

**ROLE OF DIGITAL LIBRARIES IN ENHANCING ACCESS TO EDUCATION
RESOURCES IN ISA KAITA LIBRARY, FEDERAL POLYTECHNIC KADUNA,
STATE, NIGERIA**

Muhammad Zubaida Nalado

Mzubaida17@gmail.com

07037355002

University Library, Nasarawa State University Keffi.

Garba Shambo Mohammed PhD, (CLN)

07032605330, garba.mohd@futminna.edu.ng

University Library Services,

Federal University of Technology Minna, Niger State, Nigeria

Hauwa Zayyana

Centre for Economics and Finance,

Ahmadu Bello University, Zaria

0806 597 2454, hauwauzayyana@gmail.com

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)	$N / (1 + N \cdot e^2)$	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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