

UTILIZATION OF DIGITAL INFORMATION RESOURCES BY STUDENTS IN POLYTECHNIC IN JIGAWA STATE, NIGERIA.

Abdulkadir Kaila Umar

Department of Library & Information Science,
Umaru Musa Yar'Adua University, Katsina State, Nigeria

Abstract

This study examined the utilization of digital information resources by polytechnic students in Jigawa State, Nigeria. The study aimed to determine the level of students' utilization of digital information resources for learning and academic activities, and to identify the challenges that limit their access and use. The study was guided by the Technology Acceptance Model (TAM) and the Positivist Research Paradigm and adopted a quantitative survey research design. The target population comprised 365 students from four polytechnics in Jigawa State, selected through proportionate random sampling. Data were collected using a researcher-developed four-point Likert-scale questionnaire and analyzed using descriptive statistics, including frequencies, percentages, mean scores, and standard deviations. The findings revealed a generally low level of utilization of digital information resources, with most students reporting rare or no use of these resources for academic purposes, indicating limited integration into their learning activities. The study also identified multiple challenges affecting utilization, including inadequate ICT infrastructure, unreliable electricity supply, poor internet connectivity, limited digital literacy skills, and insufficient institutional support. Based on these findings, the study recommends that polytechnic administrations intensify awareness campaigns to promote the use of digital information resources, invest in ICT infrastructure and reliable internet services, and organize regular information literacy training programmes to improve students' digital competencies and enhance the effective use of digital information resources for academic activities.

Keywords: Digital Information resources, Polytechnic. Utilization

Introduction

In this seminar paper, the author examines the utilization of digital information resources in polytechnic education, with particular emphasis on the factors influencing their effective use among students in Jigawa State, Nigeria. The increasing integration of digital technologies into higher education has transformed teaching, learning, and research by expanding access to a wide range of information resources. As institutions strive to meet the demands of the digital age, academic libraries have assumed a central role in providing electronic information resources, including electronic books (e-books), electronic journals (e-journals), online databases, institutional repositories, and other web-based learning materials. These resources have become indispensable for supporting academic activities, independent learning, and research productivity.

The integration of digital content into higher education has significantly transformed pedagogical practices and enhanced students' learning experiences. This transformation is particularly evident in polytechnic institutions, where digital information resources—such as electronic books (e-books), electronic journals (e-journals), and online databases—have become essential tools for both students and academic staff. In Nigerian polytechnics, access to these resources is largely facilitated through institutional libraries, which have progressively adopted Information and Communication Technology (ICT) to enhance teaching and learning processes (Bulama et al., 2024). The digitization of academic libraries therefore represents a strategic response to the evolving needs of contemporary learners, who require timely and diverse access to high-quality information resources (Zhou, 2025). Consequently, as technical and vocational education continues to evolve

globally, polytechnic education is increasingly characterized by the integration of digital platforms that support both theoretical instruction and practical skills acquisition (Echem et al., 2024).

Despite these developments, the utilization of digital information resources remains relatively low, particularly in rural polytechnics within Jigawa State. Studies attribute this trend to limited awareness and inadequate training in the effective use of digital technologies, resulting in a persistent preference for traditional print resources (Ale & Audu, 2025). This preference is often reinforced by users' familiarity and psychological comfort with print formats, especially among students with limited prior exposure to technology-enhanced learning environments (Okwu et al., 2025). Consequently, even though digital resources offer advanced features such as keyword searching, remote accessibility, and extensive content coverage, many students continue to rely predominantly on conventional print materials (Bulama et al., 2024).

A critical factor constraining the effective utilization of digital information resources is inadequate digital literacy among students. Digital literacy encompasses the competencies required to locate, evaluate, manage, and utilize digital information effectively, including the ability to assess the credibility of information sources, synthesize information from multiple platforms, and employ advanced search strategies. In the absence of these competencies, students may experience information overload when navigating digital databases, thereby limiting their ability to maximize the benefits of

available electronic resources for academic purposes (Momoh, 2025). The technical complexity of many academic databases, which often require familiarity with Boolean operators and controlled vocabularies, further compounds these challenges (Kumar, 2025). Empirical evidence indicates that students who receive structured digital literacy training are more likely to utilize electronic information resources effectively and achieve better academic outcomes (Bulama et al., 2024). This finding underscores the need to integrate comprehensive digital literacy programmes into polytechnic curricula to bridge existing knowledge and skills gaps (Forka et al., 2024; Musa, 2025).

Furthermore, although digital information resources have significantly enhanced research efficiency and instructional quality in higher education, a substantial gap remains between their availability and their effective utilization by students. Poor digital literacy continues to constitute a major barrier, as many students in Jigawa State polytechnics lack the competencies required to search for, evaluate, and apply digital information effectively. In addition, infrastructural deficiencies, the perceived complexity of digital platforms, unstable internet connectivity, inadequate electricity supply, and concerns regarding the relevance and accessibility of available resources further discourage their utilization. Despite the well-documented benefits of digital information resources, there remains insufficient understanding of the factors that influence their acceptance and utilization within the academic library environment. Addressing this knowledge gap is essential for maximizing the educational benefits of digital technologies in polytechnic institutions.

Against this backdrop, the author adopts the Technology Acceptance Model (TAM) as the theoretical framework for explaining students' acceptance and utilization of digital information resources. The model posits that users' perceptions of usefulness and perceived ease of use significantly influence their intention to adopt and utilize a particular technology. Applying this framework provides valuable insights into how digital literacy, technological competence, institutional support, and infrastructural factors collectively shape students' utilization of digital information resources in polytechnic libraries.

In conclusion, this seminar paper argues that although digital information resources possess enormous potential to improve learning outcomes, research productivity, and overall academic excellence, their full benefits cannot be realized without addressing the challenges that hinder their effective utilization. Accordingly, strategic interventions should focus on strengthening students' digital literacy competencies, improving ICT infrastructure, expanding user education and awareness programmes, and enhancing access to high-quality digital library resources. Such measures will contribute significantly to increasing the effective utilization of digital information resources and advancing the quality of polytechnic education in Jigawa State and Nigeria as a whole.

Research Questions

The study sought to answer the following research questions:

1. To what extent do polytechnic students in Jigawa State utilize digital information resources for academic activities?

2. What challenges do students encounter utilizing digital library resources in the selected polytechnics in Jigawa State?

Literature Review

Digital information resources play a significant role in enhancing learning activities in Nigerian universities and higher education institutions worldwide, particularly among polytechnic students who require information in diverse formats. According to Garcia and Thornton (2023), the rapid evolution of technology in today's digital age has compelled academic libraries to continuously update and improve their collections and services to meet students' increasing information needs. One of the major strategies adopted is the provision of digital information resources. An effective approach to enhancing the utilization of these resources is to ensure that users are aware of the existence of digital library services and other electronic information services designed to improve the efficiency and effectiveness of information delivery.

Extent of Use of Digital Information Resources

The utilization of digital information resources is a critical factor in enhancing learning activities among students in Nigerian polytechnics, particularly in the present digital era and beyond. According to Oyighan and Offi (2025), digital resource utilization refers to the appropriate use of acquired digital information resources, which varies among individuals and organizations depending on their specific needs and socio-economic contexts.

Rosale (2024) stated that "one of the key features of effective learning today lies in the ability of learners to utilize digital materials that meet their educational needs and prepare them for the ICT-driven twenty-first century." Furthermore, Owate (2024) observed that the use of digital libraries has grown steadily over the past two decades. However, the extent of digital library utilization largely depends on users' acceptance, which is influenced by their perception of the system's ease of use. The author further noted that the success of any learning programme depends largely on the commitment of institutions to providing an enabling environment that facilitates students' access to and effective utilization of digital resources for teaching and learning.

Additionally, Rosale (2024), in an assessment of the level of utilization of e-learning resources among polytechnic students, revealed that Web 2.0 technologies, electronic journals (e-journals), electronic books (e-books), and CD-ROMs were the most frequently utilized digital information resources.

The conceptual framework on perceived ease of use as a factor influencing the extent of digital library utilization, developed by Hong, Thong, Wong, and the Technology Acceptance Model (TAM) (2020), as cited in Jansen (2023), indicates that research on digital libraries has consistently shown that potential users may fail to utilize available systems despite their accessibility. Similarly, Rosale (2023) found that some polytechnic

students still preferred printed library resources to digital resources because of concerns about the credibility and reliability of information obtained from unknown online sources.

Furthermore, Wadugedara and Marasinghe (2025) observed that libraries exist primarily to support students by providing access to extensive information resources. The availability of these resources is essential for empowering users to maximize their utilization through effective systems and technologies. Nwachukwu (2024) emphasized that a library without users is ineffective, highlighting that the utilization of digital information resources is an important indicator of library effectiveness. The use of digital library resources enables library management to effectively fulfill its responsibility of serving users, particularly polytechnic students, while online access and borrowing of library materials further demonstrate the effectiveness of library services.

Challenges Faced by Polytechnic Students in Utilizing Digital Information Resources

Despite the numerous benefits associated with digital information resources, users continue to encounter several challenges in accessing and utilizing them effectively. Adeleke and Nwakwo, in their study on the challenges associated with the utilization of academic library resources, reported that textbooks recorded a utilization rate of 72.82%, while dissertations recorded 99%. The study further identified several challenges, including inadequate user orientation, poor library conditions, an unconducive reading

environment, and insufficient Information and Communication Technology (ICT) facilities, among others.

Similarly, Nwezeh (2022) emphasized that the conventional library orientation programme for newly admitted students should be redesigned to enable learners to better understand how to access and utilize library resources effectively. According to the author, many undergraduate students lack adequate orientation and awareness regarding the availability and use of digital information resources in their libraries.

Haruna and Bappah (2022) conducted a study on the challenges associated with the access and use of electronic information resources among students in higher institutions in Taraba State, Nigeria. Their findings revealed that poor internet connectivity, inadequate computer terminals, and insufficient ICT skills were the major factors hindering effective access to and utilization of digital information resources in the institutions studied.

Furthermore, Ferdinand (2018) affirmed that "professional duties are now left to non-professionals who are ill-equipped for the job." The author further explained that the inadequacy in both the number and quality of library personnel has resulted in poorly functioning academic libraries that provide minimal services, which are insufficient to meet users' increasing information needs for teaching, learning, and research.

Moreover, Hassan (2021) noted that the challenges associated with the utilization of digital information resources often arise from inadequacies within the library itself, including poorly developed databases, inadequate technological infrastructure, and insufficient space to accommodate a large number of users. The author further explained

that poor organization and indexing of information resources within library databases make it difficult for users to retrieve relevant information efficiently. Consequently, users spend considerable time searching for needed information, thereby undermining one of the primary objectives of electronic resource provision—timely and efficient access to information.

Methodology

This study employed a descriptive survey research design, which involves collecting data directly from respondents through the use of a structured questionnaire. The target population comprised all students enrolled in the four polytechnics in Jigawa State, Nigeria. These institutions are Jigawa State Polytechnic, Dutse; Federal Polytechnic, Kazaure; Binyaminu Usman Polytechnic, Hadejia; and Polytechnic for Information and Communication Technology, Kazaure. According to records obtained from the respective registries, the total student population across the four institutions was approximately 20,258.

A proportionate sampling technique was employed to ensure adequate representation of students from each polytechnic. Based on the sampling procedure, a total of 392 students were selected for the study. Data were collected using a structured questionnaire titled Extent of Utilization of Digital Information Resources and Challenges Faced by Polytechnic Students in Jigawa State. Of the 392 questionnaires administered, 365 were duly completed and returned, representing a response rate of 93.1%, which was considered adequate for generalizing the findings.

The collected data were analyzed using IBM SPSS Statistics for Windows, Version 25. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to analyze and present the extent of utilization of digital information resources and the challenges encountered by polytechnic students in Jigawa State for academic purposes

Results and Discussion

Table 1: Response Rate

Name of Institution	No. Of Questionnaire Distributed(f) (%)	No. of Questionnaire Retrieved(f) (%)	No. of Questionnaire Not Retrieved (%)
Hussaini Adamu	155	145	39.73%
Federal Polytechnic Kazaure			
Jigawa State Polytechnic Duties	30	121	33.15%
Binyaminu Usman Polytechnic	88	82	22.47%
Hadejia			
Jigawa State Polytechnic	20	17	4.66%
Information & Communication Technology, Kazaure.			
TOTAL	393	365	91.2%
			28
			8.8%

Table 1 shows that, out of the 393 questionnaires distributed, 365 were completed and returned, representing an overall response rate of **91.2%**, while 28 questionnaires (8.8%)

were not returned. Of the retrieved questionnaires, **145 (39.73%)** were obtained from Hussaini Adamu Federal Polytechnic, Kazaure; **121 (33.15%)** from Jigawa State Polytechnic, Dutse; **82 (22.47%)** from Binyaminu Usman Polytechnic, Hadejia; and **17 (4.66%)** from the Jigawa State Institute of Information and Communication Technology, Kazaure.

Demographic Information of the respondents (n= 365)

Institutions	Gender Distribution		Programme of Study		Level of Study			
	MALE	FEMALE	ND	HND	ND I	ND II	HND I	HND II
HAF POLY (n = 145)	102 (70.3%)	43 (29.7%)	88 (60.7%)	57 (39.3%)	40 (27.6%)	48 (33.1%)	30 (20.7%)	27 (18.6%)
JIG POLY (n = 121)	82 (67.8%)	39 (32.2%)	74 (61.2%)	47 (38.8%)	35 (28.9%)	39 (32.2%)	24 (19.8%)	23 (19.0%)
BUPLY (n = 82)	58 (70.7%)	24 (29.3%)	50 (61.0%)	32 (39.0%)	22 (26.8%)	28 (34.1%)	17 (20.7%)	15 (18.3%)
JICT (n = 17)	12 (70.6%)	5 (29.4%)	11 (64.7%)	6 (35.3%)	5 (29.4%)	6 (35.3%)	3 (17.6%)	3 (17.6%)

The demographic characteristics of the respondents indicate that male students constituted the majority of the participants across the selected polytechnics. Similarly, a larger proportion of the respondents were enrolled in the National Diploma (ND) programme compared to the Higher National Diploma (HND) programme. With respect to the level of study, students in the lower academic levels (ND I and ND II) were slightly more represented than those in the HND levels. These demographic characteristics provide

important contextual information for interpreting the patterns of digital information resource utilization among the respondents.

Research Question One

To what extent do polytechnic students in Jigawa State utilize digital information resources for academic activities?

Table 2

Mean Results on the Extent of Utilization of Digital Information Resources

Statement	Daily	Weekly	Rarely	Never	Mean	Standard Deviation
I used digital resources for academic purposes for a significant amount of time.	45 (12.3%)	80 (21.9%)	140 (38.4%)	100 (27.4%)	2.19	0.96
Preparing for examinations	50 (13.7%)	90 (24.7%)	135 (37.0%)	90 (24.7%)	2.27	0.98
For conducting research	40 (11.0%)	75 (23.3%)	150 (41.1%)	100 (27.4%)	2.15	0.94
For class presentation	35 (9.6%)	85 (23.3%)	142 (39.7%)	103 (27.4%)	2.13	0.93
For the perusal of academic development	30 (8.2%)	70 (19.2%)	155 (42.5%)	110 (30.1%)	2.05	0.91
Grand Mean Average					2.16	0.94

Key: 4 = Daily, 3= Weekly, 2= rarely, 1= never

Table 2 indicates that the utilization of digital information resources among polytechnic students is generally low, as reflected by the grand mean score of **2.16**. The majority of the respondents (**38.4%**) reported that they rarely use digital information resources for academic purposes, while only **12.3%** indicated that they use them daily. Similarly, most

respondents reported that they rarely use digital resources for examination preparation, conducting research, class presentations, and keeping up with academic developments. Daily utilization across these academic activities remained relatively low, ranging from **8.2% to 13.7%**. These findings suggest that students' engagement with digital information resources is infrequent and insufficient to support effective academic learning and research.

Research Question Two

What challenges do students encounter when utilizing digital library resources in the selected polytechnics in Jigawa State?

Table 3

Mean Results of Challenges Encountered in the Utilization of Digital Library Resources

Challenges	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Standard Deviation
Inadequate internet connection	150 (41.1%)	120 (32.9%)	55 (15.1%)	40 (11.0%)	3.04	0.98
Lack of computers in the library	140 (38.4%)	125 (34.2%)	60 (16.4%)	40 (11.0%)	3.00	0.99
Erratic power supply	160 (43.8%)	110 (30.1%)	57 (15.1%)	38 (10.2%)	3.06	1.00
Lack of digital literary skills	135 (37.0%)	130 (36.6%)	72 (16.4%)	28 (9.8%)	2.98	0.99
Lack of technical support from library staff	130 (35.6%)	125 (34.2%)	65 (17.8%)	45 (12.3%)	2.93	1.02
Mean Average					3.02	1.0

Key: 4=Strongly Agree, 3= Agree, 2= Disagree, 1= Strongly Disagree

Table 3 shows that students encounter several challenges in utilizing digital library resources, as indicated by the grand mean score of **3.02**. The major challenges identified include inadequate internet connectivity, insufficient computers in the library, erratic power supply, inadequate digital literacy skills, and limited technical support from library staff. In particular, **74.0%** of the respondents agreed or strongly agreed that inadequate internet connectivity constitutes a major challenge, while a similar proportion identified erratic power supply and inadequate access to computers as significant barriers to effective utilization. These findings suggest that infrastructural deficiencies and limited user support continue to impede students' effective access to and utilization of digital information resources. Consequently, there is a need for improved ICT infrastructure, enhanced digital literacy programmes, and strengthened technical support services within polytechnic libraries.

Recommendations

Based on the findings, the following recommendations are proposed to enhance the utilization of digital information resources among respondents. In light of these, the following recommendations are proposed to address the identified infrastructural, technical, and skill-related barriers:

1. Polytechnic management should enhance the utilization of digital information resources through regular user education, digital literacy training, awareness campaigns, and orientation programmes.

2. Institutions should improve digital resource access by addressing infrastructural challenges, including reliable internet connectivity, stable electricity, modern ICT facilities, and continuous capacity-building for students.
3. Regular digital literacy training should be institutionalized to equip students with the skills needed to effectively access, evaluate, and utilize digital information resources.
4. Polytechnic libraries should establish and strengthen ICT support services to provide timely technical assistance and improve users' experience with digital platforms.
5. Awareness programmes should be intensified to increase students' knowledge of the availability, relevance, and benefits of digital information resources.
6. Institutional administrators and policymakers should formulate supportive policies that ensure equitable access to digital resources through measures such as subsidized internet access, provision of institutional devices, and inclusive digital access initiatives.

Conclusion

The study concludes that digital information resources play a critical role in supporting and enhancing the academic activities of polytechnic students in Jigawa State, Nigeria. However, the findings reveal a disparity between the availability of these resources and their effective utilization by students. Overall, the study demonstrates that the challenges associated with the use of digital information resources are multifaceted,

encompassing inadequate ICT infrastructure, unreliable electricity supply, limited digital literacy skills, poor internet connectivity, and insufficient institutional support. Addressing these challenges is essential to maximizing the educational benefits of digital information resources and improving students' learning, research, and academic performance in polytechnic institutions across Jigawa State..

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