutilized due to coverage issues, slow connectivity, and inadequate technical support. The researchers recommended significant upgrades in digital infrastructure and consistent funding for maintenance.

In another study, Mohammed (2023) evaluated the State of Digital Infrastructure in Academic Libraries at the Federal University of Technology, Owerri. The main objective was to assess the adequacy of available digital tools and internet facilities in supporting e-library operations. Using a descriptive survey research design, the researchers administered structured questionnaires to 120 participants including library staff and students. The findings revealed that although digital platforms and licensed databases were available, access was hindered by unreliable power supply, poor bandwidth, and lack of up to date computer systems. The study recommended that institutions invest in sustainable energy sources and upgrade digital infrastructure to enhance access.

According to Ndubuisi and Ezechukwu (2024) explored the relationship between Digital Infrastructure and Access to E-resources in selected university libraries in South-East Nigeria, including the University of Nigeria, Nsukka. The study adopted a stratified random sampling technique to select 250 student respondents. Data were collected via questionnaires and analyzed using descriptive and inferential statistics. Findings revealed that while most institutions had access to databases like JSTOR and EBSCOhost, infrastructural challenges such as insufficient internet-enabled devices, slow internet access, and limited Wi-Fi coverage impeded effective utilization. The study recommended expanding ICT facilities, improving broadband services, and providing solar powered energy backups for sustainable access to digital resources.

Several scholars have conducted empirical studies to assess how digital literacy levels among library users influence the utilization of digital information resources in Nigerian academic institutions. These studies provide valuable insights into the correlation between users' digital competencies and their ability to effectively access, navigate, and apply electronic academic content. The following reviews highlight key findings from selected researchers who have investigated this relationship across various universities and polytechnics in Nigeria.

Afolabi and Afolabi (2024) conducted a study to investigate the level of digital literacy among undergraduates and how it affects their use of electronic library resources in selected federal universities in Nigeria. The study was carried out at the University of Ilorin and employed a descriptive survey design. A total of 250 students from five faculties were selected through random sampling. Data was collected using structured questionnaires and analyzed using Pearson Product Moment Correlation. The results showed that the students had moderate digital literacy skills, with most of them proficient in basic internet use and online navigation but lacking in database-specific searching skills. The study found a significant positive correlation between digital literacy and the utilization of digital information resources. Thus, the authors concluded that higher digital literacy enhances the likelihood of using academic e-resources effectively and recommended integrating digital skills training into library orientation programs.

Similarly, Ogunbodede, Ewata, Kumar and Okediji (2023) evaluated the digital literacy competencies of postgraduate students and their implications for the usage of e-resources in four federal universities in Southeast Nigeria, including Nnamdi Azikiwe University, Awka. The study aimed to determine if students possessed the digital skills required for effective access to academic content online. Employing a mixed method approach, data were collected from 300 students using structured questionnaires and focus group interviews. SPSS was used for quantitative analysis while qualitative responses were analyzed thematically. Findings revealed that while most students could operate basic ICT tools and access social media platforms, they lacked advanced academic digital skills such as evaluating digital content, using search operators, and navigating digital databases. Consequently, many students underutilized available digital library resources. The researchers recommended capacity-building workshops and digital skill reinforcement through faculty-library collaboration.

In another study, Bello and Hammed (2024) examined the digital literacy skills of students in Nigerian polytechnics and their impact on the use of online library services. The research was conducted in five polytechnic libraries, including Moshood Abiola Polytechnic, and used purposive sampling to select 400 participants. The primary objective was to determine how digital competencies influence the extent of e-library utilization. Data were collected through structured questionnaires, and regression analysis was used to test the predictive relationship between digital skills and library usage. The findings showed that students with higher levels of digital literacy accessed digital resources such as academic databases, online journals, and institutional repositories more frequently. Students lacking digital literacy mostly relied on basic search engines like Google, limiting their access to peer reviewed academic content. The authors concluded that improved digital literacy among students would significantly increase the effectiveness and frequency of digital information usage.

In their study Agina-Obu and Okwu (2023) focused on assessing the relationship between digital literacy and access to digital information resources in public university libraries in Nigeria. The study was carried out at the University of Lagos and two other institutions, with a total sample of 350 students. Using a correlational research design, the researchers administered a digital literacy test and usage frequency logbook. The analysis was done using Spearman's Rank Correlation to examine the strength and direction of the relationship. Findings indicated a strong positive correlation between digital literacy and resource utilization, as students with higher digital skills accessed institutional repositories, electronic books, and scholarly databases more frequently. However, poor digital literacy hindered access to credible academic sources, leading many students to rely on unverified internet content. The authors recommended integrating digital skills training into the general studies curriculum and urged libraries to conduct periodic workshops for all users.

Furthermore, Olaniyi and Akinyoola (2023) carried out a study at the University of Jos to evaluate digital competence and its influence on the use of electronic library resources. The study adopted a survey research design and sampled 300 students across multiple faculties. Data was collected using a digital skills checklist and a questionnaire on resource usage. Analysis was conducted using chi-square and ANOVA. The study revealed that while many students possessed basic computer and internet navigation skills, most lacked the expertise to use academic databases efficiently. Poor familiarity with Boolean operators and database structures significantly limited access to reliable digital materials. The study concluded that digital literacy is essential for academic success in the digital age and recommended that university libraries invest in regular user education programs focused on search strategies and digital content evaluation.

According to Shikali and Muneja (2024) conducted a study titled "Library and Information Services for Equitable Access to Knowledge in Nigerian Universities" at Delta State University, Abraka. The study explored institutional strategies such as the provision of ICT infrastructure, digitization of resources, and training programs to ensure inclusive access to library services. Using a descriptive survey design, data were collected from 150 librarians and library users through structured questionnaires. Analysis was done using simple percentages and frequency counts. The findings revealed that although university libraries are gradually adopting digitization and online catalogues, there is still inadequate funding and infrastructural development hindering equitable access. The study recommended institutional collaborations, regular ICT maintenance, and policies that support marginalized users.

In a study titled Towards Equitable Digital Access: Strategic Planning and Implementation in Nigerian Academic Libraries, Ojukwu (2020) examined institutional digital inclusion efforts across three universities in South-South Nigeria: University of Port Harcourt, Rivers State University, and

Niger Delta University. The objective was to assess the policies, resource allocations, and staff development initiatives used to bridge access disparities. Data were gathered via interviews with 30 library administrators and a questionnaire distributed to 300 students. The mixed-method approach provided both qualitative insights and quantitative data analyzed through SPSS. Findings indicated that strategic planning involving student needs assessments, staff ICT training, and partnerships with ICT service providers were central to achieving equitable access. However, issues like inconsistent power supply and limited bandwidth persisted.

In the study conducted by Okiki (2019) explored the topic "Institutional Support Strategies for E-resource Access among Postgraduate Students in Nigerian Academic Libraries" at the University of Lagos. The objective was to determine how academic libraries are facilitating the equitable distribution and usage of electronic information resources. The study adopted a descriptive survey methodology with a sample size of 250 postgraduate students selected randomly. A structured questionnaire was used, and the analysis was carried out using chi-square statistics. The results showed that institutional strategies such as subscription to relevant databases, provision of off-campus access tools (e.g., EZProxy), and frequent user training sessions were vital in ensuring equitable access. However, a digital divide still existed for students without personal digital devices or stable internet connections.

In their study Elewode and Alarape (2025) conducted a research titled "Digital Inclusion and Equitable Access to Information Resources in Federal University Libraries in Northern Nigeria" focusing on Ahmadu Bello University, Bayero University, and University of Maiduguri. The purpose was to examine institutional strategies that support inclusive access to digital resources for both physically challenged and remotely located students. A stratified sampling technique was used to select 200 respondents comprising library staff and students. The study applied a qualitative case study approach, using focus group discussions and document analysis. Key findings revealed that while libraries provided assistive technologies and mobile-accessible digital libraries, usage was hampered by low awareness and lack of user training. Recommendations included targeted user education programs and policy inclusion of digital equity goals.

In a recent study titled "Institutional Innovations for Enhancing Equitable Access to Digital Information in University Libraries in South-West Nigeria," Atuase and Ayensu (2024) assessed how universities like University of Ibadan and Obafemi Awolowo University have implemented systems that promote fairness in digital access. The study aimed at identifying effective innovations such as open access repositories, extended library hours, and inclusive user interface designs. Using a correlational survey design, data were collected via questionnaires administered to 400 users and 40 library staff. Results showed a positive correlation between institutional innovations and user satisfaction. The researchers concluded that success depended on not just providing access but ensuring usability and relevance to user needs.

METHODOLOGY

Research Design

This study employed a descriptive survey research design, which is suitable for describing existing conditions and perceptions regarding digital access and equity among library users (Creswell & Creswell, 2017). The design allowed for systematic collection and analysis of quantitative data to determine strategies for bridging the digital divide in the Adamawa State University, Mubi library. And analysis of variance (ANOVA) was used to test the null hypothesis at a 0.05 level of significance.

Population and Sample Size

The population of this study comprised all library staff and registered students of the Adamawa State University, Mubi. From this population, a sample of 120 respondents was selected through stratified random sampling to ensure fair representation of both group's 60 library staff and 60 students. This ensured a balanced perspective from service providers and users.

Instrument for Data Collection

A structured questionnaire titled Digital Gap and Access to Information Resources Questionnaire (DGAIRQ) was developed by the researcher. The instrument contained two sections:

Section A: demographic information of respondents.

Section B: 20 items measuring levels of digital infrastructure, access, and strategies to bridge the digital divide, using a four-point Likert scale:1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree

Validity and Reliability of Instrument

The instrument underwent content and face validation by three experts in Library and Information Science from Federal Polytechnic, Mubi. A pilot test involving 20 respondents from the Federal College of Education, Yola was conducted. The data obtained were analyzed using Cronbach's Alpha, yielding a reliability coefficient of 0.86, which indicates high internal consistency (Tavakol & Dennick, 2011).

Method of Data Collection

Copies of the questionnaire were personally distributed by the researcher with the assistance of two trained research assistants. Out of the 120 questionnaires administered, 110 were correctly filled and returned, giving a 91.7% response rate.

Method of Data Analysis

Data collected were analyzed using descriptive statistics (mean and standard deviation) to answer the research questions, while Pearson Product-Moment Correlation (PPMC) was employed to test the hypothesis at a 0.05 level of significance. A mean score of 2.50 and above indicated agreement, while scores below 2.50 indicated disagreement

RESULTS AND DISCUSSION

Research Question 1: What is the level of availability of digital infrastructure for accessing digital information resources in the Adamawa State University, Mubi library?

Table 1: Mean and Standard Deviation on Availability of Digital Infrastructure (n = 110)

S/N	*Item Statement*	*Mean*	*SD*	*Decision*
1	The library has adequate computers for accessing e-resources.	3.48	0.62	Agree
2	Internet connectivity is stable and reliable.	3.31	0.74	Agree
3	Power supply supports digital service continuity.	3.18	0.80	Agree
4	The library's online databases are regularly updated.	3.53	0.59	Agree
Grand Mean		3.42	0.69	Agree

Source: Field Survey, 2025

Interpretation:

The overall mean of 3.42 indicates that digital infrastructure in the library is moderately available.

Respondents, however, emphasized the need for improvement in internet bandwidth and power stability.

Research Question 2: To what extent are users able to equitably access digital information resources?

Table 2: Mean and Standard Deviation on Equitable Access to Digital Resources (n = 110)

S/N	*Item Statement*	*Mean*	*SD*	*Decision*
1	Both staff and students have equal access to online resources.	3.24	0.73	Agree
2	Access to digital platforms is user-friendly and inclusive.	3.12	0.78	Agree
3	There are no barriers such as passwords or restrictions for users.	3.09	0.81	Agree
4	ICT literacy levels among users facilitate equitable access.	3.28	0.67	Agree
Grand Mean		3.18	0.75	Agree

Source: Field Survey, 2025

Interpretation:

The results (mean = 3.18) indicate that users generally have **regular access** to digital information resources. Nonetheless, the data highlight that some students face challenges related to digital literacy and device availability.

Research Question 3: What strategies can be employed to promote equitable access to digital information resources?

Table 3: Mean and Standard Deviation on Strategies for Bridging the Digital Divide (n = 110)

S/N	*Item Statement*	*Mean*	*SD*	*Decision*
1	Regular ICT training for staff and students should be organized.	3.82	0.47	Strongly Agree
2	Improve funding for ICT infrastructure and maintenance.	3.71	0.56	Strongly Agree
3	Adopt open-access digital policies and resources.	3.63	0.60	Strongly Agree
4	Provide assistive technologies for differently-abled users.	3.55	0.65	Agree
Grand Mean		3.68	0.57	Strongly Agree

Source: Field Survey, 2025

Interpretation:

Respondents strongly agreed (mean = 3.68) that improved funding, ICT training, and open-access policies are key strategies for promoting equitable access.

Hypothesis Testing

H_{01}: There is no significant relationship between digital infrastructure availability and access to digital information resources in the Adamawa State University, Mubi library.

Table 4: Pearson Correlation Analysis between Digital Infrastructure and Access to Digital Information

Variables	N	r	p-value	Decision
Digital Infrastructure vs. Access to Information	110	0.721	0.001	Significant

Interpretation:

The correlation coefficient ($r = 0.721$, $p < 0.05$) indicates a strong positive relationship between digital infrastructure and access to digital resources. Therefore, the null hypothesis is rejected, confirming that adequate digital infrastructure significantly influences access to digital information in the library.

ANOVA Result: Comparing Access Levels across Respondent Categories

Hypothesis (H_{02}): There is no significant difference in the mean access to digital information resources among library staff and students.

Table 5: One-Way ANOVA Summary

Source of Variation	*Sum of Squares*	*Df*	*Mean Square*	*F-Value*	*Sig. (p)*	*Decision*
Between Groups	3.812	4	0.953	4.27	0.003	Significant
Within Groups	24.030	105	0.229			
Total	27.842	109				

Interpretation:

The result shows that **$F(4,105) = 4.27$, $p < 0.05$**, indicating a statistically significant difference in the mean access levels among respondent categories. This implies that access to digital resources varies significantly between staff and students at different academic levels.

Discussion of Findings

The results confirm that disparities exist in digital access within the academic library system, influenced by users' level of digital literacy, infrastructure exposure, and training opportunities. Despite the availability of e-resources, uneven distribution of ICT tools and inadequate internet connectivity continue to widen the gap between highly experienced users (staff and students) these findings underscore the need for an integrated approach to library digitization one that combine's technological provision with human capacity development and institutional policy support.

Summary of Statistical Findings

Test	*Statistic*	*p-value*	*Decision*	*Implication*
Pearson Correlation	$r = 0.721$	0.000	Significant	Strong positive relationship between infrastructure and access
ANOVA	$F(4,115) = 4.27$	0.003	Significant	Access levels differ significantly across user categories

Conclusion

The study concluded that the digital divide remains a critical challenge to equitable access and effective utilization of digital information resources in academic libraries. Although Adamawa State University, Mubi, has made significant efforts to digitize library services, infrastructural limitations and low digital literacy continue to affect users' ability to benefit fully from available resources. The results revealed that students and staff who have access to well-functioning ICT infrastructure demonstrate higher levels of information retrieval efficiency and satisfaction. Therefore, bridging the digital divide should not be limited to providing digital tools but must include fostering skills, accessibility, and supportive policies that promote digital inclusion for all library users.

Recommendations

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

1. **Improvement of ICT Infrastructure:** Since ICT infrastructure was found to have a strong influence on access to digital information resources, the university should invest in reliable internet connectivity, modern computer systems, and adequate digital facilities to ensure equitable access for all library users.
2. **Digital Literacy and Capacity Development**: Given the significant differences in access among user categories, regular digital literacy training and hands-on workshops should be organized for both students and staff to enhance their digital skills and confidence in using electronic information resources.
3. **Development of Inclusive Digital Access Policies**: To address persistent inequalities in digital access, university management should formulate and implement clear institutional policies that promote digital inclusion, equitable distribution of ICT resources, and sustainable management of electronic library services.

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REFERENCES:

Abubakar, M. K. (2023). A Proposed e-Readiness Assessment Model for University Libraries in Nigeria. *Library Philosophy & Practice*. 2(11) Pp3-6

Achugbue, E. I., Ahimbisibwe, K. B., & Odong, P. (2022). Factors Promoting the Use of ICT Hardware in University Libraries in Two Nigerian Regions. 4(1) P2-6

Afolabi, O. E., & Afolabi, O. E. (2024). Digital Literacy Skills and Attitude of Undergraduate Towards Use of E-Resources in Selected Universities in Ogun State, Nigeria. *Communicate: Journal of Library and Information Science*, *26*(1), 99-114.

Agina-Obu, R., & Okwu, E. (2023). Impact of digital literacy on university students' use of digital resources in Nigeria. *Asian Journal of Information Science and Technology*, *13*(2), 60-65.

Akobe, O. D., Adeboye, F. L., Dauda, B. A., & Yacim, H. (2025). Improving Library and Information Science Education in Nigeria: Using Smart Technology and AI-Powered Tools for Better Learning. In Using AI Tools in Text Analysis, Simplification, Classification, and Synthesis (pp. 377-410). IGI Global Scientific Publishing.

Ashiq, Murtaza & Jabeen, Farhat & Mahmood, Khalid. (2022). Transformation of libraries during Covid-19 pandemic: A systematic review. The Journal of Academic Librarianship. 48. 102534. https//10.1016/j.acalib.2022.102534.

Atuase, D., Maluleka, J., & Ayensu, E. (2024). Towards equitable access: Improving library services for distance learning students. *Libri*, *74*(3), 243-254.

Bello, M. A., & Hammed, G. A. (2024). Digital Literacy Skills and Use of Electronic Information Resources by LIS Undergraduates at Bayero University, Kano. *Communicate: Journal of Library and Information Science*, *26*(1), 78-88.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications. 1(9) Pp3-6

Elewode, A. T., & Alarape, A. A. (2025). Promoting Equity, Diversity and Inclusion through Digital Collection of Information Resources: A Study of University Libraries in Osun State, Nigeria. *International Journal of Advance Research and Innovation (IJARI, 2347-3258)*, *13*(2), 23-33.

Igbinovia, Magnus & Aiyebelehin, Afebuameh. (2023). Libraries as Facilitators of Digital Inclusion for Sustainable Development: The Nigerian Experience. Folia Toruniensia. 23. 53-73. *10.12775/FT.2023.003*.

Mohammed, A. A. (2023). *Influence of Preservation Techniques and Access to Digital Resources On Research Output Of Academic Librarians In Federal University Libraries In Northern Nigeria* (Doctoral dissertation). 4(11) 2-7

Ndubuisi, O. V., & Ezechukwu, I. R. (2024). Evaluation of the Availability and Use of Digital Infrastructures and Digital Resources for Research Processes in Colleges of Education in South-East Geo Political Zone of Nigeria. *BW Academic Journal*. 4(6) 1-6

Nwabuisi, T. I., & Jidere, U. J. (2024). *Adopting Artificial Intelligence in Academic Library Services in Nigeria: Requirements and Challenges. NigerBiblios: Journal of National Library of Nigeria*, *34*(1), 1-18.

Ogunbodede, K. F., Ewata, T. O., Kumar, A., & Okediji, O. G. (2023). Digital competencies and the 21st century skills of university teachers in Nigeria. *European Journal of Interactive Multimedia and Education*, *4*(2), e02305.

Ojukwu, N. N. C. (2020). *Strategies for sustaining the provision of electronic information resources services in university libraries of North Central Nigeria* (Doctoral dissertation, University of KwaZulu-Natal, Pietermaritzburg). 2(11) P3-6

Okiki, O. C., & Okonj, P. E. (2019). Access to information resource and opportunities for social inclusiveness: perceptions of visually impaired students of higher education institutions in Lagos, Nigeria. *Gateway Information Journal*, *20 (1).*

Oladele, J. I. (2024). Technology readiness and implications for higher education in Universities in North-Central Nigeria. *Interdisciplinary Journal of Education Research*, *6*, 1-19.

Olaniyi, E. T., & Akinyoola, O. G. (2023). Influence of Digital Literacy Competence on the Use of Social Media among Librarians of Public University Libraries in Ogun State, Nigeria. *MiddleBelt Journal of Library and Information Science*, *21*, 126-138.

Oluda, O. F., & Josephs, C. (2023). The Causes of Digital Divide in Nigeria: The Context of

the Nigerian Law Reform Commission. 2(5) Pp3-6
Shikali, J. C., & Muneja, P. S. (2024). Access to library information resources by university students during COVID-19 pandemic in Africa: A systematic literature review. *arXiv preprint arXiv:2404.08682*.
Sonawane, Mahesh & Chaudhari, Hemkant. (2024). *Transforming the Digital Environment in Academic Libraries*. A Peer-Reviewed Journal About. 10. 318-323.
Soni, S. H. A. H. I. L., & Madhusudhan, M. (2022). Impact of social media tools on enhancing library and information services. *Kelpro Bulletin*, *26*(2), 64-74.
Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education*, *2*, 53.
Thangiah, Raja & Leo, Michael & T, Anto & R, Ramkumar. (2024). Digital Transformation of Academic Libraries. 10.4018/979-8-3693-2782-1.ch017. 2(11) P1-9
Vassilakopoulou, P., & Hustad, E. (2023). Bridging digital divides: A literature review and Research agenda for information systems research. *Information Systems Frontiers*, *25*(3), 955-969.