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Fall 10-18-2023

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Akinlolu, Mary Oluwabukola; Awujoola, Olalekan Abiola PhD; and Olawale, Yinka Joba, "Library Cooperation and Use of Digital Library by Postgraduate Students in Selected Universities in South-West, Nigeria." (2023). *Library Philosophy and Practice (e-journal)*. 8016.

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LIBRARY COOPERATION AND USE OF DIGITAL LIBRARY BY POSTGRADUATE STUDENTS IN SELECTED UNIVERSITIES IN SOUTH-WEST, NIGERIA

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Abstract

Digital libraries are established to meet the demands of students who are ever in need of information which are current, updated and available at a go, to satisfy their academic needs. However, in spite of the benefits accrued to the use of digital library, postgraduate students, hardly make meaningful use of digital libraries probably because of lack required information which could be made available if digital libraries collaborate with other digital libraries. The study therefore investigates library cooperation and use of digital library by postgraduate students in selected universities in South-west, Nigeria.

The study adopted a descriptive survey research design. The population of the study comprised 29,017 postgraduate students and 363 library personnel in 12 universities in South-west, Nigeria. Multi-stage sampling technique was adopted to draw a sample size of 385 from the postgraduate population, while simple random technique with a sampling fraction of 50% was used to draw a sample size of 182 from the library personnel population.

The predominant purpose of digital library use by postgraduate students in the selected universities is for examination preparation ($\bar{x} = 3.36$) and to complete assignment ($\bar{x} = 3.29$). There

is a low frequency of digital library use by the postgraduate students. The prominent area of library cooperation among the digital libraries was Inter-library lending ($\bar{x} = 3.43$). The study identified erratic power supply ($\bar{x} = 3.25$), slow internet speed ($\bar{x} = 3.15$) and inaccessibility of some websites ($\bar{x} = 3.13$), as some predominant challenges to digital library use by the postgraduate students. There is a weak, positive but not statistically significant relationship between library cooperation and digital library use by postgraduate students ($r = .146, P > 0.05$).

Library cooperation influences the use of digital library by postgraduate students. Libraries should prioritise investment in collaborating with other institutions and stakeholders to share best practices, develop common standards, and promote interoperability of digital resources, as this can help to improve the quality and availability of digital resources and facilitate access to resources across different institutions.

Key words: Library cooperation, digital library use, digital library.

Introduction

Universities are higher institutions that offer courses in all fields of endeavour for the attainment of both undergraduate and postgraduate degrees. The introduction of information and communication technologies has however presented more opportunities to access information stored beyond the stores of a university library to postgraduate students. The adoption of information and communication technology in libraries has led to the development of libraries without walls even within a university library, such as digital libraries. Digital libraries as part of the main university library or a stand-alone unit of the library is a computerised system that allows users to obtain coherent means of access to an organised electronically stored information. This follows therefore that postgraduate students as part of the users of a university need to make use of digital libraries as they provide them the means of access to varieties of information. However, to boost the use of digital libraries by postgraduate students, there is the need for inter-cooperation among university libraries.

Digital libraries according to Cordon-Garcia, Alonso-Arevalo, Gomez-Diaz, & Linder, (2013) are internet site purposely meant for the creation and preservation of electronic book collections and holdings of other kinds of materials, without the need for end users to purchase the materials they want to consult. In other words, digital libraries are networked collection of digital texts, documents, images, sounds, data, software and many more that are the core of today's web and tomorrow's universally accessible digital repositories of all human knowledge. Jadhav (2011) in his view defines digital libraries as resource environment, accessible through personal computer

or available through computing tools in the university library. Digital libraries are gateway that unlocks the doors to a repository of papers, magazines, e-publications, books, journals and much more. In contrary to traditional libraries, all of the files in digital libraries are organised through electronic means and made substantially accessible online.

Frequently, virtual copies of digital libraries are kept on a disk or CD-ROM and occasionally the entire collection is kept entirely online. Among the benefits of digital libraries are: accessibility, automated and simplified library management, unlimited number of books and electronic resources, ease of search, preservation of knowledge and research, access to current (up-to-date) information and speed of access. Digital libraries are made up of digital materials that go through the same normal procedures as traditional library papers (gathering, classifying and enabling access) and are made accessible to users online through catalog records. An electronic software creation known as a digital library includes both source data and manually recovered metadata, the primary data must be regularly updated and can either be thematic or collections based.

Digital library's information resources are categorised into two parts: information resources that from beginning are produced in digital form such as; e-books, e-journals, e-projects, e-reference materials, e-seminar paper, e-books, e-newsletters, e-thesis, e-conference papers, e-technical reports, e-dissertation etc. and information resources and materials which are not digital initially but can be transformed to digital over time. Mishra (2014) categorised digital libraries into three major types such as; Stand-alone Digital Library, Federated Digital Library, and Harvested Digital Library. Stand-alone Digital Library (SDL) refers to a library in which the holdings are digital (scanned or digitised). The SDL is self-contained - the information material is localised and centralised.

Federated Digital Library (FDL) refers to a coalition of several independent SDLs in the network, organised around a common theme, and coupled together on the network. Harvested Digital Library (HDL) is a virtual library providing summarised access to related information materials scattered over the network. A HDL holds only metadata with pointers to the holdings that are one click away in cyberspace and only harvests digital objects, and not full DLs. However, within the context of this study, digital library specifically refers to the resources which include online databases, university specialised catalogue, institutional repositories, e-journal, e-books, e-

newspapers, e-reference materials, open educational resources (OERs). A digital library which is meant to be used by postgraduate students.

Postgraduate students need to access digital information which are enclosed in the digital library their universities. By virtual of their programmes, postgraduate students are not compelled to sit within the four walls of a classroom or library to gain access to information of choice. As such, access to information of need can also be done remotely in their location of choice. Digital library aids and facilitates postgraduate students' academic activities such as assignments, research works among others. This is because digital library provides large amounts of information which can be accessed without visiting the library and information request is granted whenever it is needed. Digital library also grants postgraduate students multiple accesses to information scattered on the web.

There are some challenges to the use of digital libraries by postgraduate students. Oswal (2014) highlights some major challenges that postgraduate students face in using digital library to include: rights restriction to users, accessibility and usability of digital resources, accessibility to library databases from their homes and research work archival restricted access to users. Others are searching skills over databases pages, particular issues with PDF files, restrictions on ebooks collection access, less technological infrastructure. According to Okello-Obura (2010), there are also challenges on the part of postgraduate students to use of digital library, these include: attitude towards digital resources, personal skills to use digital resources among others.

In spite of the usefulness of digital library to postgraduate students in the provision of effective and efficient information for their learning and research purposes, studies have shown that the use of digital library is still low. Studies by Bankole (2012); Frankor and Akussah (2012) reveal low usage of digital resources by postgraduate students which is caused by low awareness of digital resources by postgraduate students and this has contributed to limited access to relevant and reliable information by postgraduate students in making decision on their research among other activities carried out by them. A major factor that can influence the use of digital library by postgraduate students is the strength of the digital collections which can be enhanced through library cooperation.

Cooperation between libraries is understood to signify an intention to share materials, information, services, computer resources and even bibliographic data in order to provide some or all facets of library services (Hoang, 2015). Library cooperation refers to both sharing of

bibliographic data and the sharing of library material. It is a means by which libraries in developing countries can provide user access to information when resources are scarce. Library cooperation is considered to mean the intent to share resources, knowledge, bibliographic data, services and even computer facilities to provide some or all aspects of library services (Tella, 2018). For many years, libraries have worked together to establish collections among themselves. The basic goal of library cooperation and resource sharing is to increase availability and access to information and services while keeping cost down. One of the reasons why libraries cooperate according to Borek (2006), is for beneficial reasons such as: leveraging budget cuts, learning from one another, building better tools together and most crucially, serving common users better by using one another's collections. Another reason for library cooperation is to maximize the availability of information and access to information and services at a minimum cost among libraries.

The digital library libraries are charged with the primary responsibility of providing quality information resources and services to postgraduate students which form majority of their users. The digital library provides postgraduate students vast opportunities to access information resources that recent are and up-to-date, they are also provided ease of access and use of information stored in the digital library, postgraduate students can also have personalized learning using the digital library among other numerous benefits of the digital library. A factor of germane concern to lure postgraduate students to using the digital library and its resources is ensuring varieties of these resources, which can be achieved if digital library involves in resources with other-like libraries through an initiative known as library cooperation. It is therefore the researcher's desire to explore the Nigerian university libraries' landscape with a view of determining how library cooperation can influence the use of digital library by postgraduate students in selected universities in South-west, Nigeria.

Statement of the problem

A digital library is a library which contains a collection of documents in organised electronic formats and made available information to users through the internet or on CD-ROM disks. In order to meet the demands of postgraduate students, who are ever in need of information which are current, updated and available at a go to satisfy their academic needs, university libraries have established digital libraries (as part of the main university library and in some universities as stand units). Considering the immense benefits of digital library to postgraduate education, it is imperative that postgraduate students use the digital library. In spite of the benefits of accrued to

the use of digital library, postgraduate students, hardly seem to make meaningful use of their digital libraries. A possible reason for the low use of digital library by postgraduate students can be the lack of healthy cooperation among these libraries. Lack of cooperation among digital libraries in universities could limit the electronic resources a library can have and indirectly reduce the number of useful information resources in them for postgraduate students to access and use. This study therefore investigates library cooperation on use of digital library by postgraduate students in selected universities in South-west, Nigeria.

Research questions

1. What is the purpose of digital library use by postgraduate students in selected universities in South-west, Nigeria?
2. What is the level of digital library use by postgraduate students in selected universities in South-west, Nigeria?
3. What are the areas of library cooperation among digital libraries in selected universities in South-west, Nigeria?

Hypothesis

1. There is no significant relationship between library cooperation and use of digital library by postgraduate students in selected universities in South-west, Nigeria.

Literature review

Digital libraries have become essential tool in information management and dissemination. They offer a convenient and accessible way to access a vast range of resources from anywhere with an internet connection and provide a valuable resource for researchers, students, and anyone looking to expand their knowledge or explore new topics. The recent developments and advancements in information and communication technology (ICT) have been extremely important to the digitisation of library services. As a result, the idea of a "Digital Library" has gained popularity recently. The primary goal of a digital library is to satisfy the need for current, reliable information among library patrons at a reasonable cost and in accordance with accepted standards. It involves converting a physical object into an electronic one. Essentially, this concept of digital library is closely related to the term "digitisation," which refers to the process of making

material available for use electronically (Renu, 2014). Digitisation has become an integrated part and routine work of the libraries and library professionals (Fabunmi, 2006). It enhances the effectiveness of library activities and facilitates the standardisation of communication facilities and housekeeping operations in the library.

University is primarily established to equip both undergraduate and postgraduate students with necessary knowledge and skills to discharge required duties and employment functions which are essential for the development of the society. This obligation can easily be fulfilled by having a well-equipped library to manage the intellectual product of the university. Digital libraries offer a convenient and efficient way to access various resources such as e-books, academic journals, databases, and other online resources that may not be available in traditional libraries. Students utilise digital libraries to search for and retrieve information relevant to their coursework and research. Digital libraries are also used to enhance study skills (Kumar 2014). Students can use digital libraries to improve their skills in searching for and retrieving information, managing citations and references and evaluating the credibility of sources. Digital libraries are also used to facilitate collaboration and knowledge sharing among students (Zhang et al., 2019). Students can share resources, collaborate on group projects, and engage in discussions with other students and faculty members through digital libraries. Overall, digital libraries offer numerous benefits to students, including convenience, access to a wide range of resources, and opportunities for collaboration and knowledge sharing.

On frequency of use, Onifade, Ogbuyi and Omeluzor (2013) held the view that most postgraduate students (especially in Babcock University) do not use the library on a regular basis. Also, a study by Anunobi and Emezie (2020) revealed that postgraduate students in Federal University of Technology Owerri underutilised library resources (prints and subscribed databases).

The use of digital libraries by students, especially the postgraduates, is becoming increasingly popular, but it is not without challenges. According to Haddow (2018), technical challenges are one of the primary obstacles to using digital libraries effectively. This may include difficulties with navigating the interface, finding information, or using search functions, slow loading times or website errors and information overload can further impede students' ability to access and use digital library resources. Digital libraries often lack traditional quality control measures that are in place for print materials. This can make it difficult for students to distinguish between reliable and unreliable sources, as noted by Korobili et al. (2012). Students may also

struggle to identify peer-reviewed articles, which are often a requirement for academic research. Access limitations can also be a challenge for some students, particularly those who do not have access to a computer or reliable internet connection, as noted by Afolabi (2018). Additionally, digital library resources may not be available in all languages, which can be a barrier for non-native English speakers.

Library cooperation refers to the collaborative efforts of libraries to share resources, services and expertise in order to improve the quality of their services to users. These collaborative efforts may include formal agreements between libraries to share resources and services, such as interlibrary loan and consortia, or informal collaborations to share knowledge and best practices. Library cooperation aims to increase access to information and resources, reduce costs, and improve services for library users. It is inspired by a common desire to build a more effective and efficient library system (Borchert, 2013). The justification for resource sharing is based on the fact that no library, no matter how large, can be completely self-sufficient in terms of resource provision. Library cooperation will be further examined under the following: cooperation in sharing resources, cooperation in sharing technical expertise, cooperation in technical support and cooperation in content subscription.

Cooperation in sharing resources is an important aspect of library cooperation. The library is a repository of knowledge and information, and the sharing of resources among libraries is critical to the provision of effective library services to users. The increased availability of materials and resources to users is one of the significant benefits of resource sharing. Resource sharing, according to Rehman et al. (2020), allows libraries to expand their collections, increase access to resources, and provide better services to users.

Cooperation in sharing technical expertise is another essential aspect of library cooperation, enabling libraries to share their technical knowledge and expertise to improve the quality and effectiveness of library services. Cooperation in sharing technical expertise benefits libraries in several ways, including improving their ability to provide high-quality services, reducing duplication of effort, and promoting cost-effective solutions. Librarians can share their knowledge and expertise in areas such as cataloguing, classification, and digitization by collaborating with other libraries. Sharing technical expertise also assists libraries in keeping up with technological advances, which is critical in today's digital age.

Technical support is an important aspect of library cooperation (Wang and Liu, 2020). Technical support encompasses a range of services such as maintenance and management of library systems, software and hardware support, database management, and user support. Cooperation in technical support is critical for libraries to provide high-quality services to their users. Content subscription is one of the ways in which libraries can cooperate with each other to reduce the cost of acquiring and providing access to electronic resources. Content subscription services are platforms where libraries can access digital content, such as journals, books, and databases, for a fee (Openai, 2023). Content subscription services assist libraries in improving access to digital content and growing their holdings. By pooling their resources and subscribing to content together, libraries can negotiate better deals with content providers, leading to cost savings.

Library cooperation and the use of digital libraries have been the subject of extensive research in the field of library and information science. According to and Choudhury (2020), library cooperation has been identified as a means of enhancing access to information resources and services, improving the quality of services, and reducing costs. Digital libraries have also been recognised as a key tool for promoting library cooperation, as they enable libraries to share resources and provide access to information irrespective of geographical boundaries. Library cooperation and the use of digital library resources are closely related, as many libraries work together to provide access to digital resources that might not be available to individual libraries.

A study by Hsieh-Yee and Cho (2013) found that library cooperation was positively associated with the use of digital libraries by postgraduate students. The study also found that the availability of digital resources and services, as well as the ease of use of digital libraries, were important factors influencing digital library use. This suggests that library cooperation can facilitate the development of high-quality digital libraries that are more likely to meet the needs of postgraduate students. However, not all studies have found positive effects of library cooperation on library use. For example, a study by Jensen (2011) examined the impact of library cooperation on library use in a group of Danish academic libraries. The study found that while library cooperation led to increased access to resources and improved service quality, it did not have a significant effect on library use. The study noted that other factors, such as changes in user behavior and technological advancements, may have a greater impact on library use than library cooperation.

Despite the potential benefits of library cooperation and the use of digital libraries, several challenges have been identified, including issues related to copyright, licensing, and privacy (Choudhury, 2020). Additionally, there have been concerns about the sustainability of digital libraries and the need for adequate funding and technical infrastructure. Ponera (2017) in his study revealed that there are several benefits of library cooperation and resource sharing for staff, students, and researchers. These benefits include the exchange of documents through interlibrary loan and document delivery services, timely access to information, and improved academic performance for students. The study also revealed that sustainable cooperation among universities requires commitment from participating institutions and clear guidelines for cooperation management. The study identified several challenges to forming library cooperation and resource sharing, such as limited budgets, the absence of a library cooperation policy, inadequate collections of current materials in university libraries, and a shortage of professional librarians for networked environments.

Methodology

The study adopted a descriptive survey research design. The population of the study comprised 29,017 postgraduate students and 363 library personnel in 12 universities in Southwest, Nigeria. Multi-stage sampling technique was adopted to draw a sample size of 385 from the postgraduate population, while simple random technique with a sampling fraction of 50% was used to draw a sample size of 182 from the library personnel population. The study adopted questionnaires as the main instrument for data collection. Two different questionnaires were used for the study, the first questionnaire was for the postgraduate students and the second was designed to collect information from the university library personnel in the studied universities. Upon the retrieval of the administered questionnaires, data collected was analysed using the Statistical Package for Social Sciences (SPSS).

Findings and discussion

Response Rate

A total number of 182 questionnaires were administered to Library Personnel across twelve (12) universities in Southwest Nigeria, out of which 161 (88.5%) were retrieved. Similarly, a total number of 384 questionnaires were administered to Postgraduate students across twelve (12) universities in Southwest Nigeria, out of which 358 (93%) were retrieved. This high response rate

was achieved due to the researcher's persistence, and able assistance by postgraduate students and library personnel in the studied universities.

Research questions

Question 1: What is the purpose of digital library use by postgraduate students in selected universities in South-west, Nigeria?

The purpose of digital library use by postgraduate students in selected universities in South-west, Nigeria, was examined under 11 items, with the response scale of: Strongly Agree, Agree, Disagree and Strongly Disagree. This result is presented in Table 1 below.

Table 1: Purpose of digital library use by postgraduate students

S/N	Statements	SA	A	D	SD	Mean	Std. Dev.
	I use digital library:						
1	to access information to write background to the study and literature review of my thesis	154 43.0%	167 46.8%	10 2.8%	26 7.3%	3.26	.828
2	to update my knowledge	155 43.4%	160 44.8%	18 5.0%	24 6.7%	3.25	.833
3	for personal development	113 31.7%	216 60.5%	8 2.2%	20 5.6%	3.18	.729
4	to download information materials in preparation for seminar, conference and workshop	112 31.4%	214 59.9%	11 3.1%	20 5.6%	3.17	.735
5	to access information materials in order to write journal articles	102 28.6%	217 60.8%	13 3.65	25 7.05	3.11	.769
6	to access information materials in order to write a book	93 26.1%	223 62.5%	15 4.2%	26 7.3%	3.07	.768
7	for examination preparation	188	127	23	19	3.36	.824

		52.5%	35.5%	6.4%	5.35		
8	to prepare course materials	109 30.5%	190 53.25	23 6.4%	35 9.8%	3.04	.873
9	for teaching preparation	85 23.8%	118 33.1%	128 35.9%	26 7.3%	2.73	.905
10	to complete assignment	151 42.3%	180 50.4%	6 1.7%	20 5.6%	3.29	.761
11	to supplement print resources	149 41.7%	150 42.0%	35 9.8%	23 6.4%	3.19	.860
Weighted mean= 3.15							
Criterion mean = 2.50							

Table 1 shows the purpose of digital library use by postgraduate students in the selected universities. The result revealed that the predominant purpose of digital library use by postgraduate students of the selected universities are: for examination preparation ($\bar{x} = 3.36$; Std. dev.= 0.824), to complete assignment ($\bar{x} = 3.29$; Std.dev.= 0.761), to access information to write background to the study and literature review of my thesis ($\bar{x} = 3.26$; Std.dev.= 0.828), to update knowledge ($\bar{x} = 3.25$;Std.dev.= 0.833), to supplement print resources ($\bar{x} = 3.19$; Std.dev.=0.860), among other.

Question 2: What is the frequency of digital library use by postgraduate students in selected universities in South-west, Nigeria?

The frequency of digital library use by postgraduate students in selected universities in South-west, Nigeria, was examined under 13 item, with the response scale of: Daily, Weekly, Monthly, Occasionally and Never. The result is presented in Table 2 below.

Table 2: Frequency of digital library use by postgraduate students

S/N	Types of digital library resources used	Daily	Weekly	Monthly	Occasionally	Never	Mean	Std. Dev
1	Online databases (e.g. OARE, AJOL, HINARI, EBSCOHOST, SCOPUS, DOAJ, JSTOR OAPEN etc.)	10 2.8%	24 6.7%	19 5.3%	263 73.9%	40 11.2%	2.16	.815
2	University Open Access Catalogue	7 2.0%	18 5.0%	152 42.6%	127 35.6%	53 14.8%	2.44	.874
3	Institutional repository	4 1.1%	25 7.0%	154 43.1%	133 37.2%	41 11.5%	2.49	.830
4	Open access resources	26 7.3%	119 33.3%	56 15.7%	135 37.8%	21 5.9%	2.98	1.114
5	E-books	30 8.4%	141 39.5%	79 22.1%	94 26.35	13 3.6%	3.23	1.045
6	E-dictionaries	45 12.6%	128 35.9%	18 5.05	154 43.15	12 3.4%	3.11	1.192
7	E-encyclopedias	27 7.6%	48 23.45	7 2.05	247 69.2%	28 7.8%	2.44	1.062
8	E-thesis and dissertation	17 4.8%	44 12.3%	18 5.0%	255 71.4%	23 6.4%	2.38	.948
9	E-journals	29 8.1%	172 48.2%	22 6.2%	122 34.2%	12 3.45	3.24	1.110
10	E-manuscript	16 4.5%	27 7.6%	13 3.6%	251 70.3%	50 14.0%	2.18	.923

11	E-newspapers	66 18.5%	84 23.5%	102 28.6%	82 23.0%	23 6.4%	3.25	1.185
12	Multimedia collections	47 13.2%	163 45.7%	30 8.4%	92 25.8%	25 7.0%	3.32	1.192
13	Open educational resources (OERs)	154 43.1%	59 16.5%	22 6.2%	102 28.6%	20 5.6%	3.63	1.417
Weighted mean= 2.83								
Criterion mean = 3.0								

Table 2 shows the frequency of digital library use by postgraduate students. The result revealed an aggregated weighted mean of 2.83 which is lower than the criterion mean of 3.0, implying a low frequency of digital library use by the postgraduate students. However, the Table 4.11 further revealed that: Open educational resources (OERs) ($\bar{x} = 3.63$; Std.dev.=1.417), Multimedia collections ($\bar{x} = 3.32$; Std.dev.=1.192), E-newspapers ($\bar{x} = 3.25$; Std. dev.=1.185), E-journals ($\bar{x} = 3.24$; Std. dev.= 1.110), Open access resources ($\bar{x} = 3.23$; Std. dev.=1.045) and E-dictionaries ($\bar{x} = 3.11$; Std. dev.=1.192), are the frequently used digital library resources by the postgraduate students.

Question 3: What are the areas of library cooperation among the digital libraries in the selected universities in South-west, Nigeria?

The areas of library cooperation among digital libraries in the selected universities in South-west, Nigeria, was examined under 10 items, with the response scale of: Strongly Agree, Agree, Disagree and Strongly Disagree. This result is presented in Table 3 below.

Table 3: Areas of library cooperation among digital libraries

S/N	Areas of library cooperation.	SA	A	D	SD	Mean	Std. Dev
	My library:						
1	cooperate in sharing electronic resources with other libraries	47 29.2%	100 62.1%	6 3.7%	8 5.0%	3.16	.712

2	cooperate in sharing professional expertise	58 36.0%	96 59.6%	6 3.7%	1 0.6%	3.31	.573
3	cooperate in sharing technical support	57 35.4%	93 57.8%	9 5.6%	2 1.2%	3.27	.622
4	cooperate in content/database subscription	64 39.8%	87 54.0%	3 1.9%	7 4.3%	3.29	.713
5	cooperate in collection development	58 36.0%	94 58.4%	3 1.9%	6 3.7%	3.27	.678
6	cooperate institutional repository development	61 37.9%	87 54.0%	7 4.3%	6 3.7%	3.26	.712
7	involves in Inter-library lending	85 52.8%	63 39.1%	10 6.2%	3 1.9%	3.43	.696
8	involves in joint/union catalogue	50 31.1%	67 41.6%	42 26.15	2 1.2%	3.02	.790
9	shares bibliographic data	64 40.0%	85 53.1%	9 5.6%	2 1.2%	3.32	.638
10	carry out joint publication	68 42.2%	81 50.3%	8 5.0%	4 2.5%	3.32	.686
Weighted mean= 3.27 Criterion mean = 2.50							

Table 3 shows the areas of library cooperation among digital libraries. The result revealed an aggregated weighted mean of 3.27 which is higher than the criterion mean of 2.50, implying that the selected university libraries engage in library cooperation. The result also revealed that all the items examined under this construct had mean scores higher than the criterion mean. This further proved that the university libraries engage in library cooperation. According to Table 3, the prominent area of library cooperation among the digital libraries in the selected universities is Inter-library lending (\bar{x} =3.43; Std. dev.= 0.696) Others include: sharing of bibliographic data (\bar{x} =3.32; Std. dev.= 0.638), joint publication (\bar{x} =3.32; Std. dev.= 0.638), sharing professional expertise (\bar{x} =3.31; Std. dev.= 0.573), cooperation in content/database subscription (\bar{x} =3.29; Std. dev.= 0.713), cooperation in sharing technical support (\bar{x} =3.27; Std. dev.= 0.622), among others.

Hypothesis: There is no significant relationship between library cooperation and use of digital library by postgraduate students in selected universities in South-west, Nigeria.

The relationship between library cooperation and use of digital library by postgraduate students in selected universities in South-west, Nigeria, was determined using the Pearson’s Product Moment Correlation (PPMC). The result of the analysis is presented in Table 5 below.

Table 5: Relationship between library cooperation and use of digital library by postgraduate students

Variables	N	Mean	St.Dev	R	P	Sig
Library Cooperation	161	3.26	.458	.146	.065	Not Sig.
Digital Library Use	357	2.83	.670			

Correlation is significant at the 0.05 level (2 tailed).**

Table 5 shows the relationship between library cooperation and digital library use by postgraduate students in the selected universities. The result revealed that the Pearson Product Correlation of library cooperation and digital library use was found to be weak and positive, but not statistically significant ($r = .146$, $P > 0.05$). Hence, the Null Hypothesis 2 ($H_0 2$) is accepted. This therefore implies that there is no statistically significant relationship between library cooperation and digital library use by postgraduate students in the selected universities.

Conclusion

This study explored the patterns and factors influencing digital library use by postgraduate students in selected universities. While digital libraries are found to be significant resources for academic pursuits, the frequency of their use among postgraduate students remains low. However, certain digital resources, such as OERs, multimedia collections, and e-newspapers, are frequently accessed by postgraduate students. Library cooperation is an important aspects of the digital library landscape, but its influence on digital library use is found to be weak. Challenges faced by postgraduate students in utilizing digital libraries, such as erratic power supply and slow internet speed, need to be addressed. Further research and intervention are necessary to better understand the dynamics of library cooperation and to ensure that digital libraries remain valuable resources for postgraduate students' academic pursuits.

5.4. Recommendations

Based on the findings of the study, here are five recommendations to improve digital library use by postgraduate students in the selected universities:

1. Given the low frequency of digital library use, the universities should conduct awareness campaigns and training sessions to familiarise postgraduate students with the various digital library resources available. Highlight the relevance of Open Educational Resources (OERs), multimedia collections, etc., for their academic needs and show how these resources can aid examination preparation, assignment completion, and thesis research.
2. The university libraries should improve digital library accessibility by address the challenges of erratic power supply, slow internet speed, and inaccessibility of certain websites to enhance the overall digital library experience. They should invest in robust infrastructure and reliable internet connectivity to ensure seamless access to digital resources for postgraduate students.
3. The university libraries should strengthen their library cooperation practices. Although, inter-library lending is a prominent form of cooperation, the universities should foster more extensive collaboration among libraries. Encourage sharing of bibliographic data, joint publication initiatives, and expertise exchange to create a comprehensive digital library ecosystem that benefits postgraduate students.

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