

USAGE OF SOFTWARE FOR DELIVERING LIBRARY INSTRUCTION IN SELECTED UNIVERSITIES IN NORTHEAST NIGERIA

Patience Kwambo

Department of Library and Information Science

Federal University Gashua, Yobe State

and

Prof. Adeyinka Tella

Department of Library and Information Science,

University of Ilorin, Kwara State

Abstract

Online learning has greatly influenced higher education. In response, librarians have expanded their online instruction programs to improve information literacy. This study investigates the factors librarians consider and barriers to the usage of instructional software for delivering library instruction in selected universities in Northeast Nigeria. It aims to assess the factors influencing the use of the software, as well as identify barriers to the usage of instructional software. A descriptive survey design was adopted. The population of this study consists of all academic library personnel in selected universities in Northeast Nigeria. Total enumeration techniques were adopted with a sample size of 294 library personnel, and questionnaires were distributed across the nine (9) selected universities in Northeast Nigeria, viz., Borno, Gombe, Bauchi, Adamawa, Yobe, and Taraba states. Experts validated the questionnaire. Two research questions were answered. Data were analyzed using IBM Statistical Product for Service Solution version 23 (IBM SPSS v. 26) to run descriptive statistics. This involves calculating frequencies, percentages, means, and standard deviations to provide a clear overview of the data. Key factors influencing adoption include the availability of technical support and training, scalability, accessibility, integration, etc. Librarians express concerns about technical issues, high costs, and insufficient infrastructure. These barriers significantly hinder the effective adoption and

utilization of LMS for library instruction. The study concludes that overcoming the identified barriers is crucial for increasing instructional software adoption. Recommendations include providing comprehensive training, reliable technical support, and improving infrastructure to support LMS implementation.

Keywords: instructional software, library instruction, factors considered, and barriers to usage.

Introduction

With the swift advancements in information communication technology (ICT), educational institutions worldwide are increasingly integrating digital tools to enhance teaching and learning processes. The enhancement in information access and dissemination opens a vista for the adoption of innovative tools for the provision of library instruction and services to the library patrons. One area that has undergone a seismic transformation as a result of this technological revolution is library instruction, also known as user education. As society continues to evolve in the digital age, the role of libraries as gatekeepers of knowledge and facilitators of information literacy has become increasingly crucial. This digital transformation has created an opportunity for libraries to expand their reach and impact beyond their physical boundaries (Inamdar, 2021).

Traditionally, library instruction in libraries was primarily conducted through face-to-face sessions, workshops, or classroom-based training (Matteson & Gersch, 2020). It is a core function of libraries and librarians, aimed at equipping users with the knowledge and

abilities to get the right information (Unuabor & Oseghale, 2018). The goal is to empower individuals to become skilled and critical consumers, producers, and communicators of information, enabling them to make informed decisions and engage effectively in academic, professional, and personal pursuits. Through virtual learning environments and online resources, libraries can extend their instructional offerings to a global audience, transcending geographical barriers and democratizing access to information literacy education. These digital platforms offer greater flexibility, allowing learners to access instructional materials and engage in self-paced learning at their convenience, regardless of physical location or time constraints (Velinov, Bleicher & Montenero, 2023). The asynchronous nature of these digital resources empowers learners to control the pace and sequence of their learning, revisiting concepts as needed and accommodating their schedules and commitments (Dyrvold & Bergvall, 2023). Hence, as libraries continue to evolve and adapt to the changing technological innovation, the seamless integration of ICT in their operations, services, and instructional offerings is becoming increasingly important.

Instructional software are programs designed specifically to deliver or support one or more kinds of learning activities. Instructional software for the delivery of library instruction It is a digital tool designed to develop, support, and enhance the teaching of library skills and information literacy to users. Some promising trends found in instructional software include multi-user games, adaptive systems, assessment and

monitoring, and mobile computing. Multi-user games allow students to feel competitive and motivated to try their best in a subject area. Adaptive systems allow teachers to manage software according to their teaching preferences. Assessments and monitoring allow teachers and parents to keep track of their student's progression in a subject area. Mobile computing and apps allow students the opportunities to get involved in the usage of software anytime and anywhere. Instructional software in librarianship refers to digital technologies used by librarians to deliver technology-enhanced instruction that helps users develop information and digital literacy skills for research and learning (Journal of Academic Librarianship, 2024). Assessing the factors affecting the usage of technological tools among academic staff for quality delivery in tertiary institutions is a growing concern in the educational landscape. However, the usage of these technological tools among academic staff in tertiary institutions is influenced by various factors that need to be explored for better understanding and implementation. This includes the individual academic's attitude and willingness to embrace the software, integration, stability, accessibility, functionality, operability, etc. Given the importance of ICT in teaching and learning, studies reveal a number of factors that influence teachers' decisions to use ICT in the classroom (Al-Mamary, 2022). Personal characteristics such as educational level, educational experience, experience with the computer for educational purposes, and attitude towards computers can influence the usage of a technology (Khechine & Augier, 2019). The approach for the delivery of instruction may also depend on the availability of

ICT tools and a conducive environment. Irrespective of those factors, the purpose for instruction and services remains the same—increasing the research skill of the patrons in the use of information sources. Against this background, this study aims to explore the factors librarians consider and barriers to the usage of instructional software for delivering library instruction in selected universities in Northeast Nigeria."

Despite the numerous benefits attached to instructional software, which include improved accessibility and flexibility for learners, enhanced engagement through interactive and multimedia content, streamlined assessment and tracking of learner progress, and the ability to personalize learning experiences (Alumona & Akinseinde, 2023), there are some barriers that hinder its effective utilization. According to Peacock (2025), 'limited institutional support, resource constraints, pervasive negative attitudes toward both online learning and library instruction, insufficient student motivation, and inadequate professional preparation' are significant barriers that hinder librarians' ability to implement effective technology-based instruction in academic libraries, including the use of instructional software for delivering library instruction. Barriers to using instructional software for delivering library instruction include inadequate technical infrastructure, lack of librarian training, limited institutional support, resistance to change, and difficulty in integrating software effectively into existing curricula (Lomellini et al., 2024; recent studies).

Statement of the problem

The paucity of research investigating the adoption of instructional software in library instruction is a significant gap that hinders the understanding of the factors influencing the successful integration of these platforms. Very few studies have investigated the factors and barriers to adopting instructional software in academic libraries, indicating a critical lack of empirical evidence and best practices to guide librarians and institutions in this aspect. While instructional software has gained widespread adoption in various educational sectors, its implementation in library instruction programs has received limited attention from researchers and practitioners alike.

Several factors contribute to the reluctance of librarians to adopt LMS. Firstly, a significant barrier is the lack of training and skills among librarians. Many librarians may not have received adequate training on how to use LMS platforms effectively. Without proper skills, they might find it challenging to integrate these systems into their instructional practices, leading to hesitation in adoption. Secondly, there is often resistance to change within the librarian community. Some librarians may prefer traditional methods of library instruction and may be reluctant to change established routines. This resistance can stem from a comfort with familiar practices. The consequences of failing to address this problem are far-reaching. In the absence of a thorough comprehension of the factors that

affect the usage of instructional software in library instruction, academic libraries in Northeast Nigeria face the danger of lagging in their capacity to equip learners with the essential abilities and expertise to navigate the continuously expanding digital information environment. Consequently, this might adversely impact students' academic achievement, research skills, and general readiness for the knowledge-driven economy.

Research Questions

1. What are the factors librarians consider for the usage of instructional software for teaching library instruction?
2. What are the barriers faced by librarians and institutions in the usage and effective utilization of instructional software for library instruction in the selected universities in Northeast Nigeria?

Review of related literature

Adequate infrastructure, access to high-speed internet, and well-maintained hardware are essential for the effective use of technological tools. Uzochukwu and Obi (2024) emphasized the importance of institutional policies that prioritize the integration of technology in the curriculum. When universities provide the necessary resources and support systems, academic staff are more likely to use technology in their classrooms, fostering an environment conducive to innovation. Without such support, technological

usage may remain superficial, limiting its potential for improving educational outcomes. Training and professional development opportunities are also fundamental in promoting the use of technology by academic staff. As noted by Ojedokun and Akinlolu (2023), regular training sessions and workshops on technological tools can increase the confidence of academic staff in using these resources effectively. Continuous professional development helps bridge the knowledge gap between staff members who may not be technologically savvy and those who are well-versed in using digital tools.

Academic libraries in countries such as Nigeria, South Africa, and Pakistan. Studies conducted in these settings show that factors such as perceived usefulness, ease of use, availability of training, organizational support, and cost significantly influence librarians' decisions to adopt instructional technologies (Venkatesh et al., 2003; Izuagbe et al., 2019; Bashorun et al., 2021). In spite of the many benefits of LMS, a number of obstacles prevent its full usage in educational institutions (Drent & Meelissen, 2018). According to Drent and Meelissen (2018), there have been many setbacks in integrating cutting-edge ICT tools like LMS into the educational system, particularly in developing nations. The digital divide between developed and developing nations is one of the main obstacles to ICT integration in teaching and learning. Veronica (2025) identified several recurring challenges: outdated or insufficient learning resources, inadequate physical infrastructure, limited digital literacy, time constraints, and insufficient assistance from library staff. Moreover, institutional policies and a general lack of awareness regarding library services further

compounded these issues. The findings from the study of Onyima, Ugwuagbo, and Nwamuo (2024) revealed that the cost of instructional software, access, power outages, and poor internet connectivity were the major barriers to the usage of instructional software.

Methodology

The study utilizes a survey research design, and this is because it helps describe opinions, behaviors, or conditions of a population. A self-design structured questionnaire was used to collect data. Descriptive statistics of frequency count and percentages were used to analyze the collected data. The University of Maiduguri Library has the highest number of library professionals, with 66 employees. Gombe State University Library employs 25 professionals, while Bauchi State University Library has 30. Federal University Kasheri employs 26 library professionals, and Taraba State University has 24. Abubakar Tafawa Balewa University employs 37 professionals. Federal University Gashua has 25 library professionals. Adamawa State University employs 36, and Modibbo Adama University of Technology has 25. This implies that the total study population is 294. No sample was chosen for this study. This is because the total population of library professionals in the selected universities is small. Hence, the total enumeration technique was used. The total enumeration technique is the practice of choosing the entire study population as respondents. This implies that all the library professionals were selected for this study. Accordingly, Babbie (2020) states the technique method is typically employed

when the population is small or specialized or when comprehensive, highly accurate data is required, reducing sampling error to zero.

Results and Discussion

Research Question 1: What are the factors librarians consider for the usage of instructional software for delivering library instruction?

Table 1: Factors librarians consider for the usage of software for teaching library instruction in selected universities in North-East, Nigeria (N=231)

Factors librarians consider for the usage of software for teaching library instruction	Level of Agreement (%)					\bar{x}	S.D
	SD	D	N	A	SA		
Technical Support and Training							
Adequate technical support should be available for troubleshooting.	-	2.2	2.6	53.7	41.6	4.35	0.64
Comprehensive training programs should be provided for librarians.	.4	1.7	2.2	46.8	48.9	4.42	0.67
Ongoing support and updates should be available for the software	1.3	1.7	2.2	47.6	47.2	4.38	0.74
There should be clear documentation and help resources for the software	.4	3.0	1.3	44.2	51.1	4.42	0.71
Compatibility and Integration							
The software should be compatible with existing library	-	1.3	1.3	51.1	46.3	4.42	0.59

systems.								
The software should support integration with other educational tools and platforms.	.9	.4	.4	43.3	55.0	4.51	0.63	
The software should allow for easy migration of existing content.	1.3	1.7	1.3	55.0	40.7	4.32	0.71	
Functionality								
The software should offer a wide range of features to support library instruction.	-	1.3	2.2	38.5	58.0	4.53	0.61	
The software should allow for customization to meet specific instructional needs.	-	2.2	1.7	55.4	40.7	4.35	0.63	
The software should support multimedia resources and interactive elements.	.9	.9	2.6	49.8	45.9	4.39	0.67	
Accessibility								
The software should be accessible to all students, including those with disabilities.	-	.4	2.2	45.0	52.4	4.49	0.57	
The software should be accessible from various devices (e.g., desktops, laptops, mobile devices).	1.3	.4	3.0	48.9	46.3	4.39	0.69	
The software should support multiple languages, if necessary.	1.3	1.3	1.3	46.8	49.4	4.42	0.71	
Student Engagement								
The software should facilitate interactive and engaging learning	.9	.4	1.3	46.8	50.6	4.46	0.64	

experiences.							
The software should include features that promote student collaboration and participation.	.4	1.7	1.7	51.5	44.6	4.38	0.65
The software should provide tools for tracking and assessing student progress.	.9	.9	.9	51.1	46.3	4.41	0.65
Security and Privacy							
The software should have robust security features to protect user data.	-	2.2	1.3	42.0	54.5	4.49	0.67
The software should comply with privacy regulations and policies.	-	.9	1.7	51.5	45.9	4.42	0.58
The software should provide options for managing access and permissions.	-	1.3	1.7	49.8	47.2	4.43	0.60
Scalability							
The software should be scalable to accommodate increasing numbers of users.	1.3	.4	1.3	43.3	53.7	4.48	0.68
The software should be flexible to adapt to changing instructional needs.	-	.4	1.7	57.6	40.3	4.38	0.55
Institutional Support							
The institution should provide strong support for the use of software.	.4	1.3	1.7	47.6	48.9	4.43	0.64
There should be a clear institutional policy regarding the use of software.	.9	.9	2.2	52.8	43.3	4.37	0.66

The institution should invest in the necessary infrastructure for software usage.	.4	1.3	1.3	48.5	48.5	4.43	0.64
---	----	-----	-----	------	------	------	------

Weighted Mean = 4.42

Source: Field Survey 2024

Keys: SD= Strongly Disagree; D= Disagree; N= Neutral; A= Agree; SA= Strongly Agree.

Table 1 revealed the several factors influencing the adoption of a software for teaching library instruction were assessed. The overall weighted mean is 4.42, indicating a high level of agreement on the importance of these factors. Librarians emphasize the need for software with a user-friendly interface ($\bar{x} = 4.62$). They stress the importance of easy navigation for both librarians and students ($\bar{x} = 4.24$) and the necessity for minimal technical expertise to operate the system ($\bar{x} = 4.41$). Availability of training and support for using the software is also crucial ($\bar{x} = 4.35$). Additionally, seamless integration with other library systems is considered vital ($\bar{x} = 4.49$).

The decision to use instructional software for library instruction is influenced by several key factors. These factors collectively influence decision-making processes and implementation strategies aimed at optimizing library instruction through effective software utilization. As noted by Umrani-Khan and Iyer (2019), the presence of adequate infrastructure is a fundamental facilitating condition for the effective use of e-learning systems in educational institutions. Without such support, the adoption of technology remains sluggish, impacting the quality of education delivered. Organizational and

Institutional Factors. Librarians prioritize systems that are user-friendly and integrate seamlessly into their existing workflows. As discovered by Bamidele and Olayinka (2023), many academics express concerns about the complexity of new technological tools and their impact on traditional teaching methods.

Research Question 2: What are the barriers faced by librarians and institutions in the usage and effective utilization of software for library instruction in the selected universities in North-east Nigeria?

Table 2: Barriers to Adopting instructional software for Library Instruction in selected universities in North-East Nigeria (N=231)

Barriers to Adopting software for Library Instruction	Level of Agreement (%)						
	SD	D	N	A	SA	M	S.D
Lack of adequate training and support is a barrier to using software effectively.	.4	1.3	.9	39.8	57.6	4.53	.631
High costs associated with software adoption hinder its implementation.	.0	1.7	1.3	49.8	47.2	4.42	.613
Resistance to change among staff members is a significant barrier to software adoption.	.9	3.9	2.6	48.1	44.6	4.32	.780
Technical issues and system failures are frequent barriers to using software.	.9	1.7	2.2	50.2	45.0	4.37	.697
Insufficient infrastructure (e.g., internet connectivity) limits the	1.3	.9	1.3	50.6	45.9	4.39	.688

effective use of software.								
Lack of time to learn and integrate software into existing practices is a barrier.	3.0	2.6	3.0	45.0	46.3	4.29	.888	
Concerns about data security and privacy impede the adoption of software.	2.6	1.3	1.7	51.1	43.3	4.31	.801	

Weighted Mean = 4.38

Source: Field Survey 2024

Keys: SD= Strongly Disagree; D= Disagree; N= Neutral; A= Agree; SA= Strongly Agree.

Table 2 reveals the several barriers perceived by librarians in selected universities in Northeast Nigeria regarding the usage of software for library instruction. Librarians strongly agree that insufficient training and support hinder effective use of LMS ($\bar{x} = 4.53$). The high costs associated with software usage are seen as a significant barrier ($\bar{x} = 4.42$). Limited infrastructure, such as inadequate internet connectivity, is identified as a barrier ($\bar{x} = 4.39$). Resistance to change among staff members is perceived as a significant barrier ($\bar{x} = 4.32$). This highlights the challenge of balancing operational responsibilities with the adoption of new technologies or attitudinal challenges. Effective change management strategies are essential. Time constraints, or lack of time to learn and integrate LMS, suggest workload issues impede adoption. These agree with findings from the studies (Onyima, Ugwuagbo & Nwamuo, 2024; Joo et al., 2014).

Recommendations

1. Institutions should consider exploring open-source LMS options, and seeking external funding or grants can also help reduce financial barriers. Additionally, institutions should emphasize the long-term benefits and potential cost savings to justify initial investments.
2. Institutions should invest in enhancing internet connectivity, upgrading hardware, and increasing server capacity. For regions with limited technological infrastructure, exploring offline or low-bandwidth LMS solutions can be an interim measure.
3. Institutions should implement effective change management strategies to address resistance among staff. This includes clearly communicating the benefits of LMS, involving librarians in the selection and implementation process, and providing ample support during the transition. Identifying and supporting "champions" who can advocate for software use among their peers can also be beneficial.
4. Collaboration between librarians and educational technologists can foster innovation in integrating instructional software in ICT.

Conclusion

This study examined the use of instructional software for delivering library instruction in selected universities in Northeast Nigeria, with a focus on the factors influencing adoption and the barriers encountered by library personnel. The findings

revealed that while librarians recognize the value of instructional software in enhancing information literacy delivery, its effective utilization remains uneven. Key determinants such as the availability of technical support, adequate training, system accessibility, scalability, and ease of integration were found to significantly shape adoption decisions. However, persistent challenges, including inadequate infrastructure, high costs of implementation and maintenance, and recurring technical issues, continue to impede optimal use. These barriers not only limit the effectiveness of library instruction but also constrain the capacity of librarians to fully leverage digital learning environments. The study therefore concludes that the successful integration of instructional software in academic libraries in Northeast Nigeria depends on a deliberate and sustained effort to address these structural and capacity-related constraints. Strengthening institutional support systems, investing in reliable technological infrastructure, and prioritizing continuous professional development for librarians are essential steps toward enhancing the delivery of library instruction and aligning academic libraries with contemporary digital learning practices.

References

- Al-Mamary, Y. H. S. (2020). Examining the factors affecting the use of ICT in teaching in Yemeni schools. *Journal of Public Affairs*, e2330, 22(1), 1-13. <https://doi.org/10.1002/pa.2330>
- Alumona, D. & Akinseinde, S. (2023). Perceived benefits, challenges, and level of implementation of learning management systems (LMS) among staff and students in

- Delta State tertiary institutions. *European Journal of Education Studies*, 10(4), 329-352. <http://dx.doi.org/10.46827/ejes.v10i4.4792>
- Babbie, E. (2020). *The practice of social research* (15th ed.). Boston, MA: Cengage Learning. *Creative Education*, 16(1). <https://www.scirp.org/journal/home?journalid=136>
- Bamidele, O. A., & Olayinka, T. O. (2023). Barriers to the adoption of educational technology in Nigerian higher institutions. *Journal of Educational Development*, 16(1), 23-40
- Bashorun, M. T., Ajani, Y. A., & Idogun-Omogbai, E. K. (2021). Adoption and use of library management software by professional librarians in selected university libraries in Nigeria: Using an adapted technology acceptance model. *FUDMA Journal of Educational Foundations (FUJEF)*, 4(1), 156–169.
- Drent, M., & Meelissen, M. (2008). Which factors obstruct or stimulate teacher educators to use ICT innovatively? *Computers & Education*. 51, 187-199. [10.1016/j.compedu.2007.05.001](https://doi.org/10.1016/j.compedu.2007.05.001). <https://ijpsat.org/index.php/ijpsat/article/view/5916>
- Dyrvold, A., & Bergvall, I. (2023). Digital teaching platforms: the use of dynamic functions to express mathematical content. *Scandinavian Journal of Educational Research*, 1-17. [doi:10.1080/00313831.2023.2196555](https://doi.org/10.1080/00313831.2023.2196555)
- Inamdar, S. A. (2021, August 4). The Role of Libraries in Promoting Digital Literacy in the 21st Century. SSRN.com. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4437672#:~:text=Libraries%20can%20provide%20access%20to
- Izuagbe, R., Ibrahim N. A., Ogiemien, L. Olawoyin, yin, O. Nwokeoma, oma, N. M., Ilo, P. Osayande, nde, O. (2019). Effect of perceived ease of use on librarians' e-skills: Basis for library technology acceptance intention. *Library & Information Science Research*, 41(3). 100969
- Khechine, H., & Augier, M. (2019). Adoption of a Social Learning Platform in Higher Education: An Extended UTAUT Model Implementation. Conference: Hawaii International Conference on System Sciences. DOI:10.24251/HICSS.2019.008
- Lomellini, A., · Lowentha, P. R., Snelson, C., & Trespalacios, J. H. (2025). Accessible and inclusive online learning in higher education: a review of the literature. *Journal of Computing in Higher Education*, 37. 1306–1329. <https://doi.org/10.1007/s12528-024-09424-2>

- Matteson, M. L. & Gersch, B. (2020). Information literacy instruction in public libraries. *Journal of Information Literacy*, 14(2), 71-95. <http://dx.doi.org/10.11645/14.2.2680>
- Ojedokun, O. S., & Akinlolu, A. A. (2023). Training for technological adoption among academic staff in Nigerian universities: A case study approach. *Journal of Educational Policy*, 11(4), 27-38.
- Onyima, J.O., Ugwuagbo, V.N., & Nkeiruka, N. (2024). Student's Perception of Learning Management System (LMS) on Academic Performance International. *Journal of Progressive Sciences and Technologies (IJPSAT)*, 42 (2), 536-546
- Rebeca, P. (2025). Barriers to online library instruction in academic libraries: A qualitative study. *International Journal of Environmental Economics, Commerce, and Educational Management*, 51 1(2)<https://doi.org/10.1016/j.acalib.2025.103021>
- Technology education in academic libraries: An analysis of library workshops. (2024). *The Journal of Academic Librarianship*, 50(2), 102856. <https://doi.org/10.1016/j.acalib.2024.102856>
- Umrani-Khan, F., & Iyer, N. (2019). E-learning in vocational and technical education: Facilitating conditions and challenges in Nigeria's tertiary institutions. *Journal of Educational Technology*, 11(4), 2340.<https://www.iiardjournals.org/get/WJIMT/VOL.%209%20NO.%201%202025/Assessing%20The%20Factors%20Affecting%2093-108.pdf>
- Unuabor, S. O., & Oseghale, G. C. O. (2018). Impact of the use of a library course for undergraduates' better usage of library resources in the Faculty of Education, University of Ibadan: A study. *African Educational Research Journal*, 6(3), 181-189. <https://doi.org/10.30918/AERJ.63.18.059>
- Uzochukwu, I. B., & Obi, M. O. (2024). Institutional factors influencing technology adoption in Nigerian tertiary institutions: A review. *African Journal of Higher Education Studies*, 8(2), 91-107.
- Velinov, E., Bleicher, J., & Montenero, V. (2023). The impact of digital platforms' enhancement on global virtual teams' engagement across selected business schools. 9th International Conference on Higher Education Advances (HEAd'23), *Universitat Politècnica de Valencia, Valencia*, 2023. 1365-1373. DOI: <http://dx.doi.org/10.4995/HEAd23.2023.16377>

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478

Veronica S. P. (2025). Barriers to effective library utilization: a qualitative study of student and teacher experience. *International Journal of Environmental Economics, Commerce and Educational Management*, 12(5), DOI: <https://doi.org/10.36713/epra21868>