



AVAILABILITY, RELEVANCE, AND UTILIZATION OF E-RESOURCES IN UNIVERSITY LIBRARIES IN ADAMAWA STATE, NIGERIA

By

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Abstract

This study evaluates e-resource utilization in university libraries in Adamawa State, Nigeria, focusing on the availability, relevance, and usage of e-resources. The study employed a descriptive survey design, using checklists and questionnaires to collect data from 125 library patrons across Federal, State, and Private universities. Data were analyzed using mean and standard deviation, while hypotheses were tested using One-Way ANOVA. The findings reveal that e-books, e-encyclopedias, and online databases are the most widely available e-resources. In contrast, e-dictionaries, multimedia databases, and indexing & abstracting databases are less accessible. Patrons perceive most e-resources as relevant to their information needs, though some resources require improvement to meet user expectations satisfactorily. The study also found that patrons engage highly with available e-resources, though certain categories, such as online databases and multimedia databases, are underutilized. The ANOVA results indicate significant differences in e-resource utilization and perceived relevance across Federal, State, and Private University libraries (F-value = 2002.848, p-value = 0.000; F-value = 2824.914, p-value = 0.000). This suggests that institutional factors influence patrons' engagement with e-resources. The study concludes that e-resources play a crucial role in academic and research activities but recommends addressing challenges such as limited internet access, insufficient training, and outdated infrastructure to optimize e-resource utilization in Adamawa State University libraries.

Keywords: E-resources, University Libraries, Information needs, Library patrons, Online databases, Library services, Internet access, Infrastructure

Background of the Study

The integration of technology into various sectors of society has significantly transformed the way individuals access and utilize information. Information and Communication Technology (ICT) has become a fundamental component of everyday activities, including communication, banking, healthcare, and education. In academic institutions, particularly university libraries, the adoption of ICT has facilitated the transition from traditional print materials to digital resources, commonly referred to as electronic resources (e-resources). According to Adebisi (2019), libraries and information centers in Nigerian higher institutions, research institutions, and corporate organizations have adopted various forms of e-

resources to support learning, research, and knowledge dissemination.

University libraries play a crucial role in supporting the academic mission of higher institutions by providing access to scholarly resources that aid teaching, learning, and research. As Adeyemi and Oyebola (2020) assert, the quality of a university is largely measured by the strength of its library. Over time, university libraries have witnessed a paradigm shift from print-based collections to digital and electronic content, enabling easier access to scholarly materials. Dauda (2020) defines a university library as an entity attached to an institution of higher learning, primarily serving students, faculty, and researchers by providing relevant



information resources. These libraries have evolved to incorporate digital technologies, offering a variety of e-resources such as e-books, e-journals, online databases, and multimedia content to meet the growing academic and research needs of patrons.

Despite the increasing availability of e-resources in university libraries, their relevance and utilization remain key areas of concern. Ezema and Ogbonna (2019) note that academic libraries must continuously adapt to technological advancements to ensure efficient retrieval and dissemination of information. The effectiveness of e-resources depends on factors such as accessibility, content relevance, user engagement, and technical support. However, challenges such as inadequate ICT infrastructure, limited internet access, and insufficient training on e-resource usage have hindered their optimal utilization in Nigerian university libraries (Dauda, 2020). The evaluation of e-resource utilization is essential in understanding how well university libraries meet the information needs of patrons. Utilization can be assessed through user statistics, feedback, and measuring the impact of e-resources on academic research and learning outcomes. Continuous assessment and adaptation are necessary to optimize library services and improve user experiences.

Statement of the Problem

University libraries play a critical role in supporting academic research, teaching, and learning through the provision of electronic resources (E-resources). These resources, including e-books, e-journals, online databases, and digital repositories, enhance access to scholarly materials beyond the limitations of print collections. In Adamawa State, university libraries in federal, state, and private institutions are expected to provide adequate e-resources that are relevant to users' information needs and encourage effective utilization by library patrons.

However, the extent to which e-resources are available, relevant, and utilized in university libraries in Adamawa State remains uncertain. Studies have shown that some university libraries in Nigeria face challenges such as insufficient e-

resources, limited awareness, and low utilization levels (Adeyemi and Oyebola, 2020). If e-resources are not adequately available, students and researchers may struggle to access vital academic materials. Likewise, if available e-resources do not align with the academic and research needs of patrons, their relevance is questioned, potentially leading to underutilization. Furthermore, even when relevant e-resources are provided, various factors may hinder their effective utilization, such as limited ICT infrastructure, lack of user training, and poor internet access.

Despite the increasing digitalization of academic resources worldwide, there is a lack of empirical studies assessing the availability, relevance, and utilization of e-resources in university libraries across Adamawa State. Understanding the extent of availability, how relevant these resources are to patrons' information needs, and the level of utilization will help address gaps in library services. Therefore, this study seeks to evaluate the availability of e-resources in university libraries in Adamawa State, assess their relevance to patrons' academic and research needs, and determine the extent to which they are utilized. The findings will provide insights into existing gaps and offer recommendations for improving e-resource accessibility and utilization in university libraries in Adamawa State.

Objectives of the Study

1. Identify the available e-resources in university libraries in Adamawa state.
2. Examine the relevance of e-resources to the information needs of patrons in university libraries in Adamawa State
3. Determine the extent patrons utilize e-resources in university libraries in Adamawa State.

Research Question

1. What are the available e-resources in University libraries in Adamawa State?
2. How relevant are the e-resources to the information needs of patrons in university libraries in Adamawa State?
3. To what extent do the patrons utilize e-resources in University libraries in Adamawa State?



Hypotheses

H₀₁: There is no significant difference in the mean rating among Federal, State and Private University libraries as regards the relevance of e-resources to the information needs of the patrons in Adamawa State.

H₀₂: There is no significant difference in the mean rating among Federal, State and Private University libraries as regards the extent patrons utilize e-resources in Adamawa state.

Literature Review

Library: Libraries, along with their information resources and services, are essential for the conduct of teaching, learning, and research activities in universities. A university is considered the pinnacle of academic and research work, and libraries established to provide information resources and services to support these activities are known as academic libraries. A library is a collection of resources, such as books, journals, databases, and other materials, which are organized and maintained to support learning, research, and community needs (Kelefa, 2017). Libraries have different dimensions: a physical library is a physical space where resources are housed and users can access them (Nwalo, 2020), while a digital library is a virtual space where resources are accessible online (Madu, 2019). Library services refer to programs and support offered by libraries to facilitate user needs, including research assistance and literacy training (Barrett, 2024).

University Libraries: A university library is essential in supporting academic and research activities by providing information resources and services to meet the needs of students, faculty, and staff (Ezema and Ogbonna, 2019). Its role includes identifying users' information needs and acquiring appropriate materials, which are then processed, organized, and made accessible. The effectiveness of a library's services depends on the availability and management of resources, which include print,

non-print, and electronic materials. University libraries serve various categories of users, including lecturers, undergraduates, postgraduates, non-teaching staff, and the wider community. These libraries support the core functions of universities—teaching, learning, and research. They contribute significantly to national development through knowledge generation, technological innovation, and human capital development (Dauda, 2020). A strong library often reflects the quality of the academic institution it serves.

E-Resources: E-resources are electronic information sources that process, organize, and disseminate data to enhance outcomes (Adeyemi and Oyebola, 2020). The development of e-resources has become a global priority, reflecting their significant role in modern society (Igwe & Ejedafiru, 2020). These technologies are central to everyday activities, whether in communication, banking, entertainment, or professional settings. Olaofe (2020) highlights that libraries and information centers in Nigeria, particularly in higher learning institutions, research organizations, and industries, offer various forms of e-resources. Academic libraries must acquire and make these resources readily accessible to users, as the rise of information communication technology has fundamentally transformed the information system.

E-resources Utilization: this refers to the use and benefit derived from library information resources and services. Nwalo (2020) linked utilization to Fishbein's Theory of Reasoned Action, emphasizing that use depends on individual intentions, attitudes, and perceived benefits. Kelefa (2017) noted that users select information resources based on satisfaction and needs. E-resources have become crucial in information retrieval, with studies often exploring ICT competence and the relevance of content in aligning e-resources with users' academic needs and preferences (Barrett, 2024). This enhances the library's role in supporting research and learning.

Library patrons: Library patrons refer to individuals who use the resources and services of



the library. Library patrons refers to individuals who has paid an annual membership fee to the library for the purpose of borrowing items from the library, or who enters the library physically or electronically to make use of library resources. The broad objective is to provide collections and services in support of the main activities of the parent institutions, which have been widely identified as teaching, learning and research (Adebisi, 2019).

Methodology

Research Design: A descriptive research design, through the administration of questionnaires and checklists, was used to collect and analyze data for this study.

Population: The study population consisted of 23,462 library patrons from Modibbo Adama

University (MAU), Adamawa State University (ADSU), and the American University of Nigeria (AUN), sharing similar characteristics such as location, gender, and age.

Sample and Sampling: The Cluster Sampling Technique was used to ensure a reliable representation from all faculties in the universities. This method selects clusters from a population and then individuals within those clusters, making it cost-effective and efficient for dispersed populations (Cohen et al., 2013). Faculties were randomly chosen, and a sample size of 375 from the 23,462 population was selected, following Naing, Winn and Nordin. (2016). This recommendation is based on the formula $n = (Z^2 \times P \times (1 - P)) / E^2$. The table below indicates the cluster using the equal distributing method:

Sample Size					
Modibbo Adama University, Yola					
Faculties	Social & management	Agriculture	Education	Life Science	Environment al Science
Respondents	25	25	25	25	25
Adamawa State University, Mubi					
Faculties	Management Science	Agriculture	Education	Arts	Science
Respondents	25	25	25	25	25
American University of Nigeria, Yola					
Faculties	Buss & Entrepreneur	Engineering	Law	Arts and Science	Information technology
Respondents	25	25	25	25	25

Instruments for Data Collection: The major research instruments the researcher used in this study are a Checklist and a questionnaire (Appendix 1 p. 56). A checklist is a list of things to be checked or done. A checklist is a document that enumerates items or tasks to be accomplished (Barrett, 2024). Identifying the availability of e-resources is one of the objectives of this study. The checklist comprises the short-listed items of e-resources followed by a Column of “Available” and “Not Available” whereby the researcher checked the e-

resources availability or otherwise and tick the appropriate Column.

The questionnaire is the second instrument to be used for data collection. The questionnaire is designed based on the facts gathered from the literature reviewed, preliminary observation, and experience of the researcher. The questionnaire is titled “Evaluation of e- resources utilization questionnaire (ERUQ)”. The ERUQ is divided into two sections, A & B. Section A is used to collect demographic data on the subject of the study. Section B comprises of



5 clusters. The Clusters I & II carry 15 items statements each, while cluster III & IV carries 6 item statements each.

Cluster I item statements 1-15 are structured on four-point scale of Strongly Agreed (SA), Agreed (A), Strongly Disagreed (SD), Disagreed. The cluster II item statements 1-15 are structured on four-point scale of Very High Extent (VHE), High Extent (HE), Low Extent (LH), and Very Low Extent (VLE). While cluster III & IV item statements 1 – 6 are structured on four-point scale of Strongly Agreed (SA), Agreed (A), Strongly Disagreed (SD), and Disagreed (D). Respondent are instructed on how to respond to the questionnaire appropriately.

Method of Data Collection: The research questionnaire was administered by the researcher and research assistant to the current library patrons found in the library and collect it back after filling. A total of 375 copies of the ERUQ were distributed among patrons, 125 in each university among the

three 3 universities. Meanwhile, the researcher and research assistant went around the libraries in the universities with the Checklist to identify the available and unavailable e-resources listed items on the checklist.

Method of Data Analysis: The data collected for this study was analyzed using descriptive and inferential statistics. Mean and standard deviation were used to answer all the research questions, while Analysis of Variance (ANOVA) was used to test the hypothesis at 0.05 level of significant. An ANOVA (Analysis of Variance) is a statistical test used to determine whether there are significant differences between the means of three or more independent groups. It assesses the variability within and between groups to determine if at least one group mean differs significantly from the others. ANOVA is particularly useful when comparing multiple groups simultaneously while controlling for overall Type I error rates (Nwalo, 2020).

RESULTS

Research Question 1: What are the available e-resources in University libraries in Adamawa State?

E-resource availability in Adamawa State’s university libraries was analyzed using a checklist and frequency percentages. The bar chart below illustrates the distribution of e-books, e-journals, e-theses, and e-dictionaries, highlighting access levels across the universities.

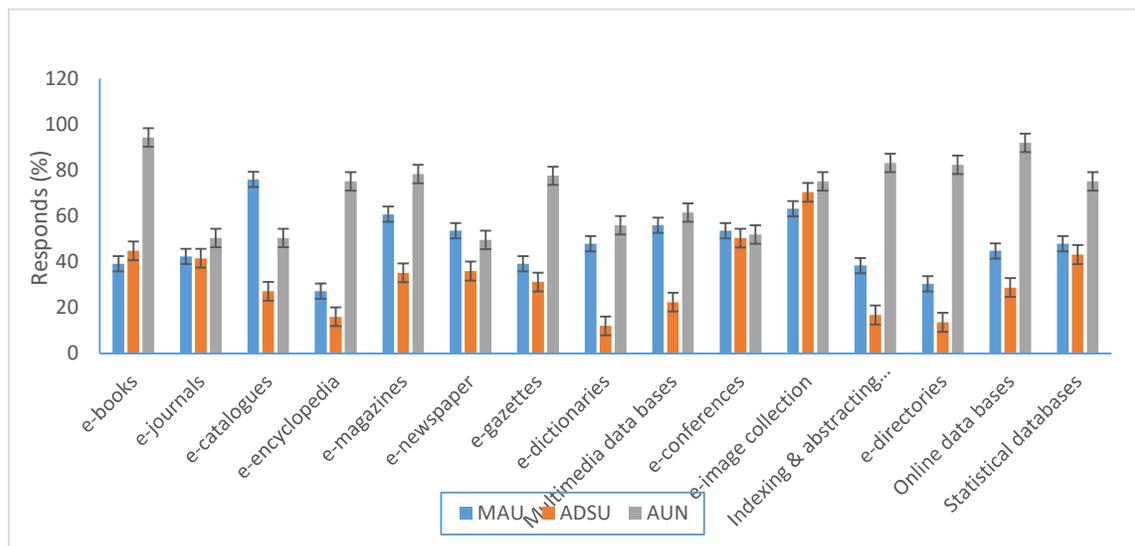


Figure 1: Available E-Resources in University Libraries in Adamawa State



The availability of e-resources varies across the three universities in Adamawa State: Modibbo Adama University (MAU), Adamawa State University (ADSU), and the American University of Nigeria (AUN). MAU, a federal university, offers a moderate range of e-resources, with e-catalogues (76%) and multimedia databases (56%) being notable, though lower in e-encyclopedias (27.2%) and indexing databases (38.4%). ADSU, a state university, has the lowest availability, with e-dictionaries (12%), indexing databases

(16.8%), and multimedia databases (22.4%) lagging, possibly due to budget constraints. However, e-conferences (50.4%) and e-magazines (35.2%) show relative strength. AUN, a private university, leads in e-resource availability, excelling in e-books (94.4%), e-encyclopedias (75.2%), and online databases (92%), reflecting its strong funding and digital resource investment. These disparities highlight how university type impacts e-resource accessibility in Adamawa State.

Research Question 2: How relevant are the e-resources to the information needs of patrons in university libraries in Adamawa State?

The relevance of e-resources to the information needs of university library patrons in Adamawa State is analyzed using mean and standard deviation, as presented in Table 1.

Table 1: Relevance of E-Resources to the Information Needs of University Library Patrons in Adamawa State

S/n	Items	Mean	Standard Deviation	Remark
1	E-books in my library are relevant to my information needs	3.15	0.24	Agree
2	E-journals in my library are relevant to my information needs	3.01	0.63	Agree
3	E-catalogues in my library are relevant to my information needs	2.72	0.07	Agree
4	E-encyclopedias in my library are relevant to my information needs	2.18	0.49	Disagree
5	E-magazines in my library are relevant to my information needs	3.12	0.62	Agree
6	E-newspapers in my library are relevance to my information needs Correct all below using examples above	2.97	0.85	Agree
7	E-gazettes in my library are relevant to my information needs	3.55	0.72	Agree
8	E-dictionaries in my library are relevant to my information needs	2.52	0.96	Agree
9	E-thesis in my library are relevant to my information needs	3.84	0.57	Agree
10	E-conferences in library are relevance to my information needs	3.14	0.77	Agree
11	E-image collection in my library are relevant to my information needs	2.08	0.55	Disagree
12	Online databases in my library are relevant to my information needs	2.39	0.57	Disagree



13	Multimedia databases in my library are relevant to my information needs	1.98	0.60	Disagree
14	Statistical databases in my library are relevant to my information needs	3.28	0.26	Agree
15	E-thesis in my library are relevant to my information needs	3.30	0.59	Agree
Grand mean		2.88	0.57	

The results in Table 1 indicate that respondents found most e-resources relevant to their information needs. E-theses (mean = 3.84), e-gazettes (mean = 3.55), and statistical databases (mean = 3.28) were highly rated, while e-encyclopedias (mean = 2.18), multimedia databases (mean = 1.98),

and image collections (mean = 2.08) were considered less relevant. The grand mean of 2.88 suggests overall positive perceptions, though gaps exist in certain e-resources such as e-encyclopedias, multimedia databases, online databases, and image collections, indicating potential issues with accessibility, availability, or user preference.

Research Question 3: To what extent do the patrons utilize e-resources in University libraries in Adamawa State?

The utilization of e-resources by university library patrons in Adamawa State is analyzed using mean and standard deviation. Table 1 presents the extent, level, and frequency of patrons' engagement with various e-resources available in their libraries.

Table 2: Extent of E-Resource Utilization Among University Library Patrons in Adamawa State

S/n	Items	Mean	Standard Deviation	Remark
16	Extent of patrons' usage of e-books in the library	3.39	0.49	High
17	Level of patrons' engagement with e-journals in the library	3.34	0.53	High
18	Rate of patrons' utilization of e-catalogues in the library	3.04	0.77	High
19	Degree of patrons' reliance on e-magazines in the library	2.25	1.00	Low
20	Level of patrons' usage of e-encyclopaedias in the library	3.33	0.60	High
21	Rate of patrons' access to e-conference materials in the library	2.59	0.72	High
22	Scope of patrons' interaction with e-image collections in the library	3.02	0.58	High
23	Intensity of patrons' utilization of e-dictionaries in the library	3.48	0.71	High
24	Extent of patrons' adoption of e-directories in the library	3.59	0.12	High
25	Pattern of patrons' access to e-thesis in the library	4.02	0.42	High
26	Level of patrons' use of online databases in the library	1.86	0.64	Low
27	Extent of patrons' reliance on multimedia databases in the library	2.29	0.61	Low
28	Rate of patrons' engagement with indexing and abstracting databases in the library	2.32	0.50	Low



29	Degree of patrons' usage of statistical databases in the library	2.32	0.70	Low
30	Level of patrons' interaction with e-gazettes in the library	2.39	0.76	Low
Grand Mean		2.88	0.61	High

The results presented in Table 2 show that respondents generally reported a high level of engagement with various e-resources. E-theses (mean = 4.02), e-directories (mean = 3.59), and e-dictionaries (mean = 3.48) were among the most highly utilized resources. Similarly, e-books (mean = 3.39), e-journals (mean = 3.34), and e-encyclopedias (mean = 3.33) also recorded high usage. However, e-magazines (mean = 2.25), multimedia

databases (mean = 2.29), indexing and abstracting databases (mean = 2.32), e-gazettes (mean = 2.39), and online databases (mean = 1.86) showed lower levels of engagement, indicating potential challenges in accessibility, relevance, or user awareness. The grand mean of 2.88 suggests overall positive utilization, though improvements may be needed to enhance the accessibility and relevance of underutilized e-resources.

Hypothesis 1: There is no significant difference in the mean rating among Federal, State and Private University libraries as regards to the extent patrons utilize e-resources in Adamawa state.

Table 3: Results of One-Way Analysis of Variance (ANOVA) on the Mean Ratings of E-Resource Utilization Across Federal, State, and Private University Libraries in Adamawa State

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	93.077	2	46.538	2002.848	.000
Within Groups	8.644	372	.023		
Total	101.721	374			

The results of the One-Way Analysis of Variance (ANOVA) test in Table 3 indicate a significant difference in the mean ratings of e-resource utilization across Federal, State, and Private University libraries in Adamawa State. The F-value of 2002.848 is very high, and with a p-value (Sig.) of 0.000, this result is highly significant ($p < 0.05$). This result implies that the differences in the extent to which patrons use e-resources are not due to random chance but rather indicate a real difference between the libraries from these three sectors (Federal, State, and Private). Thus, the type of university (Federal, State, or Private) has a significant impact on how patrons utilize e-resources in these libraries.

Table 4: Homogeneous Subsets from Post-Hoc Test on E-Resource Utilization Across Federal, State, and Private University Libraries in Adamawa State

University	N	Subset for alpha = 0.05		
		1	2	3
ADSU, MUBI	125	2.3771		
MAU, YOLA	125		2.7554	
AUN, YOLA	125			3.5710



Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 125.000.

The post-hoc test results in Table 4 compare e-resource utilization across Federal, State, and Private universities in Adamawa State. ADSU, Mubi (State) had the lowest mean (2.3771), MAU, Yola (Federal) ranked mid-level (2.7554), while AUN, Yola (Private) had the highest (3.5710). This indicates that e-resource utilization is highest in private universities and lowest in state universities, with federal universities in between.

Hypothesis 2: There is no significant difference in the mean rating among Federal, State and Private University libraries as regards the relevance of e-resources to the information needs of the patrons in Adamawa State

Table 5: Results of One-Way Analysis of Variance (ANOVA) on Mean Ratings of E-Resource Relevance Across Federal, State, and Private University Libraries in Adamawa State

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	122.448	2	61.224	2824.914	.000
Within Groups	8.062	372	.022		
Total	130.511	374			

The Between Groups sum of squares is 122.448, which reflects the variation in e-resource relevance between the different types of universities (Table 5). The corresponding mean square for between groups is 61.224, and the F-value is 2824.914. This very high F-value suggests a significant difference in the mean ratings of e-resource relevance among the groups. The Within Groups sum of squares is 8.062, indicating the variation within each group

(universities). The mean square within groups is 0.022, which is relatively low in comparison to the between-group mean square. The p-value (Sig.) of .000 is less than the commonly used significance level of 0.05, which means that the null hypothesis is rejected. In other words, there is a statistically significant difference in the mean ratings of e-resource relevance across the Federal, State, and Private universities in Adamawa State.

Table 6: Homogeneous Subsets from Post-Hoc Test on E-Resource Relevance Across Federal, State, and Private University Libraries in Adamawa State

University	N	Subset for alpha = 0.05		
		1	2	3
ADSU, MUBI	125	2.3247		
MAU, YOLA	125		2.6203	
AUN, YOLA	125			3.6574

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 125.000.

Table 6 presents the post-hoc test results comparing e-resource relevance across universities in Adamawa State. MAU, Yola (Federal) had the highest mean (3.6574), indicating high



relevance. AUN, Yola (Private) followed with 2.6203, while ADSU, Mubi (State) had the lowest (2.3247), suggesting lower perceived relevance.

Discussion of Findings

The study found that e-books, e-journals, e-encyclopedias, and online databases are the most widely available e-resources in Adamawa State universities. However, e-dictionaries, multimedia databases, and indexing & abstracting databases are less accessible, particularly in federal and state universities. This limited availability may be due to funding constraints and infrastructural challenges, reflecting findings by Ezema and Ogbonna (2019) and differing from studies that reported higher availability of these resources, suggesting that while basic e-resources are accessible, specialized ones are lacking.

Most e-resources were considered useful, with e-books, e-journals, e-magazines, e-theses, and e-gazettes receiving high relevance ratings, consistent with Nwalo (2020). However, e-encyclopedias, multimedia databases, and e-image collections received lower ratings, reflecting limited relevance. Kelefa (2017) found similar results, suggesting these resources might not be well understood or applicable. In contrast, Olaronngbe (2024) reported higher relevance for e-encyclopedias and multimedia databases, possibly due to differences in digital literacy. Lower ratings in Adamawa State could stem from limited access, inadequate training, or a lack of familiarity with these resources.

E-resource usage in Adamawa State universities is generally high, with frequent use of e-books, e-journals, and e-magazines, as seen in the study and Olaofe (2020). However, online databases, multimedia databases, indexing & abstracting databases, and e-gazettes are less frequently used. This aligns with concerns about access barriers, inadequate infrastructure, and limited awareness. Olaronngbe (2024) reported higher usage of online databases, possibly due to better infrastructure and user

awareness. Improving access, awareness, and training could enhance engagement with underutilized resources.

Significant differences exist in e-resource utilization across Federal, State, and Private universities in Adamawa State. This supports the findings by Kelefa (2017) that institutional type influences resource usage. The high F-value (2002.848) and p-value (0.000) indicate that differences are shaped by factors like funding and infrastructure. Private universities (AUN, Yola) show the highest usage, while state universities (ADSU, Mubi) have the lowest. This contrasts with Ezema and Ogbonna (2019), who found no significant differences. Disparities in funding and infrastructure in Adamawa State may explain the variation, unlike more balanced resource distribution in advanced countries.

The study reveals significant differences in perceived e-resource relevance across university types, confirmed by the One-Way ANOVA test (F-value = 2824.914, p-value = 0.000). MAU, Yola (Federal) recorded the highest relevance ratings (mean = 3.6574), followed by AUN, Yola (Private) (mean = 2.6203), and ADSU, Mubi (State) with the lowest rating (mean = 2.3247). These findings reflect varying investments in digital infrastructure, with federal institutions benefiting from more stable funding. Private universities, though better funded than state institutions, still face resource allocation challenges. Disparities in resources and infrastructure in Adamawa State strongly influence e-resource utilization and perceived relevance. Contrasting studies by Ozomelen (2020) and Omoniyi and Akinboro (2019) found no significant relevance differences, potentially due to more comparable digital infrastructure in their contexts.



Conclusion

The utilization of e-resources in university libraries in Adamawa State has become increasingly important in meeting the academic and informational needs of patrons. This study has demonstrated that e-resources such as e-books, e-journals, e-magazines, and online databases are crucial in supporting academic activities across Federal, State, and Private universities. The findings highlight that despite certain limitations, there is widespread engagement with these e-resources, especially those that are perceived as most relevant to patrons' information needs. Additionally, the study found that the type of university—whether Federal, State, or Private—has a notable impact on both the extent to which e-resources are utilized and their perceived relevance. This indicates that institutional factors play a significant role in shaping the engagement of patrons with digital resources, highlighting the need for targeted interventions based on the specific characteristics of each type of university.

In conclusion, this study emphasizes the importance of addressing the challenges that affect e-resource utilization in university libraries and implementing the strategies identified to improve accessibility and engagement. While the adoption of e-resources has proven to be valuable for academic purposes, enhancing infrastructure, training, and awareness is essential to fully maximize their potential. By making these improvements, university libraries in Adamawa State can better serve their patrons and contribute to the advancement of education, research, and academic success in the digital age.

Recommendations

Based on the findings and conclusions drawn from this study, the following recommendations are proposed to improve e-resource utilization in university libraries in Adamawa State:

1. Universities in Adamawa State should prioritize workshops and training for librarians and staff to enhance digital literacy, information retrieval, and technical skills for effective e-resource management and troubleshooting.
2. Universities should invest in upgrading ICT infrastructure, ensuring that computers, networks, and software are compatible with e-resource platforms. Regular technical support should also be provided to address any access issues.
3. Adamawa State institutions should invest in stable internet and backup power solutions like solar or generators to ensure uninterrupted e-resource access, addressing issues of unreliable internet and power disruptions.



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