

INVESTIGATING INFORMATION LITERACY SKILLS, ACCESSIBILITY AND USE OF DIGITAL LIBRARY RESOURCES FOR LEARNING AMONG UNDERGRADUATE STUDENTS OF UNIVERSITIES IN YOBE STATE

Bakura Bulau & Rabi Hassan Elbadawy
Yobe State University, Faculty of Education,
Department of Library and Information Science

bbulau@gmail.com, rhassanelbadawy@gmail.com

ABSTRACT

The paper investigated Information Literacy Skills, Accessibility and use of digital library resources for learning among undergraduate students of Universities in Yobe State. The targeted population comprised of all undergraduate students of universities in Yobe state, which was 14,141. A sample of 384 was drawn by using stratified proportionate random sampling technique. A questionnaire and interview were employed as instrument for data collection, NVIVO version 12 (qualitative data analyzer) was used in analyzing the qualitative aspect of the study, and descriptive and inferential statistics were used to analyze the quantitative data of the investigation. The study hypothesis that there was no significant relationship between information literacy skills and utilization of digital libraries resources. The findings of the study revealed that there were Information Literacy Programs carried out by the University Libraries; these include orientation programs, library week and use of library and study skills. Additionally, the findings indicated that digital librarians were carrying out information literacy session on demands by individual students. Moreover, the study revealed that accessibility to digital library resources were limited to e-journal articles, e-books, e-newspapers and online dictionaries while other important digital library resources are not accessed by the students. The study further revealed that the undergraduate students utilized e-journal articles, e-books, e-newspapers, online dictionaries; however, other digital library resources were not being properly utilized by the majority of the respondents. The result of the hypothesis indicated that there was significant relationship between information literacy skills and utilization of digital libraries resources. Therefore, hypothesis formulated for the study are rejected. In summary, the study recorded that there was gross underutilization of the digital library resources by the undergraduate students. Consequently, the study recommended that the management of libraries should implement digital literacy workshops and seminars so as teach students about the effectiveness of utilizing a variety of digital resources found in libraries to support their learning objectives. In a similar vein, the managements ought to create awareness on the availability of the digital library resources that were grossly underutilized.

Keywords: Information Literacy Skills, Accessibility, Use, Digital Library Resources, Undergraduate students

INTRODUCTION

In a digital era, where information creation is order of the day, information users must acquire certain skills that will enable them to navigate and utilize information resources effectively. Ideally, undergraduate students need to develop both information literacy and lifelong learning skills in order to make meaningful decisions and thus survive in the midst of the ever-increasing volume of information they face daily (Adekunle, Olla, Olajide, Osuji&Adedoyin, 2019). The shift toward digital libraries has transformed the landscape of information access, learning, and scholarly communication. With this transition, information literacy, accessibility, and actual use of digital library resources have become central issues in both academic and public discourse. Information literacy enables users to locate, evaluate, and use digital resources effectively. Accessibility ensures that all users, including those with disabilities, can benefit from these resources. The effective use

of digital libraries depends not only on the availability of resources but also on user competence and system design.

Information literacy is a necessary requirement of skills to survive the ever-increasing creation of information as a result of information overload or explosion. Information literacy is the combination of library literacy, computer literacy, media literacy, technological literacy, critical thinking, ethics, and communication, which when possessed, would enable users of information to become some independent lifelong learners. Moruf (2020) averred that information literacy is an imminent requirement to survive the problems that occur as a result of information overload and to overcome this difficulty, it is vital to acquire skills that will enable people to recognize reliable sources of information on the internet or any other forms of information resources. Given the importance of information literacy in the use of digital library resources, many scholars support the need on improving the practice among undergraduate students.

Anyim, (2019) defined digital library resources as contents of the information in a format that can be accessed by using a computer or a device which in some cases require internet connections; digital information resources include CD-ROMs, electronic books (e-books), electronic journals (e-journal), electronic indexes, digital reference materials, online databases, and other e-collections. Banciu, Petre, & Boncea, (2019) equally note that digital library resources are also regarded as electronic information resources; they are information sources in electronic form which are mainly accessed through the use of electronic devices. Therefore, there are different types of digital library resources which include electronic books, electronic magazines, electronic journals, databases and CD ROMs, among others.

Use of digital library resources refers to the effective utilization of the available information resources that are in electronic format which include e-journal, e-conferences, e-book, and e-databases among others. In Latin America, Fernández-Ramos (2019) examined the level of accessing digital library resources and his findings reveal that both the students and university librarians lack technological knowhow of utilizing online information resources. Moreover, the study discovered that the libraries that do provide online information resources face lack of institutional support, and the librarians are not experts on digital libraries. Therefore, it is unarguable that digital libraries must have digital librarians in order have good service delivery.

Mishra, Das & Ramesh, (2019) Muthurasu & Kannan, (2019) defined accessibility as "the ease of finding and approaching digital information resources without stress, as well as its openness and convenience". Access will be as good as the resources which can be afforded with number of computers and existing network systems, the ability to work with tools, and the network infrastructure that supports rapid and convenient connections (Sivasubramaniyan & Batcha, 2012). Also, Sejane (2017) opined that access to digital information resources give the ability to researchers to be more conversant to the work of the scholars globally which enhances research productivity and also incorporates proven facts and knowledge into research. This implies that, digital libraries are important hubs and access point for DLRs as well as high-quality teaching, learning, and research, they are playing an increasingly vital part in providing better assistance for her users.

Statement of the Problem

The need for information literacy skills to effectively utilize digital library resources in the 21st century cannot be over emphasized. According to Durodolu (2019), information literacy is a prerequisite skill to survive the challenges brought by information explosion; it is hence paramount to acquire information literacy skills to enable students identify, access, evaluate and effectively utilize digital information resources. Regardless of the availability of digital library resources, numerous empirical studies including Joshua & King (2020), Ibrahim (2019), Edem & Egbe (2016), Lefuna (2017), Ankrah & Atuase (2018) have established that most university undergraduate students are unable to use digital library resources effectively and efficiently due to the lack or inadequate information literacy skills. It is imperative to note that University libraries in Yobe state are subscribing to different types of digital library resources almost every year to update their collections especially for

undergraduate students in order to access and utilize such resources for their effective learning activities. However, despite the availability of digital library resources in the university libraries, preliminary studies and observations conducted by the researcher showed that there was gross underutilization of the digital library resources. It is against this background that this study seeks to investigate Information Literacy Skills, Accessibility and Use of Digital Library Resources for learning among Undergraduate students of Universities in Yobe state.

Review of the related literature

Information literacy (IL) is a foundational skill for navigating and utilizing digital library resources. The Association of College and Research Libraries (ACRL, 2016) defines information literacy as the ability to "recognize when information is needed and to locate, evaluate, and use effectively the needed information." In digital contexts, this includes the ability to identify sources, understand the needed information, and systematically use the information identified. Recent studies highlight a persistent gap in information literacy skills among students and researchers. For instance, Issa, Amusan., Olarongbe, Igwe, & Oguntayo (2015) assessed the information literacy competence of undergraduate students in University of Ilorin, Kwara State, Nigeria. The study discovered that there was poor level of information literacy competence among undergraduate students as they could not make full use of the digital information resources available in the university library. Abubakar & Ibrahim (2023) asserted that many undergraduates in Nigerian universities do not have the requisite skills and ability to effectively search and critically assess digital resources despite having access to library databases. Moreover, Singh & Malik (2022) stress that despite the fact that students and researchers are comfortable with technology, however, they often lack deeper information literacy competencies like source evaluation and citation management. Logical strategies were employed such as embedded information literacy instruction in curricula and courses in every discipline at early stage of their studies especially digital literacy workshops, and librarian-led sessions have been shown to improve user confidence and competence (Zhang, Chen, & Zhou 2023).

Accessibility is a legal and ethical imperative in the design and implementation of digital library systems. This encompasses not only physical access but also design elements that accommodate users with visual, auditory, or cognitive impairments. Despite advances in assistive technologies, accessibility barriers persist. Wang, Zhang, & Li (2022) evaluated academic digital libraries and found that many interfaces lack compliance with Web Content Accessibility Guidelines (WCAG 2.1), limiting access for screen reader users. Similarly, Olowu & Atanda (2023) reported that visually impaired students in sub-Saharan Africa face challenges using e-resources due to poorly structured content and inadequate training. Efforts to improve accessibility include the adoption of universal design principles and the integration of alternative text, keyboard navigation, and captioning. However, these efforts are uneven across institutions and regions, often depending on funding and institutional commitment (Feng & Zhang, 2022).

Use of digital library resources are influenced by several factors such as user awareness, perceived usefulness, ease of access, information literacy competency, and institutional support. A cross-sectional study by Garba, Umar & Mustapha (2023) in Nigerian universities found that less than 40% of students regularly accessed digital library resources, primarily due to lack of awareness and insufficient training. In contrast, Kumar & Rao (2022) observed higher usage rates in Indian technical universities where structured user orientation programs were in place. Mobile access, personalization, and user-friendly interfaces are also key drivers of usage. Li & Huang (2024) emphasize the role of AI-powered search tools in increasing engagement with digital content, suggesting that smart systems can bridge skill gaps among less literate users.

Other challenges emerged despite technological advancements, digital inequality and literacy gaps remain major challenges. Many institutions in low-resource settings lack stable internet, adequate digital infrastructure, or trained personnel (Adebayo & Ojo, 2022). However, the rise of open-access repositories, mobile-friendly platforms, and AI-based recommendation systems offers new

opportunities for broader and more equitable access. Partnerships between libraries, governments, and NGOs are also proving effective in expanding digital inclusion (UNESCO, 2023).

Information literacy, accessibility, and effective use of digital library resources are interlinked components vital for equitable and meaningful access to information in the digital age. While progress has been made, ongoing investment in user education, accessible design, and infrastructure is essential. Future research should focus on localized interventions and inclusive policies that ensure digital libraries serve all users effectively.

Research objectives

The study sought to find answers the following research questions: -

1. What are the types of information literacy programs organized by the university libraries in Yobe State?
2. What is the extent of accessibility to digital library resources among undergraduate students of the universities under study?
3. What is the extent of utilization of digital library resources by the undergraduate students in the universities under study?

Research hypothesis

To meet the research goals, a null hypothesis was established to steer the investigation.

H₁: There is no significant relationship between information literacy skills and utilization of digital libraries.

METHODOLOGY

The research utilized a survey-based design that incorporated mixed research methods. The target population consisted of two digital librarians and 14,141 undergraduate students from Federal University Gashua and Yobe State University. To select the sample for the undergraduate students, proportionate stratified random sampling techniques were applied, while purposive or judgmental sampling was used for the digital librarians. A self-administered questionnaire was employed for data collection, which was subsequently analyzed using both descriptive and inferential statistics. For the qualitative component of the study, NVIVO version twelve (12) was used to analyze the interview data. Validity and reliability assessments were conducted to ensure accurate measurements along with the overall stability and consistency of the questionnaire. Experts from various fields were given a questionnaire to evaluate its face and content validity. In contrast, the Cronbach Alpha Coefficient was utilized to confirm the reliability of the test. A mean value of 3.0 was established as the midpoint for making statistical decisions. A mean score exceeding 3.00 indicated agreement, while a score below 3.0 indicated disagreement.

RESULTS

There were 384 copies of the questionnaires that the researcher sent to the study's intended respondents. 324 completed and returned questionnaires in all, representing an 82.5% response rate.

RQ1: What are the types of information literacy programs organized by the university libraries in Yobe State?

In order to find out the type of information literacy program being organized by the university libraries under the study, two librarians who were heading the e-library units were interviewed. Based on the interviews, the results from the interviews indicated that all the participants (2; 100%) asserted that different types of information literacy programs were carried out by the library staff. These included library weeks, orientation programs and in GSP course titled as: (Use of library and study skills). One of the participants from Yobe State University reported that:

"We used to hold information literacy programs during orientation programs and also during teaching GSP course"

titled as Use of library and study skills. And we also provide searching skills in the e-library on demand"

The other respondent from Federal University Gashu'a reported that:

"Our library used to provide information literacy sessions during library week and orientation programs of newly admitted undergraduate students"

From the above data, it indicated that different information literacy programs were carried out in order to make users acquire information literacy skills among which includes orientation programs and lecturing on the use of library in GSP course titled as: (Use of library, study skills and ICT).

RQ2: What is the extent of accessibility to digital library resources among undergraduate students of the universities under study?

Table1: Opinions of the Respondents on the Level of Accessibility to Digital Library Resources among Undergraduate Students of the Universities under Study (N=324)

	VIA		IA		UD		A		VA		Mea n	STD
Items	F	%	F	%	F	%	F	%	F	%		
E-journal articles	51	15.7	45	13.9	16	4.9	16 0	49.4	52	16.0	3.36	1.33
E-books	47	14.5	65	20.1	0	0	13 6	42.0	76	23.5	3.40	1.41
E-databases	81	25.0	108	33.3	27	8.3	54	16.7	54	16.7	2.58	1.50
E-projects	10 8	33.3	81	25.0	27	8.3	54	16.7	54	16.7	1.58	1.86
E-theses & Dissertations	54	16.7	216	66.7	0	0	27	8.3	27	8.3	1.67	1.75
E-Newspaper	52	16.0	62	19.1	0	0	16 3	50.3	47	14.5	3.28	1.36
E-Magazines	13 5	41.7	162	50.0	0	0	27	8.3	0	0	1.75	1.01
E-conference proceedings	16 2	50.0	135	41.7	0	0	27	8.3	0	0	1.75	1.01
E-references materials such as												
Online dictionaries	58	17.9	55	17.0	12	6.5	15 1	46.6	39	12.0	3.18	1.34
Online encyclopaedia	10 8	33.3	135	41.7	27	8.3	54	16.7	0	0	1.75	1.01
Online maps and atlases	81	25.0	108	33.3	27	8.3	81	25.0	27	8.3	1.58	.95
Online abstracts and indexes	10 8	33.3	135	41.7	0	0	54	16.7	27	8.3	1.67	1.02
CUMULATIVE MEAN											2.30	

The data presented in Table 1 indicates the twelve (12) items responses of the respondents on the level of accessibility to Digital Library Resources among Undergraduate Students of the Universities in Yobe state on the midpoint of the mean value of 3.0 and above indicating that the accessibility is below 3.0 which indicates not accessible and the standard deviation scores for all the items clustering indicated homogeneous in their responses. E-journal articles were the first item listed in the above table and the data indicating accessibility with a mean of 3.36 and a standard deviation of 1.33. Also, e-books were found to be accessible with a mean of 3.40 and a standard deviation of 1.41. Conversely, e-databases, the result indicated that was not accessible with a mean deviation of 2.58 and a standard of 1.50. Similarly, e-projects and e-theses and dissertation were found

inaccessible with a mean deviation of 1.58, 1.67 and standard deviation of 1.86 and 1.75 respectively. For e-newspaper, the data recorded that e-newspaper was accessible with a mean deviation of 3.28 and standard deviation of 1.36. For e-magazines and e-conference proceedings, the data indicated that was not accessible with a mean deviation of 1.75 and standard deviation of 1.01. For online reference materials, online dictionary was the first item listed where the data indicated that was accessible to majority of the respondents with a mean deviation of 3.18 and standard deviation of 1.34. Other online reference materials like online encyclopedia, online maps and atlases and online abstracts and indexes were inaccessible with a mean deviation of 1.75, 1.58 and 1.67 and 1.67 and standard deviations of 1.01, 1.19 and 1.02 respectively. The findings indicate that 2.30 was the grand mean which shows that the information resources were inaccessible.

From the above data, it can be concluded that the accessibility to digital library resources to undergraduate in the university libraries in Yobe state were limited to e-journal articles, e-books, e-newspapers and online dictionaries. However, other important digital library resources like e-databases, e-project, e-theses & dissertations, e-magazines and e-conference proceedings were not accessible by the students. Others include online maps and atlases, online encyclopedias and online abstracts and indexes were also not accessed. This indicates that only few digital information resources were accessible to the undergraduate students of the university libraries in Yobe state such as e-journals, e-books, among others. In order to achieve an effective accessibility of the digital library resources, the university libraries should embark on awareness and sensitization of the information resources that were not accessible by the undergraduate students.

RQ3: What is the extent of utilization of digital library resources by the undergraduate students in the universities under study?

Table 2: Opinions of the Respondents on the amount of Utilization of to Digital Library Resources among Undergraduate Students of the Universities under Study (N=324)

NU= Never use; **AN**= Almost never; **O**= Occasionally; **AE**= Almost every time; **FU**= frequently use; **STD**= Standard deviation, **F**= Frequency

	NU		AN		Occasion ally		AE		FU		Mean	STD
Items	F	%	F	%	F	%	F	%	F	%		
E-journal articles	27	8.3	81	25.0	54	16.7	108	33.3	54	16.7	3.25	1.24
E-books	54	16.7	81	25.0	0	0	135	41.7	54	16.7	3.17	1.41
E-databases	81	25.0	108	33.3	27	8.3	108	33.3	0	0	2.50	1.19
E-projects	27	8.3	162	50.0	54	16.7	81	25.0	0	0	2.58	.96
E-theses & Dissertations	54	16.7	108	33.3	54	16.7	81	25.0	27	8.3	2.75	1.24
E-Newspaper	27	8.3	54	16.7	27	8.3	135	41.7	81	25.0	3.58	1.26
E-Magazines	135	41.7	162	50.0	0	0	27	8.3	0	0	1.75	1.01
E-conference	162	50.0	135	41.7	0	0	27	8.3	0	0	1.75	1.01
Online dictionaries	81	25.0	54	16.7	27	8.3	54	16.7	108	33.3	3.17	1.62
Online encyclopedia	108	33.3	135	41.7	27	8.3	54	16.7	0	0	1.75	1.01
Online maps and atlases	81	25.0	108	33.3	27	8.3	108	33.3	0	0	2.50	1.19

Online abstracts and indexes	108	33.3	135	41.7	0	0	54	16.7	27	8.3	1.67	1.02
CUMULATIVE MEAN											2.53	

Respondents stated that they use e-journal articles (Mean=3.25), e-books (Mean=3.17), e-newspapers (Mean=3.58), and online dictionaries (Mean=3.17) for learning when asked if they utilize digital library resources, as shown in Table 1. Based on the findings, it can be said that most respondents agreed to use these resources almost constantly. The results for e-theses and dissertations (Mean=2.75), e-projects (Mean=2.58), e-databases, and online maps and atlases (Mean=2.50, respectively) also showed that most respondents admitted to occasionally using these digital library resources for learning. However, a worrying result is associated with the use of online encyclopedias, electronic conference proceedings, and electronic magazines with (Mean=1.75 accordingly) and online abstracts.

The results demonstrated that most respondents rarely used these digital library-based online learning materials. The cumulative mean of 2.53 indicates that the respondents do not frequently use the digital library resources for learning. This conclusion suggests that increased awareness and training are needed to ensure that undergraduate students consistently use digital library resources for their studies.

Result of Hypothesis

Null hypothesis was formulated and tested using Pearson Product Moment Correlation (PPMC) as the data was subjected to normality test using histogram, and the result indicates that the data was normally distributed. Below is the hypothesis formulated and its result.

H₀₁: There is no significant relationship between information literacy skills and utilization of digital libraries resources.

Table 3: Relationship between Information Literacy Skills and Utilization of Digital Libraries Resources

N= Number of responses; SD= Standard deviation; P= Probability value

Variables	N	Mean	SD	P-value
Information literacy Skills	324	1.83	.901	. .866**
Utilization of digital library resources	324	2.89	1.08	

In order to test this hypothesis, the data is subjected to Pearson Product Moment Correlation (PPMC). The calculated value is 0.866 at the 95% confidence level. The result signified that there is high positive correlation between information literacy skills and utilization of digital libraries resources. Therefore, the null hypothesis formulated in the study is rejected.

The result has been validated by previous empirical studies such as (Wilson, 2018; Adeniran & Onuoha, 2018). They further noted that information literacy skills are what determine the level of utilization of digital library resources. Sohail & Ahmad (2017) have found that an increase in the information literacy level of undergraduate students one time impelled them to search and use new online resources in the library.

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Discussion of findings

Types of Information Literacy Programs

The findings of this study revealed that different information literacy programs were carried out in order to make users aware. These include orientation programs and lecturing on the use of library in GSP course titled as: (Use of library and study skills). This corroborated with Tsekeris (2019); Durodolu (2019); Soroya, Ahmad, Ahmad & Soroya (2021) who reported that university libraries in developed countries like the United States do conduct a regular in information literacy programs and trainings in order for students to be competent to use adequately technologies in teaching and learning on the various platforms like the Whova, Google meet, learning management system, among others. Liu, Allard, Zhou, Jiang & Itsumura (2017); Jardine, Shropshire & Koury (2018) also expressed a similar opinion that users' education is the best way of equipping students with different types of information literacy in schools which include digital and computer literacy skills. This assertion was corroborated with the findings of Doris, Imaobong, & Ebikabowei (2022) who submitted that universities should focus more on practical sessions than theory as some of the types of literacy requires practical sessions rather than theory, these types of information literacy include digital and computer literacy.

Accessibility to Digital Library Resource

Equally, the findings indicated that the accessible digital library resources to undergraduate in the university libraries in Yobe state were limited to e-journal articles, e-books, e-newspapers and online dictionaries. While other important digital library resources like e-databases, e-project, e-theses & dissertations, e-magazines and e-conference proceedings were not accessed by the students. Additionally, online maps and atlases, online encyclopedia and online abstracts and indexes were also not accessed. Similar to the findings of this study are the study of Anyim (2019) which expressed a similar sentiment that postgraduate students accessed electronic books (e-books), electronic journals (e-journal), electronic indexes, digital reference materials, online databases, and other e-collection for satisfy their information needs. The findings implied that the university libraries should create awareness on the information resources that were accessed by the undergraduate students.

Utilization of Digital Library Resources

The study's findings showed that the respondents used e-journal articles, e-books, e-newspapers, and online dictionaries, while most of the respondents did not use other digital library resources such as e-databases, e-theses and dissertations, e-magazines, e-conference proceedings, and online abstracts and indexes. Scholarly studies such as Bala, Bansal & Sharma (2018); Aladeniyi (2017); Qasim & Khan (2015); Tella, Orim, Ibrahim, & Memudu (2018) also found that undergraduate students occasionally use e-journal articles and e-books, while most undergraduate students neglected other digital information resources such as e-database, e-conference and proceedings,

and dissertation. Furthermore, Bala, Bansal, and Sharma (2018) found that postgraduate students most frequently use online encyclopedias and online projects, theses, and dissertations as sources of information. The results suggested that university libraries should launch a campaign to encourage the use of digital library resources by the undergraduate students.

CONCLUSION

Despite the fact that there were information literacy programs carried by the university libraries, it can be concluded that there is poor utilization of digital library resources, this could be as a result of poor information literacy and searching skills by the undergraduate students of universities under study. Hence, majority of the respondents expressed their views that utilization of the digital library resources was limited to e-journals, e-books e-newspapers and online dictionaries while other important digital library resources like e-databases, e-project, e-theses and dissertations, e-magazines and e-conference proceedings are not accessed by the students. Others include: online maps and atlases, online encyclopedia and online abstracts and indexes which are also not commonly accessed.

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