

RELATIONSHIP BETWEEN DIGITAL SKILLS AND ACCESS ON THE EASE-OF-USE OF OPEN SOURCE LIBRARY MANAGEMENT SOFTWARE AMONG LIBRARIANS IN UNIVERSITY LIBRARIES OF NORTH-CENTRAL STATES, NIGERIA

Abubakar Aliyu Ango

Ibrahim Badamasi Babangida University, Lapai, Niger State, Nigeria

Abstract

This study investigated the relationship between digital skills and access on the ease-of-use of open source library management software among librarians in university libraries of North-Central States, Nigeria. The study covered a population of 301 librarians and used the total enumeration sampling technique, employing a descriptive survey research design and copies of the self-developed structured questionnaire which was adopted as the research instrument on the librarians. Analysis methods include Pearson Product Moment Correlation Coefficient, and multiple regression. The findings revealed that digital skills have a considerable influence on the ease-of-use of open source library management software among librarians in North-Central Nigeria. Also, the results indicated a significant association between access and ease of use of OSLMS in university it was concluded that there is a significant relationship between digital skills, access and ease-of-use of open source library management software. The paper recommended that library management needs enhanced training programs tailored to equip librarians with advanced digital skills and the ability to curate digital collections effectively through seminars, workshops, and conferences. Furthermore, librarians, library associations, and stakeholders should advocate for increased funding for libraries, emphasising the critical role that modern library technologies like OSLMS play in enhancing education and research. Additionally, there is a need to continue upgrading the hardware and software to perform tasks effectively, safely, efficiently, engaging error tolerance, and easy to use.

Keywords: Access, Digital Skills, Ease-of-Use, Open Source Library Management Software, University Libraries, Libraries, Software, North Central, Nigeria

Introduction

Universities often serve as hubs of knowledge acquisition and are characterised by an expectation of elevated research output, particularly among faculty members. The majority of research conducted in Nigeria and worldwide is undertaken inside universities and other affiliated research institutions. The primary purpose of a university is to preserve and uphold existing knowledge, facilitate the dissemination of information via educational instruction, and generate new knowledge through research (Daramola, 2016; Kwaghga, Igbashal & Tor-Akwer, 2019).

Randhawa (2017:1) defined Open Source Library Management Software (OSLMS) as computer software that is made available under a license or arrangement, such as the public domain, which allows users to examine, modify, enhance, and distribute the software in its original or modified form. OSLMS refers to software that allows users the freedom to execute, duplicate, disseminate, examine, modify, exchange, and enhance it for various purposes. According to Randhawa (2018), open source library software offers libraries the advantage of

avoiding the upfront expenses associated with commercial software while also providing them with more autonomy over their operational environment.

Usability [ease of use] is the fundamental concept that describes the ease with which people can use a thing. A user is someone who uses something to accomplish their objective. The term "ease-of-use" refers to the usability of a product, service, tool, process, environment, and software. Similarly, those that use OSLMS for household management tasks are considered OSLMS users, namely librarians. Library users include those who visit the library or use OSLMS and find it beneficial. According to Barman (2020), the term "user" refers to an individual who is actively engaged in the pursuit of accessing the information resources and services that are made accessible within a library setting. The use of OSLMS has emerged as a prevalent worldwide phenomenon due to its cost-effectiveness, adaptability, accessibility of source code, and unrestricted redistribution.

Digital skills (DSs) encompass the capacity to efficiently locate, assess, employ, distribute, and generate content via digital devices, including computers and smartphones. "Skill" can be defined as the proficiency to accomplish tasks accurately and promptly. In the context of library professionals, possessing a range of skills, including general, specific, and professional expertise, is crucial. DSs encompass the ability to effectively utilise digital information systems and tools, which includes proficiency in computer hardware and software, as well as the application of security measures to safeguard both hardware and software components, along with sensitive data and personal information. These digital skills encompass a diverse set of competencies essential for functioning within digital libraries and information systems. They encompass technical aptitude, knowledge of computer hardware and software applications, system administration capabilities, ICT proficiency, internet proficiency, web-publishing expertise, information processing abilities, database development and management proficiency, networking skills, preservation competencies, and a spectrum of other digital proficiencies (Hamad, Al-Fadel, & Fakhouri, 2020; Ferdows, 2014).

Access to OSLMS means the ability to gain entry to use OSLMS. This is because even if open source library management software is available but with limited access and absence of digital skills, the purpose for which the OSLMS were acquired will be defeated. Access is the degree to which many people use a resource, service, or product. It might be seen as the capacity to effortlessly access OSLMS with little or no strain. It remains unknown the relationship between digital skills, access on the ease-of-use of open source library software among librarians in university libraries of North-Central States, Nigeria. Hence, the reason for this study.

Statement of the problem

Open Source Library Management Software (OSLMS) automates library routines, improving data accuracy and workflow optimization. However, most Nigerian university libraries still use manual practices. Despite efforts and resources, there are no adequate mechanisms for proper access to OSLMS, resulting in limited use in the North-Central States of Nigeria. A significant number of Nigerian library staff do not use OSLMS for administrative activities such as cataloguing, acquisition, circulation, serials, and OPAC modules do to the fact that digital skills and limited access has been a challenge. Studies revealed the significant

relationship between digital skills and access on the ease-of-use technologies in some countries but there is scarcity of literature on that in Nigeria. Hence, the reason for this study.

Hypotheses

The following null hypotheses were tested:

- HO₁:** There is no significant relationship between digital skills possessed by librarians on the ease-of-use of open source library management software in university libraries of North-Central States, Nigeria.
- HO₂:** There is no significant relationship between access on the ease-of-use of open source library management software among librarians in university libraries of North-Central States, Nigeria.
- HO₃:** There is no significant relationship among librarians' digital skills, access on the ease-of-use of open source library management software in university libraries of North-Central States, Nigeria.

Literature Review

Digital skills influence librarians' capacity to navigate OSLMS for easy use. Digital skills have a direct influence on the ease-of-use of OSLMS. It is posited that the ease-of-use of OSLMS among librarians will be dependent on the digital skills adopted by the libraries using various OSLMS such as KOHA, NewGenlib, etc. Information and communication technology (ICT) refers to an individual's confidence in their ability to make use of modern technology for specific tasks, while user experience refers to their previous experience with a particular technology. Tiemo (2019) highlighted that Nigerian academic library staff have acquired a substantial level of digital technology skills for managing online resources to enhance library services. However, ongoing training is essential to further enhance their digital skills, particularly in optimising online resources and services. Bhatti and Nadeem (2014) emphasised the widespread interest among academic librarians in acquiring proficiency in using social networks, the Internet, and engaging in online activities. To navigate the complexities of digital librarianship, librarians require new competencies, such as digital library creation and management, metadata development, information preservation, content management, and utilisation of scanning and optical character recognition (OCR) techniques (Choi & Rasmussen, 2006). Adeleke (2016) affirmed the importance of librarians possessing a diverse skill set, which includes traditional library expertise, managerial and technical proficiencies, familiarity with metadata creation, and understanding of copyright regulations, to establish and maintain digital repositories. Additionally, Martzoukou and Elliott (2016) identified a comprehensive range of digital skills deemed vital by librarians. These encompass the development of information technology (IT) competencies, spanning various communication media and tools, such as e-books, online databases, and social media platforms.

Access is the ability of the librarians to gain entry into OSLMS for their services in the university library. Access could be achieved through adequate Internet services, bandwidth, power supply, hardware and password. Access, to a large extent, determines usage of open source software, this is because even if library software for library management are available but with limited access, the purpose for which the software were acquired will be defeated. Nwachukwu, et al. (2014) describe accessibility as the degree to which OSLMS can be accessed

and used by a wide range of library staff. It can also be described as the capability of a library staff to access the functionalities of the system and its possible merits. The software for managing library could be available and not accessible by the staff, these are two different things all together. Whatsoever is available and yet unreachable is useless. Thus, if the open source software is easily accessible, it stands a higher chance of being used by the library staff. Onwukanjo and Men (2017) expressed that information resources could be present in the library, but users might not be able to access them based on some reasons: improper organisation, cataloguing, classification, indexing, and abstracting. However, with the advent of the internet, accessibility is now being redefined and it is expected that there should be easy access to available library resources. Vrana (2014) opined that in an era of highly commercialized access to information materials, every kind of access to information resources that are charge-free is welcome.

Ease-of-use is a concept that defines the simplicity with which consumers may use a product. It is a common concept that is used to address the simplicity and convenience with which a certain system or software can be engaged and interact with. Camilleri and Camilleri (2019) stated in their study that ease-of-use is the term used for describing users' perspectives on how much a system or software is free of effort when used. Usability is a crucial aspect of software quality, as it focuses on creating interactive software applications that effectively fulfil user requirements. Lubua (2019) defines usability as the state in which a system meets the necessary circumstances for users (namely librarians) to carry out jobs successfully, securely, and efficiently.

Vera and Edore (2015) shared the belief that the simplicity of use, also known as usability, has an impact on the utilisation of systems in developing nations, with a specific focus on Africa. Furthermore, when users discover that the new technology introduced is challenging and difficult to comprehend and interact with, it is quite likely that they will reject the technology or system. User considered a system or new software to not be easy-to-use if they believe it to be difficult, tiresome, or time-consuming. And of course, they won't be effective and efficient when utilizing it because they might end up being uncomfortable, wary, or even afraid of the new system. This shows how crucial ease-of-use is when developing software that consumers will interact with Camilleri and Camilleri (2019). The primary distinction of our study lies in its focused examination of the correlation between librarians' digital skills and the ease-of-use of OSLMS, specifically within the context of North-Central Nigerian libraries. However, from the literature reviewed in this study, none of them focused on 'Relationship among digital skills, access and ease-of-use of open source library software among librarians in university libraries of North-Central States, Nigeria. Hence, the reason for this study.

Methodology

A quantitative research methodology using a correlational research design was adopted for this study. The population for this study comprised all 301 librarians working at both state and federal universities in the North Central States of Nigeria. A total enumerative sampling technique was used because the researcher believed the population was manageable. The instrument for the study was a self-developed questionnaire. The questionnaire consists of four sections. Section A focuses on respondents demographic variables; Sections B, C, and D focus on digital skills, access, and ease-of-use OSLMS, respectively. The information was put on a weighted scale with numerical values attached to it in the questionnaire as follows: 4 = SA, 3 =

A, 2 = SD, 1 = D, and 4 = VH, 3 = H, 2 = L, and 1 = VL. The researcher distributed copies of the questionnaire to the respondents with the help of research assistants to speed up the process of data collection. The data collection lasted for six weeks. Data collected were analysed using descriptive statistics such as frequency counts, percentages, mean, and standard deviation, while inferential statistics, namely Pearson Product Moment Correlation Coefficient, were used to analyse hypotheses 1-2 and multiple regression to analyse hypothesis 3 at a 0.5 significant level. Researcher administered 301 questionnaires to the respondents for this study, with 290 (96.3%) being duly completed and forming the basis for the analysis.

Results and Discussion

The following section presents the analysis of this study. It is presented in line with the hypotheses tested. It is as follows:

HO₁: There is no significant relationship between level of digital skills possessed by librarians on the ease-of-use of open source library management software in university libraries of North-Central States, Nigeria.

Table 1: Relationship between Digital Skills Possessed by Librarians on the Ease-of-use of open source library management software

		Level Digital Skills	Ease-of-use of OSLMS
Level Digital Skills	Pearson Correlation	1	.551
	Sig. (2-tailed)		.000
	N	290	290
Ease-of-use of OSLMS	Pearson Correlation	.551	1
	Sig. (2-tailed)	.000	
	N	290	290

From Table 1, the Pearson correlation coefficient ($r = 0.551$) indicated a statistically significant relationship between the digital skills possessed by librarians on the ease of use of open-source library management software. The two-tailed significance value (Sig. = 0.000), which is less than the conventional threshold of 0.05, suggests the rejection of the null hypothesis. Consequently, it can be inferred that there exists a significant positive relationship between librarians' digital skills and the ease of use of open-source library management software. This implies that fluctuations in the digital skills possessed by librarians are likely to correspond with corresponding fluctuations in the ease of use of OSLMS. Therefore, librarians' digital skills exert a considerable influence on the ease of use of OSLMS in North-Central Nigeria. This finding corroborate Hamad et al. (2020) which found a significant correlation between the level of DSs and the adoption of technology among academic librarians in Jordan. This study revealed that librarians' technology acceptance (OSLMS) is positively influenced by their level of DSs. This implies that all librarians have a similar understanding of digital skills, challenges, and technology adoption. This finding also supports that of Narasappa (2016) who found that librarians play a significant role in the current era in providing better utilisation and access to open source library management software.

HO₂: There is no significant relationship between access on the ease-of-use of open source library management software among librarians in University Libraries of North-Central States, Nigeria.

Table 2: Relationship between Librarians’ Access on the Ease-of-use of open source library management software

		Access	Ease-of-use of OSLMS
Access	Pearson		.503
	Correlation	1	
	Sig. (2-tailed)		.000
	N	290	290
Ease-of-use of OSLMS	Pearson		1
	Correlation	.503	
	Sig. (2-tailed)	.000	
	N	290	290

From Table 2, the Pearson correlation coefficient ($r = 0.503$) revealed a statistically significant relationship between librarians' access to open-source library management software on the ease of use of the software. The two-tailed significance value (Sig. = 0.000), being less than the conventional threshold of 0.05, indicates the rejection of the null hypothesis. Thus, it can be concluded that there is a significant positive relationship between access to open-source library management software and its ease of use. This implies that variations in access are likely to correspond with corresponding variations in the ease of use of open-source library management software among librarians. This finding conformed to that of Nwachukwu et al. (2014) who described accessibility as the degree to which a software library management system can be used by a wide range of library staff. It is the capability of a library staff to access the functionalities of the system and its possible merits. It also collaborates Sejane (2017), who found that access to OSLMS is utilised when there is reliable internet, supply of electricity, computers, and digital skills of the librarians of the OSLMS in the library.

HO₃: There is no significant relationship among librarians’ digital skills, access on the ease-of-use of open source library management software in university libraries of North-Central States, Nigeria.

Table 3: Relationship among digital skills, access on the Ease-of-use of open source library management software

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.562 ^a	.382	.376	.64701

a. Predictors: (Constant), Digital Skills required to use OSLMS by librarians, Access to Open Source Library Management Software

Table 4: Summary Table of Relationship among digital skills, access on the Ease-of-use of open source library management software

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	38.212	2	9.2516	60.310	.000 ^b
	Residual	51.802	287	.310		
	Total	90.014	289			

- a. Dependent Variable: Ease-of-use of Open Source Library Management Software
 b. Predictors: (Constant), Digital Skills required to use OSLMS by librarians, Access to Open Source Library Management Software.

Table 5: Coefficient Summary Table of Relationship among digital skills, access on the Ease-of-use of open source library management software

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.686	.303		2.669	.000
	Digital Skills required to use OSLMS by librarians	.074	.074	.459	9.990	.000
	Access to Open Source Library Management Software	.021	.048	.192	1.803	.057

- a. Dependent Variable: Ease-of-use of OSLMS by librarians

From Tables 3, 4, and 5, the results of the regression indicated that there is a significant relationship among the two predictors that explains 38% of the variance ($R^2 = 0.382$, $F(2,287) = 60.310$, $p = 0.000$). Digital skills ($\beta = 0.074$) and access ($\beta = 0.021$). The null hypothesis is therefore rejected, implying that there is a significant relationship between digital skills and access that may jointly influence librarians' ease-of-use of OSLMS. The findings showed that there is a significant relationship between digital, access on the ease-of-use of OSLMS. There is a low influence of the two independent variables (digital skills and access) on the dependent variable (ease-of-use of OSLMS). Therefore, digital skills and access may jointly influence librarians' ease-of-use of open source library management software. These findings align with prior research by Hamad et al. (2020) and support the assertion that librarians' level of digital skills and access positively influences acceptance and use of technology [OSLMS]. The study underscores the importance of providing librarians with opportunities for digital skills development and ensuring adequate access to technological resources to optimise the use of OSLMS in university libraries. However, it is crucial to recognise that the joint influence of these variables can vary based on contextual factors, including the level of training and support provided by the library institution and the evolving nature of technology.

Conclusion

This study investigated the relationship between digital skills, access on the ease-of-use of OSLMS by librarians in university libraries in North-Central, Nigeria. Librarians' digital skills and access have significant relationship on the ease-of-use of open source library management software. The study has empirically established that digital skills and access are predictors of

ease-of-use of open source library management software by librarians in North-Central States, Nigeria.

Recommendations

The following recommendations are made:

1. Library management needs enhanced training programmes tailored to equip librarians with advanced digital skills and the ability to curate digital collections effectively through seminars, workshops, and conferences.
2. Librarians, library associations, and stakeholders should advocate for increased funding for libraries, emphasising the critical role that modern library technologies like OSLMS play in enhancing education and research.
3. There is a need to continue upgrading the hardware and software to perform tasks effectively, safely, efficiently, engaging error tolerance, and easy to use.

References

- Adeleke, O. (2017). *An Investigation of the extent of automation of public libraries in South West Nigeria*. (Unpublished PhD dissertation) University of KwaZulu-Natal, South Africa.
- Barman, B. (2020). *A comprehensive book on library and information science*. www.lisstudy.com
- Bhatti, R., & Nadeem, M. (2014). Assessing training needs of LIS professionals: A prerequisite for developing training programs in university libraries of Pakistan. *Chinese Librarianship: An International Electronic Journal*, 37(2), 47–62.
- Camilleri, A. C. & Camilleri, M. A. (2019). The Students' Perceived Use, Ease-of-use and Enjoyment of Educational Games at Home and at School. *13th Annual International Technology, Education and Development Conference. Valencia, Spain (March, 2019). International Academy of Technology, Education and Development (IATED)*.
- Choi, Y., & Rasmussen, E. (2006). What is needed to educate future digital librarians? *D-Lib Magazine*, 12(9), 12–21.
- Daramola, C. F. (2016). Perception and utilization of electronic resources by undergraduate Students: The case of the federal university of technology library, Akure. University Library, Federal University of Technology, Akure. *American Journal of Educational Research*, 4(5), 336-370.
- Ferdows, J. (2014). *An empirical investigation of information retrieval skills among undergraduates students of Dhaka University*. (Unpublished thesis) submitted to the department of information science and Library management, University of Dhaka

- Hamad, F., Al-Fadel, M., & Fakhouri, H. (2020). The effect of librarians' digital skills on technology acceptance in academic libraries in Jordan. *Journal of Librarianship and Information Science*, 53(4), 589-600.
- Kwaghga, B., Igbashal, A. A., & Tor-Akwer, H. F. (2019). Information retrieval skills and the use of electronic resources in university libraries by undergraduate students in Benue State University. *Library Philosophy and Practice (e-journal)*.3775. <https://digitalcommons.unl.edu/libphilprac/3775>
- Lubua, E. W. (2019). Addressing students' poor performance through blended learning. *The Information Technologist*, 16(1), 137-147.
- Martzoukou, K. & Elliott, J. (2016). The development of digital literacy and inclusion skills of public librarians. *Communications in Information Literacy* 10(1), 99–115.
- Narasappa, K. C., & Kumar, D. P. (2016). ICT skills for LIS professional in digital environment. *International Journal of Research in Library Science*, 2(2), 55-58. <http://www.ijrls.in/wp-content/uploads/2016/08/ICT-Skills-for-LIS-Professional-in-theDigital-Environment.pdf>
- Nwachukwu, V. N., Abdulsalami, T. L., & Salami, P. F. (2014). Availability, accessibility and use of information resources and services among information seekers of Lafia public library in Nasarawa State. *Information and Knowledge Management*, 4(10), 11.
- Onwukanjo, S. A., & Men, J. M. (2017). Information resources availability and accessibility on user satisfaction: Case study of federal university of technology, Minna Library. *Journal of Applied Information Science and Technology*, 10(1), 118-132.
- Randhawa, S. (2013). Open source library management softwares. *E-Library Science Research Journal*, 1(7), 1-7.
- Randhawa, S. (2018). *Open source software and libraries*. [http://eprints.rclis.org/13172/1/Open Source Software and Libraries.pdf](http://eprints.rclis.org/13172/1/Open_Source_Software_and_Libraries.pdf)
- Sejane, L. (2017). *Access to and use of electronic information resources in the academic libraries of the Lesotho library consortium*. (Unpublished PhD Thesis) University of KwaZulu-Natal, Pietermaritzburg, South Africa.
- Tiemo, P. A. (2019). Digital technology training among library personnel for effective management of online resources and services in Federal University. *International Journal of Applied Technologies in Library and Information Management*, 5(1), 82–93.
- Vrana, R. (2014). Access to digital information resources as a support to academic achievement. *Central European Conference on Information and Intelligent Systems*, 144-344.

<https://www.researchgate.net/publication/279962135> Access to digital information resources as a support to academic achievement

Vera, A. N., & Edore, A. T. (2015). Assessment and Evaluation of KOHA ILS for Online Library Registration at University of Nigeria. *Asian Journal of Computer and Information Systems*, 3(1), 1-12.