

ASSESSMENT OF DIGITAL LIBRARY SERVICES AND THEIR IMPACT ON RESEARCH AND LEARNING IN EKANEM I. BRAIDE LIBRARY, FEDERAL UNIVERSITY LAFIA.

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Abstract

This study titled 'assessment of digital library services and their impact on research and learning in Ekanem I. Braide library, Federal University Lafia, aim to examine the rate of

utilization of the available digital library resources and its impact on research productivity and learning outcomes in Ekanem I. Braide Library in Federal University of Lafia. The study employed descriptive survey design which enhance the collection of large data from respondents. The population of the study consist of undergraduate students, postgraduate students, academic staff and library staff. The study also adopts Cochran population sample size and simple random technique. Questionnaire were the instrument used for data collection and was administer online using different students' platforms and analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviations. The findings of this study reveal that digital library services at Ekanem I. Braide Library, Federal University Lafia play a significant role in enhancing both research productivity and learning outcomes. The study recommended among others that: The university should invest in improving ICT infrastructure, including reliable internet connectivity and adequate computer facilities, to enhance access to digital library services. Regular training and orientation programs should be organized to improve users' digital literacy and information retrieval skills. Adequate funding should be allocated to support the maintenance and development of digital library systems, Library staff should receive continuous professional development to ensure effective delivery and management of digital library services among others.

Keywords: *Assessment, Digital Library Services, Research, Academic Libraries*

Introduction

In higher education institutions, academic libraries serve as specialized centers that provide access to information resources and services essential for teaching, learning, research, and community development (IFLA, 2015). They function as the intellectual hub of universities by supporting curriculum delivery, faculty scholarship, and student learning outcomes (ACRL, 2016). Traditionally, academic libraries focused on print collections such as books, journals, and reference materials. However, the rapid advancement of information and communication technologies (ICTs) has transformed them into hybrid and digital knowledge centers, offering access to a wide range of electronic resources. In developing countries, including Nigeria, academic libraries play a critical role in national development by supporting research in key sectors such as agriculture, health, education,

and technology (Aina, 2014), despite challenges such as inadequate funding, poor infrastructure, and limited access to up-to-date resources.

Central to the mission of academic libraries are learning and research, which are core activities within universities. Research is a systematic, organized, and objective process of investigating phenomena to generate new knowledge or validate existing knowledge (Creswell & Creswell, 2018). It involves identifying problems, reviewing relevant literature, collecting and analyzing data, and drawing evidence-based conclusions. Research may be basic, aimed at expanding theoretical understanding, or applied, focused on solving practical problems. In academic environments, research promotes intellectual advancement, innovation, and evidence-based decision-making. It also relies on ethical principles such as honesty, transparency, and integrity to ensure credibility and reliability (Resnik, 2020). Learning, on the other hand, is enhanced through access to credible and diverse information resources, enabling students to develop critical thinking, analytical skills, and independent study habits. Academic libraries therefore play a crucial role in supporting both teaching and research by providing the necessary information infrastructure.

In the contemporary academic environment, digital library services have become fundamental to advancing research and learning activities. Digital libraries are no longer mere repositories of electronic resources; they function as strategic knowledge infrastructures that enhance scholarly communication, facilitate interdisciplinary research, and support evidence-based learning. Digital library services refer to a suite of electronic

resources, platforms, and systems that provide users with remote access to information resources such as e-books, e-journals, databases, institutional repositories, and multimedia content. Through advanced search tools, metadata systems, and remote authentication technologies, users can efficiently retrieve relevant scholarly materials, thereby improving the quality and depth of academic inquiry (Nayak, 2025). The increasing volume of digital scholarly content and the growing demand for instant access to information have driven academic libraries to transition from traditional print-based systems to hybrid and fully digital service models.

The availability of digital library services has significantly transformed information-seeking behavior among students and researchers. Users are increasingly shifting from dependence on physical library spaces to online, flexible, and self-directed access to knowledge resources. Digital platforms support innovative teaching and learning approaches such as blended learning, online coursework, and independent research. Furthermore, in the African and Nigerian context, digital libraries help address challenges such as inadequate print collections, high costs of scholarly publications, and geographical barriers to information access. They provide cost-effective access to a wide range of academic materials and support remote learning environments (Shikali & Muneja, 2024). Despite these advantages, the effectiveness of digital library services depends on factors such as user awareness, accessibility, digital literacy, and the reliability of technological infrastructure.

Assessment is therefore essential for determining the effectiveness and impact of digital library services. It is a systematic process of collecting, analyzing, and interpreting information to evaluate the quality, efficiency, and outcomes of services or systems (Fitzpatrick, Sanders, & Worthen, 2011). In the context of digital libraries, assessment involves examining how well digital resources, technologies, and support services meet user needs and contribute to learning, research productivity, and institutional goals. It includes evaluating usage patterns, user satisfaction, accessibility, and the overall value of digital collections (Bertot, 2016). Importantly, digital library assessment focuses not only on system performance but also on user outcomes, such as improved academic performance, enhanced research productivity, and better learning experiences. Despite numerous studies on digital libraries, many have focused on availability and usage without adequately assessing their impact on research productivity and learning outcomes.

The Federal University of Lafia Library, popularly known as the Ekanem I. Braide Library, provides a blend of traditional and digital services to support its academic community. In line with global best practices, the library offers access to e-books, e-journals, open-access databases, and institutional repository platforms that extend information access beyond physical boundaries. These digital services play a vital role in supporting undergraduate learning, postgraduate research, and faculty scholarship by ensuring continuous access to current and authoritative academic resources regardless of time and location. The library's mission to promote research excellence, lifelong learning,

and inclusive access to information highlights the strategic importance of digital library services in achieving institutional objectives.

Against this backdrop, assessing digital library services in academic libraries becomes necessary not only to measure their availability and usage but also to evaluate their contribution to research productivity and learning outcomes. Such assessment provides empirical evidence that can guide library management decisions, inform policy formulation, and support the continuous improvement of digital services within the Federal University of Lafia and other academic institutions.

Statement of the Problem

The rapid advancement of information and communication technologies (ICTs) has transformed the operations of academic libraries, leading to the introduction of digital library services such as electronic databases, online catalogs, institutional repositories, and virtual reference services. These services are expected to enhance access to information, support research activities, and improve teaching and learning outcomes in higher education institutions. In Nigerian universities, including the Federal University of Lafia, significant investments have been made to develop digital library infrastructures to meet the growing information needs of students and academic staff.

Despite these developments, concerns persist regarding the effective utilization, accessibility, and actual impact of digital library services on research productivity and learning outcomes. Anecdotal evidence suggests that many users may be unaware of available digital resources, lack the necessary skills to use them effectively, or encounter

challenges such as poor internet connectivity, inadequate training, and limited technical support. Consequently, the expected benefits of digital library services may not be fully realized.

Specifically, in the Ekanem I. Braide Library of the Federal University of Lafia, there is limited empirical evidence assessing the extent to which digital library services are available, accessible, and effectively utilized by students and staff, as well as how these services influence their research activities and learning experiences. Without such evidence, library administrators and university management may find it difficult to make informed decisions regarding policy formulation, resource allocation, staff training, and service improvement.

Although several studies have been conducted on the provision and utilization of digital library resources, many have not adequately examined their impact on research productivity and learning outcomes among users. This gap in the literature underscores the need for a comprehensive assessment of digital library services. It is against this backdrop that this study seeks to assess digital library services and their impact on research productivity and learning outcomes in the Federal University of Lafia.

Research Questions

This study seeks to provide answers to the following research questions:

1. What digital library services are available at Ekanem I. Braide Library, Federal University Lafia, and what is the quality of these services?

2. What is the level of usage of digital library services by students and researchers at Ekanem I. Braide Library?
3. How do digital library services impact the research productivity and learning outcomes of students and researchers at Federal University Lafia?
4. What challenges hinder the effective adoption and use of digital library services at Ekanem I. Braide Library?

LITERATURE REVIEW

Availability of Digital Library Services in Academic Libraries

Digital library services have become a cornerstone of contemporary academic librarianship, reflecting the shift from traditional physical collections to digitally mediated knowledge ecosystems. As Nayak (2025) observes, these services including electronic journals, e-books, online databases, institutional repositories, digital reference services, and remote access platforms play a central role in supporting teaching, learning, and research in higher education. By providing round-the-clock access to information, digital libraries remove temporal and spatial barriers, enabling students, researchers, and academic staff to engage with scholarly materials anytime and from any location.

This shift has fundamentally redefined the role of academic libraries. Whereas traditional libraries primarily served as custodians of print collections, digital libraries now function as active facilitators of knowledge creation and dissemination. They provide

integrated platforms that support literature searches, data retrieval, and access to globally recognized research outputs, while also promoting institutional visibility through open-access and repository systems. Digital libraries have also enabled collaboration across disciplines, fostering interdisciplinary research that would be difficult to achieve in print-only environments (Shikali & Muneja, 2024).

However, the effectiveness of these services is not solely dependent on their availability. Scholars argue that factors such as system usability, content relevance, and alignment with users' academic needs critically influence adoption and meaningful engagement. Shikali and Muneja (2024) highlight that, despite the widespread adoption of digital library platforms across African universities, service quality remains uneven due to variations in technological infrastructure, inconsistent funding, and policy gaps. In Nigeria specifically, Owate (2024) notes that while federal universities have invested in electronic resources, disparities exist in both access levels and integration into academic workflows. In some institutions, digital platforms are well embedded in research and coursework, whereas in others, resources remain underutilized due to insufficient staff training, low user awareness, or poorly designed interfaces.

Furthermore, the literature indicates that user expectations and behaviors significantly shape the effectiveness of digital library services. Modern users increasingly demand intuitive search tools, personalized recommendations, and seamless authentication mechanisms. When platforms fail to meet these expectations, students and

researchers may resort to less credible open internet sources, which can negatively affect the quality of academic work (Nayak, 2025). This underscores the importance of user-centered design, continuous training, and effective communication regarding available digital resources.

Critically, while much research acknowledges the benefits of digital libraries, there remains a gap in institution-specific empirical assessments. Most studies focus on general trends in Africa or Nigeria but rarely provide detailed insights into service quality, utilization patterns, and the impact on academic outcomes within individual institutions. This gap justifies the present study at the Ekanem I. Braide Library, Federal University of Lafia, which seeks to evaluate the availability, usability, and effectiveness of digital library services, as well as the challenges affecting their adoption and utilization.

Assessment and Utilization of Digital Library Systems

Assessing digital library systems involves evaluating not only the availability of resources but also how users engage with them. Digital library resources such as e-books, e-journals, e-Granary, online reference materials, and serial publications, among others, are made available on various digital platforms to ensure effective accessibility, retrieval, and utilization (Isaac & Aboh, 2023). Utilization studies often examine factors such as frequency of access, user satisfaction, and barriers to use. For example, research on digital reference resources in federal universities in Nigeria has identified several challenges limiting utilization, including inadequate funding, power failures, high subscription costs,

rapid changes in ICT, and limited staff training factors that directly influence the effectiveness of digital service delivery. These findings underscore that the mere availability of digital resources does not guarantee their adoption; continuous user training and adequate infrastructural support are essential.

Other assessments of digital service use among Nigerian university students reveal variations in access levels and user engagement. Although studies conducted among postgraduate students in Kaduna State indicate the availability of digital resources, they also suggest that usage levels require further empirical investigation to better understand actual user behavior and preferences. These patterns reflect broader challenges across developing countries, where the adoption of digital library services often outpaces user readiness and institutional support systems.

Impact of Digital Library Service on Research Productivity and Learning Outcomes.

Digital library services are widely recognized as critical drivers of research productivity in higher education institutions. Research productivity often reflected in the quality of scholarly outputs, efficiency of research processes, publication rates, and depth of literature engagement is increasingly shaped by access to digital information systems. Digital library services such as electronic journals, online databases, institutional repositories, and citation management tools enable researchers to access current, credible, and peer-reviewed scholarly content, thereby strengthening the research process (Borgman, 2019).

Empirical evidence suggests that digital library services enhance research productivity by significantly reducing the time required to locate and retrieve relevant literature. Through advanced search tools, indexing systems, and full-text access, researchers are able to conduct more comprehensive literature reviews and identify existing research gaps with greater accuracy (Tenopir, Volentine, & King, 2020). Compared to print-based collections, digital libraries support rapid information discovery, cross-referencing, and continuous updating of research materials, all of which contribute to improved research efficiency.

Studies conducted in African and Nigerian university contexts demonstrate a positive relationship between the use of digital library services and research productivity, particularly among postgraduate students and academic staff. Okiki & Ashiru (2022) found that frequent use of electronic databases improved researchers' confidence, writing quality, and citation practices. However, the study also revealed that limited awareness of subscribed databases and inadequate user training reduced the overall impact of digital library services on research output.

Critically, much of the existing literature evaluates the impact of digital library services on research productivity using perception-based indicators rather than objective performance metrics such as publication counts, citation indexes, or collaborative research outputs. While user perception is important in assessing service value, it does not always correspond with measurable productivity outcomes. According to Nicholas, Boukacem-Zeghmouri, & Herman, (2021), researchers often report satisfaction with digital library

services even when their actual use of specialized academic databases remains minimal, suggesting a gap between perceived and actual impact.

Overall, digital library services positively influence research productivity by improving access to scholarly resources, enhancing research efficiency, and increasing research visibility. However, the extent of this impact is moderated by factors such as digital literacy, infrastructure, user awareness, and institutional support. The dominance of perception-based assessments, coupled with the scarcity of institution-specific empirical studies, highlights the need for localized evaluations.

Challenges Hindering Effective Adoption and Use of Digital Library Services

Despite the increasing availability of digital library services in academic libraries, their effective adoption and sustained use remain constrained by several interrelated challenges. These challenges are particularly pronounced in developing countries, where infrastructural, institutional, and human capacity issues significantly shape the utilization of digital information resources. Existing literature identifies technological limitations, low digital literacy, inadequate awareness, policy gaps, and organizational constraints as major barriers to effective digital library adoption (Aina, 2014; Nicholas, Boukacem-Zeghmouri, & Herman, (2021).

One of the most frequently reported challenges is inadequate information and communication technology (ICT) infrastructure. Reliable internet connectivity, sufficient bandwidth, and a stable electricity supply are essential for accessing digital library

platforms. However, studies in Nigerian academic institutions reveal that frequent network downtime, slow internet speeds, and erratic power supply hinder seamless access to electronic databases and online repositories (Okiki & Ashiru, 2022). These infrastructural constraints often discourage users from relying on digital library services for sustained academic work, thereby limiting their potential academic impact.

Another critical barrier is low digital literacy and limited information retrieval skills among students and researchers. Effective use of digital library systems requires the ability to formulate search strategies, navigate databases, evaluate online information, and utilize advanced search tools. Adeleke and Emeahara (2019) note that many students lack these competencies, resulting in superficial use of digital resources or overdependence on general search engines such as Google. This skills gap undermines the value of subscribed academic databases and reduces the effectiveness of digital library investments.

Closely related to digital literacy is the issue of limited awareness of available digital library services. Several studies indicate that a significant proportion of students and even academic staff are unaware of the range of electronic resources provided by their institutions or how to access them remotely (Nicholas, Boukacem-Zeghmouri, & Herman, 2021). Inadequate user education programs, insufficient orientation sessions, and poor communication strategies contribute to this problem, leading to the underutilization of valuable digital resources.

Institutional and policy-related challenges further hinder effective adoption. Weak or poorly implemented digital library policies, a lack of institutional mandates for repository use, and insufficient funding allocation negatively affect the sustainability of digital library services. Crow (2018) argues that without clear policies on resource acquisition, access management, and content preservation, digital library initiatives risk becoming fragmented and unsustainable. In many Nigerian universities, inconsistent funding limits the ability of libraries to renew database subscriptions, upgrade systems, or expand digital collections (Aina, 2014).

Human resource constraints also play a significant role. The successful management of digital library services depends on skilled library personnel who can maintain systems, support users, and provide training. However, studies reveal shortages of adequately trained ICT-competent librarians, coupled with limited opportunities for professional development (Okiki & Ashiru, 2022). This gap affects service quality, system maintenance, and user support, thereby reducing user confidence in digital library platforms.

Finally, socio-economic factors such as limited access to personal computing devices and the high cost of internet data further restrict digital library use, particularly among undergraduate students. These factors exacerbate existing inequalities in access to academic information, reinforcing digital divides within university communities (Borgman, 2019).

Research Methodology

This study adopted a descriptive survey research design. A descriptive survey is a research design used to collect data from a population or sample in order to describe existing conditions, attitudes, opinions, or characteristics without manipulating variables (Creswell & Creswell, 2018; Kumar, 2019). This design was considered appropriate for collecting data on users' perceptions, usage patterns, and the impact of digital library services on research and learning. The survey method facilitated the systematic collection of quantitative data from a large population and enabled the generalization of findings (Leavy, 2022). The study was conducted at Ekanem I. Braide Library, Federal University of Lafia.

The population of the study comprised 4,511 undergraduate students, 92 postgraduate students, and 5 library staff, giving a total population of 4,608 individuals.

The study adopted a stratified random sampling technique. The population was divided into four strata: undergraduate students, postgraduate students, academic staff, and library staff. Respondents were then selected from each stratum using simple random sampling to ensure fair representation and reduce sampling bias (Creswell & Creswell, 2023).

Cochran's (1963) population sample size determination method was used to calculate the appropriate sample size. This statistical method is designed to determine a representative sample size for large or infinite populations, ensuring precision within a

specified margin of error and confidence level (Cochran, 1977). The formula used is expressed as follows:

$$n_0 = \frac{Z^2 \times p \times q}{e^2}$$

Where:

n_0 = initial sample size

Z = Z-score corresponding to the confidence level (e.g., 1.96 for 95%)

p = estimated population proportion (0.5)

q = 1 – p (0.5)

e = margin of error (0.05)

$$n_0 = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} \quad n_0 = \frac{3.8416 \times 0.5 \times 0.5}{0.0025} \quad n_0 = \frac{0.9604}{0.0025} \quad n_0 = 384.16$$

For finite populations, the adjusted formula was:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

Where:

N = population size

n = final sample size

$$n_0 = \frac{384}{\frac{1+384-1}{4,608}} \quad n_0 = \frac{384}{\frac{1+384}{4,608}} \quad n_0 = \frac{384}{1.08} \quad n_0 = 356$$

The total number of populations drawn from this study is =**356**

Results and Discussion

This section presents the analysis of data collected from respondents on the assessment of digital library services and their impact on research productivity and learning outcomes in Ekanem I. Braide Library, Federal University of Lafia. The data were analyzed using descriptive statistics such as frequencies, percentages, mean scores, and standard deviations. A decision benchmark of 2.50 was used, where mean scores of 2.50 and above were considered acceptable, while mean scores below 2.50 were regarded as unacceptable. The results are presented according to the research questions that guided the study, with each table followed by a discussion of the findings.

Research Question 1: What digital library services are available in Ekanem I. Braide Library, Federal University of Lafia?

Table 1: Digital Library Services Available in Ekanem I. Braide Library

S/N	Items	SA	A	D	SD	N	FX	$\bar{X}$	Decision
1	Online Database	140	95	76	45	356	1042	2.93	Accepted
2	E-Journals	150	80	95	31	356	1061	2.98	Accepted
3	Institutional Repository	80	105	150	21	356	956	2.69	Accepted
4	E-Granary	55	46	155	100	356	768	2.16	Unaccepted
5	Online Public Access (OPAC)	95	75	89	97	356	880	2.47	Unaccepted
6	Remote Access	135	90	73	58	356	1014	2.85	Accepted
7	Learning Management System (LMS)	98	95	75	88	356	915	2.57	Accepted
8	Virtual Reference / Ask-a-Librarian	115	89	82	70	356	961	2.70	Accepted

The findings reveal that core digital library services such as online databases ($\bar{X}$ = 2.93), e-journals ($\bar{X}$ = 2.98), and remote access ($\bar{X}$ = 2.85) are widely available and recognized by users. This underscores the library's alignment with modern academic

information needs, where access to current scholarly materials is critical. However, services such as E-Granary ($\bar{X} = 2.16$) and OPAC ($\bar{X} = 2.47$) were rated below the acceptable benchmark, indicating limited awareness or accessibility challenges. This suggests that while the library has made progress in providing essential digital services, certain platforms remain under-promoted or underutilized. The findings imply a need for improved user orientation, awareness campaigns, and system optimization to ensure balanced utilization of all available services.

Research Question 2: What is the level of usage of digital library sources in Ekanem I. Braide Library?

Table 2: Level of Usage of Digital Library Sources

S/N	Items	VHU	HU	MU	LU	N	FX	$\bar{X}$	Decision
1	Online Databases	109	92	120	35	356	987	2.78	Accepted
2	E-books	95	100	110	51	356	951	2.68	Accepted
3	E-journals	105	95	100	56	356	961	2.70	Accepted
4	OPAC	90	85	120	61	356	916	2.57	Accepted
5	Institutional Repository	70	80	130	76	356	856	2.40	Unaccepted
6	eGranary	40	60	120	136	356	716	2.01	Unaccepted
7	LMS	85	90	110	71	356	901	2.53	Accepted
8	Virtual Reference	65	70	95	126	356	786	2.20	Unaccepted
9	Download Materials	75	120	85	76	356	906	2.54	Accepted
10	Remote Access	80	90	100	86	356	876	2.46	Unaccepted

The results indicate that users frequently utilize primary academic resources such as online databases ($\bar{X} = 2.78$), e-books ($\bar{X} = 2.68$), and e-journals ($\bar{X} = 2.70$), reflecting their importance in supporting academic tasks. However, services like eGranary ($\bar{X} = 2.01$), institutional repositories ($\bar{X} = 2.40$), and virtual reference ($\bar{X} = 2.20$) recorded low usage

levels. This disparity suggests that users prioritize direct research materials over support or supplementary services. Additionally, the low usage of remote access ($\bar{X} = 2.46$) may indicate technical or accessibility challenges. These findings highlight the need for user education, improved system usability, and awareness programs to encourage broader engagement with underutilized services.

Research Question 3: What is the impact of digital library services on research productivity and learning outcomes among users?

Table 3: Impact of Digital Library Services on Research Productivity and Learning Outcomes

S/N	Items	SA	A	D	SD	N	FX	$\bar{X}$	Decision
1	Helps find relevant literature quickly	125	98	78	55	356	1005	2.82	Accepted
2	Improves quality of research work	130	95	75	56	356	1011	2.84	Accepted
3	Reduces time spent searching	120	100	80	56	356	996	2.80	Accepted
4	Improves originality of work	115	105	85	51	356	996	2.80	Accepted
5	Enables faster completion of assignments	125	98	78	55	356	1005	2.82	Accepted
6	Enhances understanding of research structure	110	100	90	56	356	976	2.74	Accepted
7	Improves referencing and citation skills	105	110	85	56	356	976	2.74	Accepted
8	Increases use of scholarly sources	120	102	84	50	356	1004	2.82	Accepted

The findings demonstrate a consistently positive impact of digital library services on both research productivity and learning outcomes. All items recorded mean scores above the acceptable threshold, indicating strong user agreement. Digital resources enhance efficiency by reducing search time and improving access to relevant literature, which in turn contributes to higher-quality research outputs. Additionally, users reported improvements in referencing skills, originality, and overall academic performance. These results affirm that digital libraries function as essential academic support systems rather than mere repositories, significantly influencing the effectiveness and quality of scholarly work.

Research Question 4: What challenges hinder the effective adoption of digital library services in Ekanem I. Braide Library?

Table 4: Challenges Hindering Effective Adoption of Digital Library Services

S/N	Items	SA	A	D	SD	N	FX	$\bar{X}$	Decision
1	Poor internet connectivity	145	97	65	49	356	1050	2.95	Accepted
2	Power supply interruptions	140	95	70	51	356	1036	2.91	Accepted

S/N	Items	SA	A	D	SD	N	FX	$\bar{X}$	Decision
3	Insufficient computers	130	100	80	46	356	1026	2.88	Accepted
4	Slow system response	125	105	85	41	356	1026	2.88	Accepted
5	Frequent technical failures	120	110	90	36	356	1026	2.88	Accepted

The results reveal that infrastructural and technical challenges significantly hinder the effective utilization of digital library services. Poor internet connectivity ($\bar{X} = 2.95$) and unstable power supply ($\bar{X} = 2.91$) are the most critical barriers, reflecting broader systemic issues in the Nigerian context. Additionally, limited access to computers and frequent system failures further discourage usage. These challenges directly impact user experience and reduce the effectiveness of digital library services. Addressing these issues through improved infrastructure, increased funding, and enhanced technical support is essential to maximize the benefits of digital library services and ensure sustainable usage.

Recommendations

Base on this research findings, the following recommendations are made:

1. The university should invest in improving ICT infrastructure, including reliable internet connectivity and adequate computer facilities, to enhance access to digital library services.
2. Regular training and orientation programs should be organized to improve users' digital literacy and information retrieval skills.
3. Adequate funding should be allocated to support the maintenance and development of digital library systems.

4. Library staff should receive continuous professional development to ensure effective delivery and management of digital library services.

Conclusion

This study demonstrates that digital library services are integral to enhancing research productivity and supporting learning outcomes at Ekanem I. Braide Library, Federal University of Lafia. The availability and effective utilization of electronic resources such as e-books, e-journals, online databases, and institutional repositories facilitate timely access to credible information, improve the quality of scholarly work, and promote academic success among students and staff. The findings further indicate that while digital library services provide significant benefits, their impact is moderated by infrastructural limitations, inadequate user training, and constrained funding. Addressing these challenges through sustained investment in ICT infrastructure, capacity-building programs for users, and strategic resource allocation will enhance the usability, accessibility, and overall effectiveness of digital library services. Consequently, strengthening digital library systems is essential for advancing the university's research capabilities, supporting evidence-based learning, and promoting excellence in higher education.

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