Use, Accessibility, and Satisfaction of Librarians in Selected Higher Educational Institutions in Oyo State, Nigeria with Integrated Library Management Systems

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Abstract

This study was conducted to examine the use, accessibility, and satisfaction of librarians in selected higher educational institutions in Oyo State, Nigeria with integrated library management systems. Data were collected from 170librarians, library officers and system analysts, using a questionnaire designed and administered by the researcher. The majority of the institution libraries use of PMB (PhpMyBibl) software and only one institution namely the University of Ibadan, Integrated Library Management Software (ILMS) and Dominican University make use of in-house software. Cataloguing module is the most deployed compared to other modules of the ILMS in use. The most available module of the ILMS is the cataloguing module while the library registration service is the most accessible service. Librarians with higher qualifications, who have lower positions at work, and less number of years in the services, are females, and younger in age expressed satisfaction with the ILMS compared to others. With regards to specific accessibility factors, only system quality, net benefits, availability, and affordability were significantly related to satisfaction of the librarians in respect of the use of the ILMS to meet their library services' needs. The number of years the librarians have spent in service, and the gender of the librarians are not significant variables in respect of the satisfaction of the librarians with the ILMS. The quality of service delivered by the systems, their accessibility, utilisation, adequacy, and acceptability which are ordinarily considered crucial factors, did not predict satisfaction with the use of the ILMS.

Introduction

Developments in information and communication technologies (ICTs) in the last three decades have brought about changes in the information management practices in libraries that cover creation, organisation, storage, distribution, and retrieval issues (Omopupa, Adedeji, and Sulayman-Harron, 2019). Today, libraries rely more on electronic resources, and effective management of these resources to meet their information service needs (England and Miller, 2016). New technologies are continuously emerging, and the need to acquire and continuously adapt to new technologies is often challenging. With the overabundance of digital technologies in many formats, libraries are continuously upscaling their facilities, adopting innovative strategies to manage information resources and services. A typical example of this technology is integrated library management software.

Olatunji, Farouq, and Idris (2018) have defined integrated library management software as an enterprise resource planning system for libraries, used to track items owed, orders made, bills paid, and

patrons. Muller (2011) has described "integrated library systems (ILS) as multifunction, adaptable software applications that allow libraries to manage, catalogue and circulate their materials to patrons". ILMS supports selection, meta management, workflow, and mobile accessibility. ILMS is frequently designed as an information system with a relational database and software to interact with that database. An ILMS typically has two graphical user interfaces, one for patrons and one for staff. ILMS can manage the entire operation of any library, from the acquisition and processing of library resources to making them available to library users and preserving the resources for future use. It improves the efficiency and effectiveness of library service delivery by increasing the speed, productivity, adequacy, and efficiency of library staff.

The key typical modules comprise cataloguing which represents works in the library's collection and circulation which automates tasks related to loaning items to library users. Others are serials control for managing journals, acquisitions to handle the procurement process for new items added to the collection, and the online public access catalogue to allow library users to search or browse through the library's collection. Each of these modules offers very detailed features to accommodate the multifaceted routines involved in library work. This implies a high degree of computerisation of various routine and repetitive tasks thereby increasing productivity in service delivery (Okuonghae and Idubor 2021).

Integrated library management software packages (ILMS) can be proprietary, which means the source code is not free and must be paid for and renewed, or open source, which means the source code is free, though some institutions develop applications for in-house use (Uzomba, Oyebola and Izuchukwu, 2015). The proprietary products have been available for many years, have reached a high level of maturity, and remain the dominant approach used for library automation. The software varies by several factors, including scalability, database type, compatibility, support for bibliographic record formats, traditional services, inter-library loan management, managing electronic materials, and basic common management systems, such as security, alerting system, and statistical reports. Some management systems are fully web-compatible

with Web 2.0 and support maximum technological features.

ILMS are used in many academic libraries in Nigeria, but they are neither adequately accessible nor utilised due to social and technical factors (Uzomba, Oyebola, and Izuchukwu, 2015). It is not enough that software is adopted, but accessibility, availability, and utilisation of the resource by library staff that operates the software are required to facilitate optimal use. A continuous examination of these issues is required to generate information about key factors that enhance or inhibit the successful deployment of the technologies.

In selecting ILMS, many libraries are interested in brands or known suppliers in the market, documentation, assessment ease of maintenance, cost, aftersales service, technical compatibility, interface, and integration, supplied format, etc, these would foster a good user experience with the software. Also, the concept of system quality is measured by ease of use of the software package, system flexibility, system reliability, and ease of learning, response time; service quality, that is, the quality of the support that system users receive from the information systems organisation and IT support personnel, responsiveness, accuracy, reliability, and technical competence. There are issues about net benefits, that is, the extent to which information systems are contributing (or not contributing) to the success of individuals, groups, organisations, industries, and nations), and user satisfaction are the concepts of Information System Success model that can be considered and put in a position to cover all library house functions and modifications or provisions for library resources such as journals, books, theses, data archives, e-manuscripts, research reports, bibliographic databases necessary to supplement learning and research in real-time without loss of data and must be available and accessible at all time for use. Even when ILMS is accessible, are the librarians that use the software satisfied with the role and performance of the technologies in their library services? (Olagoke and Kolawole 2019).

Recently, a study by Olatunji (2020), evaluated the adoption and use of ILMS in selected private universities in Osun State, Nigeria. The Technology Acceptance Model and LibQual construct, but did not address whether the software is considered accessible, available, and usable to the library staff.

Rather the very insightful study undertook the evaluation from information technology use and adoption perspectives. The present study focuses on all higher education institutions in Oyo State, and it addresses whether library staff are satisfied with the ILMS concerning accessibility, availability, usability, and other associated factors. Furthermore, numerous library software has appeared in the market in the last few years; some have fizzled out of use due to technical and other problems (Ahmad and Bakhshi 2021)).

Objectives of the Study

The purpose of this study is to examine how accessibility of integrated library management software (ILMS) packages in selected higher education institutions libraries in Oyo State, Nigeria, explains user satisfaction with the technologies. Specifically the following objectives were examined:

(i)   the ILMS packages used in the selected higher educational institution libraries in Oyo State, Nigeria.

(ii)   The extent of ILMS software accessibility, availability, and use in the libraries in Oyo State, Nigeria,

(iii)   the challenges faced when accessing ILMS, and,

(iv)   the strategies deployed to overcome the challenges faced when using ILMS

(v)   to evaluate the satisfaction of librarians with the ILMS in their institutional libraries.

We hypothesise that there is no significant relationship between accessibility factors and librarians' satisfaction with the ILMS.

Theoretical Framework

This study was guided by variables extracted from two theories: (i) Theory of Access (Penchansky and Thomas 1981) and, (ii) Delone and Mclean's Theory (1992; 2003). Penchansky and Thomas' theory focuses only on access/accessibility, without addressing ICT issues while Delone and Mclean's Theory (1992; 2003) is required to understand the role of the ICT component in the study.

Penchansky and Thomas' Theory of Access

There are many opinions about the meaning of access. Adegboye (2015) defines information access as any means through which an information seeker gets required information to meet his/her information need. According to Penchansky and Thomas (1981), access is the degree of fit between consumers of the services of a system and the services provided by the system. The better the fit, the better the access. Access is also defined as the freedom and ability to obtain and make use of library and information resources and services. According to Penchansky and Thomas, access comprises accessibility, availability, affordability, adequacy, and acceptability. Penchansky and Thomas theory of access can be used to gain insight into how these variables are related, and how they interact for efficient service delivery of ILMS in academic libraries.

Access inûuences consumers and systems in three ways: use of the service, user satisfaction, and system practice. Penchansky and Thomas somewhat differentiated between access and accessibility. Accessibility refers to whether everyone involved in a system can perceive, understand, navigate and interact with the system; it is the ability to have full access to the contents of a facility, regardless of any physical, motor, cognitive, or software disability. The U.S. Department of Education describes software accessibility as the extent to which applications are accessible by people with or without disabilities. The department developed a checklist "Requirement for Accessible Software Design" which covers ten characteristics. The features include documentation, display, keyboard access, timing, screen element, etc. in essence, features such as text-to-speech, processing speed, technical support, and user interphase are elements that indirectly affect the use of library management software. Accessibility in social psychology refers to the ease with which an idea or concept can be retrieved from the memory about the attitude that guides behavior. The above opinions explain the importance of software accessibility by users to achieve information needs regardless of capability, coupled with usability characteristics: effectiveness, efficiency, engagement, error tolerance, and ease to learn.

Helen, Andreas, and Christopher (2015) examined a unified definition of web/software accessibility, irrespective of users' noted that to achieve accessibility, software must be designed and developed to support accessibility and usability across different contexts. In the research, 50 definitions of web/software accessibility were analysed and six concepts have emerged from the definitions which are; all users regardless of capability, can access, use and interact with the software, with usability characteristics, using mainstream or assistive technologies, design and development processes and in specific contexts of use.

MDN Web Docs (2022) content for web technologies introduces cognitive accessibility and improves the accessibility of the web for people with cognitive and learning differences. The study explained Cognitive impairment as a broad range of disabilities that may have the most limited capabilities, to age-related issues with thinking and remembering and people experiencing a common set of functional problems which includes difficulty with understanding content, remembering, remembering how to complete tasks, and the confusion caused by inconsistent or non-traditional web page layouts. MDN Web Docs further explained cognitive and intellectual disabilities as momentary, temporary, or permanent, it further explained cognitive skills as a way to address cognitive differences to includes; attention, memory, processing speed, time management, letters and language, numbers, symbols, and math, and understanding and choices. Pot, van Wee and Tillema (2021) explained diagrammatically how some individual factors such as socio-demographic characteristics, capabilities, attitudes, preferences, and context can affect the perception of the accessibility and perceived accessibility for decision making. The above can explain the concept of integrated library management software accessibility and what people perceived to be accessible based on individual factors.

Oyewusi and Oyeboade (2009) researched the use of library resources by undergraduates in a Nigerian state university of technology. The respondents were asked to indicate their perception of the accessibility of information necessary for their academic pursuit on the Internet. The result showed that 313 (79.7%) respondents agreed strongly that they found information more accessible on the

Internet while 80 (20.4%) disagreed about the accessibility of information on the Internet. The result indicated that information is more accessible on the Internet for undergraduate students, except in a few cases where the users need to pay a certain amount to access information. The respondents were also asked to indicate the IT facilities that were available and accessible in the library, the results indicated that 94.4% of the respondents found the photocopy machine accessible for use while all the respondents indicated that electronic databases, OPAC, Close Circuit TV (CCTV), e-journal, microfilm, and facsimile were not accessible for use.

Abbas and Song (2020) ascertained the level of accessibility of electronic information resources in research activities in agricultural research institutes in Kaduna State, Nigeria, they used seven items to rate the level of accessibility and none of the respondents rated not applicable to the items on level of accessibility of the resources for his/her research activities. It was also revealed that all the respondents indicated that they access relevant EIRs on the Internet through passwords obtained from the institutes' libraries, they prefer to access EIRs for research than the print materials and policy on accessibility and use of EIRs are effective for research activities. Zhang, Tlili, and Nascimbeni (2020) define 'accessible' as meaning that a person with a disability is allowed to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated manner, with substantially equivalent ease of use. The research further highlighted a description of the WCAG 2.0 Attribute and Guidelines by W3C (2008) applied to open educational resources (OER). They include perceivable, operable, understandable, and robust. The result of the review showed that among the four accessibility attributes, 'robust' has the highest percentage of errors.

Accessibility relates to availability. Availability is the quality of being able to be used or obtained. According to Penchasky and Thomas (1981), availability is the degree to which a system is in a specified operable and committable state at the start of a mission. Availability is also referred to as physical access, as the relationship between the volume, and type of services which exist and the volume and type of needs of the client. There is also a relationship

between accessibility and utilisation. Utilisation is the action of making practical and effective use of something or skilled in the utilization of computer usage, it is also the act of bringing something to bear; using it for a particular purpose. Use is the key construct in Technology Acceptance Model and it has two perspectives: perceived ease of use and perceived usefulness which may shed some light on the concept of the use in this study.

Perceived usefulness is the degree to which a person believes that using a particular system would enhance their job performance while perceived ease of use is the degree to which a person believes that using a particular system would be free from effort (Davis, 1989). Then links the concept of acceptability, which is the characteristic of a thing being subject to acceptance for some purpose, a thing is unacceptable if it deviates so far from the ideal that is no longer sufficient to serve the desired purpose or goes against that purpose. Saurman (2016), explained acceptability using Penchansky and Thomas' (1981) theory of access as the consumer perception, he further indicated acceptable service responds to the attitude of the provider and the consumer regarding characteristics of the service and social or cultural concerns.

Finally, accessibility links to affordability which is the degree by which system performance, cost, and schedule constraints are balanced over the system life, while mission needs are satisfied in concert with strategic investment and organisational needs (Incose 2015). Saurman (2016) explained affordability as financial and incidental costs, affordable services examine the direct costs for both the service provider and the consumer. According to the COBUILD dictionary, adequacy is the quality of being good enough or great enough in amount to be acceptable. Affordability is the fact of being enough or satisfactory for a particular purpose (Cambridge dictionary). A library service is considered well organised if, among others, it accepts clients, and clients can use the services without any inhibitions (Saurman, 2016).

Delone and McClean's Information Systems Success Model

Information systems (IS) success is an IS theory that seeks to provide a comprehensive understanding of IS success by identifying, describing, and explaining the relationships among the most critical dimensions of success along which information systems are commonly evaluated. The information systems success model evaluates the effective creation, distribution, and use of information through technology. Information Systems Success Model (ISS) was developed by (DeLone and McLean, 1992; 2003). Also known as the DandM model, the aim is to provide a framework for understanding the multi-dimensionality of IS success. The revised and final version of the model revised the "use" construct to intention to use. The basic key elements of information system success are quality (information and system), use, and outcomes (individual and organisation impact). The IS model measures six constructs.

System quality is concerned with the desirability characteristics of an information system. Examples are ease of use, system flexibility, system reliability, and ease of learning, as well as system features of intuitiveness, sophistication, flexibility, and response times. Information quality is concerned with those desirable characteristics of the system outputs; i.e., management reports and Web pages. For example, relevance, understandability, accuracy, conciseness, completeness, understandability, currency, timeliness, and usability. Also, service quality describes the quality of the support that system users receive from the information systems organisation and IT support personnel. For example, responsiveness, accuracy, reliability, and technical competence.

Use on its part is the degree and manner in which librarians and users utilize the capabilities of an information system. For example, amount of use, frequency of use, nature of use, appropriateness of use, the extent of use, and purpose of use. The net impact is the extent to which information systems are contributing (or not contributing) to the success of individuals, groups, organisations, industries, and nations. Examples: improved decision-making, improved productivity, increased sales, cost reductions, improved profits, market efficiency, consumer welfare, creation of jobs, and economic development. User satisfaction in this study is viewed from the perspective of IT user satisfaction which we define as the "extent to which users believe the information system available to them meets their information requirements" (Ives et al. 1983: p. 785].

In the same way, Swanson (1974) has defined IT user satisfaction as the "manifold of beliefs about the relative value of the MIS". In our study, we chose to define IT user satisfaction from the perspective of users' responses to the accessibility appraisal of the ILMS.

Literature Review

ILMS in Nigerian Academic Libraries

Most libraries in Nigeria use open-source software such as CDS/ISIS and Koha. However, Emasealu (2020) observed that the functions of library management software are abysmally under-utilised in academic libraries in Nigeria, thus, the progression of automation projects remains a swinging pendulum. Similarly, Omopupa, Adedeji, and Sulayman-Harron (2019) opined that the benefits of adopting Koha in the University of Ilorin library would have been higher if the University library makes use of all the modules. Also, Egbonodje (2016) did a study that listed 19 different Open-Source Software (OSS) and revealed that most librarians in Nigeria have limited awareness of the availability of the varying OSS hence, and do not significantly utilize them in their libraries.

There are different types of integrated library software used by libraries in Nigeria. Obajemu, Osagie, Akinade, and Ekere, (2013)e stated that "… some of the first generation universities in Nigeria started with TINLIB software but they could not continue due to some technical difficulties, maintenance problem, poor revision policy and the prohibitive cost of processing and maintaining it. Also, Osaniyi (2010) opined that several library management software has thrived with much patronage, but most of the software has failed to result in a waste of time, funds, and energy. The availability of integrated library management software in the academic library does not result in automatic usage if the ILMS is not accessible by the library staff.

A preponderance of libraries in Nigeria use Koha software and it is gaining ground because it has web-based architecture (Web 2.0 facilities like tagging, comment, social sharing, and RSS feeds), Unicode computer-friendliness, and extensive customization possibilities. A survey of ILMS adoption in southwest universities by Uzomba, Akinyede, and Ubogu (2021 revealed that KOHA,

VIRTUA, and SLAM are library software packages adopted in the libraries and that the software packages are used to a high extent. Similarly, a survey conducted in the science and technology library in Kano state revealed NewGenLib ILMS as the main library software because of its pecks. There are other modern commercial and open/free source software available integrating various features to automate the operation of library and information Centre. However, the adoption of any software depends on software quality and the ICT infrastructure available in the library.

Uzomba, Oyebola, and Izuchukwu (2015) explained different standard modules in Koha that attract libraries in Nigeria, and they include: cataloguing for creating bibliographic records that represent works in the library collection, circulation that automates tasks related to loaning items to patrons, serials control for managing periodicals and serials, acquisitions to handle the procurement process for new items added to the collection, and the online public access catalogue to allow library users to search or browse through the library's collection. Each of these modules offers a very detailed suite of features to accommodate the complex and nuanced routines involved in the library work. Integrated library systems rely on databases that are shared among the functional modules.

Ukachi, Nwachukwu, and Onuoha (2014) stated that "library software come in two different models- the Proprietary software (those that require the payment of subscription fee) and the Open Source Software (OSS)". Some of the major proprietary ILMS products according to Breeding (2012) that are currently available include Symphony from Sirsi Dynix, Millennium from Innovative Interfaces, Aleph from Ex Libris Group, Voyager from Ex Libris Group, Polaris from Polaris Library Systems, Library Solution from The Library Corporation, Carl. X from The Library Corporation, Spydus from Civica, and many others. The proprietary products have been available for many years, have reached a high level of maturity, and remain the dominant approach used for library automation.

The embrace of ILMS is connected to the emergence of Open-Source Software. Open-Source Software (OSS) is computer software that is available free of cost, and whose source code is made available

to the users under a license that bestows them the right to study, change and improve the software, and to do modifications to it as per the need and can distribute its copies to other users to follow a pattern. The software gives the users the freedom to manipulate it into a form that will suit their specific purposes. Examples of open-source software include KOHA software, New Gen Lib software, Evergreen software, ABCD Software, CD/ISIS software, Emilda software, PMB (Php My Bibli) software, and WEBLIS. Muller (2011) ranked Koha ILS as the most complete Free/Open-Source Software because of functions including inventory control, authority, generation of "notices to customers, and order tracking, among others. Library management software performs several functions in library services. These packages are generally organised into modules that address specific functional areas. Bhardwaj and Shukla (2000) opined that library software enhances the speed, productivity, adequacy, and efficiency of the library professional staff and saves the manpower to avoid some routine, repetitive and clerical tasks such as filing, sorting, typing, duplication, checking, etc. Decent and dependable library software enhances management, control, and easy access to information resources.

Egbonodje (2016) studied open-source software in libraries in Nigeria and discovered that some 5 libraries accepted KOHA and 3(7.1%) other libraries indicated the availability of Greenstone, a digitization software in their libraries. DSpace is available in only two libraries while Open office and Eprints are available each in a library. The outcome of this finding implies that most of the libraries in Nigeria lack adequate knowledge and awareness of the existence of this software. Egbonodje showed that over 90% of the entire respondents indicated that out of the 19 OSS listed, they are unaware of the availability of 11 which include; Eprints, Joomla, Drupal, Plone, KOfice, Evergreen, Chrome, PHP, Perl, Python, and Jabber while CD/ISIS which received the highest awareness and availability, The above study shows that the availability of resources does not equate to maximum utilization, what could enhance the combined effect of availability and

utilization of integrated Library Management system is awareness and prime access to the ILMS. Likewise, Omopupa, Adedeji, and Sulayman-Harron (2019) in their study on the adoption and use of the Koha Integrated Library System in the University of Ilorin Library discovered that inadequate knowledge of technical know-how was a challenge for accessing and using Koha.

Apart from known challenges relating to the adoption and use of library software, this study seeks to uncover software accessibility as it affects the utilization of library management software, most libraries in Nigeria use open-source software such as CDS/ISIS and Koha. However, Emasealu (2020) observed that the functions of library management software are abysmally under-utilized in academic libraries in Nigeria, thus, the progression of automation projects remains a swinging pendulum. Similarly, Omopupa, Adedeji, and Sulayman- Harron (2019) opined that the benefits of adopting Koha in the University of Ilorin library would have been higher if the University library makes use of all the modules. Also, Egbonodje (2016) did a study that listed 19 different Open-Source Software that revealed that most librarians in Nigeria have limited awareness of the availability of the varying OSS hence, do not significantly utilize them in their libraries.

Research Methodology

The study was carried out in Oyo State, Nigeria, adopting a quantitative approach and a descriptive survey design. The target population for this study comprises all the librarians, library officers, and system analysts who have at least diplomas, or degree holders in librarianship and other professions. At the time of this study, there were six universities: (Federal, State, and Private), six polytechnics, and 24 colleges of education, agriculture and technology in Oyo State, Nigeria. During preliminary investigation, the researcher found that out of the 36 higher educational institution libraries in Oyo State, only 10 libraries had one kind of ILMS or the other. Table 1 shows the number of higher educational institutions in Oyo state by type. The target population is shown in Table 1.

Table 1: Population of the study

S/N	Institution	Librarians	Library officers	System analysts
1	University of Ibadan	28	39	1
2	Ladoke Akintola University of Technology	18	10	1
3	Lead City University	8	5	1
4	Dominican University	2	6	1
5	Ajayi Crowther University	4	3	1
6	The Polytechnic, Ibadan	9	18	1
7	Federal School of Survey, Oyo	6	2	1
8	Federal College of Education, Oyo Special	22	10	1
9	Emmanuel Alayande College of Education	8	16	1
	TOTAL	**105**	**109**	**9**

Table 1 already contains some useful information, with only three institutions having more library staff than librarians: the University of Ibadan, the Polytechnic, and the Emanuel Alayande College of Education, and each library under study has only one system analyst, even though ILMS is a system.

A census procedure was deployed to enumerate all the library staff and systems analyst in the nine institutions that have ILMS in their libraries. Quantitative data was collected through the use of a structured questionnaire. The questionnaire was self-administered by the researcher with the help of two research assistants. A total number of 170 copies of the questionnaire was administered to the participants in the nine institutional libraries. The accidental sampling technique was used to select staff found at their duty posts to voluntarily complete the questionnaire.

The questionnaire was divided into four sections. Section A contained the demographic information of the respondents. This information includes: the institutional library of the respondents, level of education, position at work, number of years in service, and, gender and age. Section B captured the information on availability, adequacy, quality, accessibility, and utilization of integrated library management software. Section C included questions about the challenges that library staff face when accessing integrated library management software. This section contained items that gathered information about the respondents' challenges in accessing the ILMS. Section D included questions designed to elicit library staff strategies for overcoming challenges when using integrated library management software: This section collected data on the strategies to be used to overcome the difficulties encountered by library staff when using ILMS.

The instrument was subjected to validity using face, content, and construct validity using the Cronbach Alpha. The findings show that the instrument is reliable as the co-efficient values of all of the items in the instruments are above 0.7. The data obtained were analysed using Statistical Package for Social Science (SPSS) after going through data validation, data editing, and data coding. Analysis of data was based on the use of descriptive statistics and inferential statistics.

We used the Compute Command in SPSS to aggregate the various dimensions of system quality, service quality, affordability, adequacy, and acceptability to achieve unit variables for each category. This study deployed multiple regression to test the hypothesis that there is no significant relationship between the accessibility factors and librarians' satisfaction with the use of ILMS in the institutions.

Results

The demographic characteristics of the respondents show that the highest number of respondents (40%) came from Kenneth Dike Library of the University of Ibadan, while the least came from Lead City University and Mamman Kotangora School of Survey Library (3.5% each) according to Table 2. Also, most of the respondents (23, 13.5%) were senior librarians followed by senior library officers 12 (12.4%) while the least respondents were assistant chief library officers 2(1.2%). As revealed from the table, 92 (54.1%) of the respondents were male while 77 (45.3%) were female. A large proportion of the respondents 147 (86.5%) were above 31 years while the least 2(1.2%) were within the age range of 16-20 years.

Table 2: Demographic Characteristics of the Respondents

Demographic Information of the respondents	Measurement	Frequency	Percentage
Name of the Institution Library	Ajayi Crowther University	7	4.1
	College Library FCE Special, Oyo	24	14.1
	Dominican University	7	4.1
	Emmanuel Alayande College of Education	18	10.6
	Kenneth Dike Library, University of Ibadan	68	40.0
	Lead City University	6	3.5
	M.T. Kotangora Library, Federal School of Surveying, Oyo	6	3.5
	Olusegun Oke Library, LAUTECH	13	7.6
	The Polytechnic Ibadan	21	12.4
	Total	**170**	**100.0**
Position at Work	Assistant Library Officer	11	6.5
	Library Officer	9	5.3
	Higher Library Officer	14	8.2
	Senior Library Officer	21	12.4
	Principal Library Officer II	16	9.4
	Principal Library Officer I	12	7.1
	Assistant Chief Library Officer	2	1.2
	Chief Library Officer	6	3.5
	System Analyst	8	4.7
	Librarian II	15	8.8
	Librarian I	10	5.9
	Senior Librarian	23	13.5
	Principal Librarian	13	7.6
	Assistant Chief Librarian	5	2.9
	Chief Librarian	5	2.9
	Total	**170**	100.0
Number of Years in Service	0-5 Years	25	14.7
	6-10 Years	38	22.4
	11-15 Years	41	24.1
	16-20 Years	27	15.9
	21 and above	39	22.9
	Total	**170**	**100.0**
Gender	Male	92	54.1
	Female	77	45.3
	Missing	1	.6
	Total	**170**	**100.0**
Age	16-20 Years	2	1.2
	21-25 Years	13	7.6
	26-30 Years	8	4.7
	31 and Above	147	86.5
	Total	**170**	**100.0**
Level of Education	NCE/OND	17	10.0
	HND	10	5.9
	Bachelor	43	25.3
	Master	83	48.8
	PhD	17	10.0
	Total	**170**	**100**

About the level of education, the majority of the respondents 83(48.8%) were master's holders, followed by bachelor's degree holders 43 (25.3%) while the least were HND holders 10 (5.9%). The majority of the respondents 39 (22.9%) have been working for 21 and above years, 38 (22.4%) informed that they have been working for 6-10 years while the least 25 (14.7%) have been working for 0-5 years.

The ILMS Packages Available

Table 3 shows the frequency distribution of the ILMS available in the institution libraries. Only one institution, the University of Ibadan, reported using an in-house ILMS, the rest of the institutions adopted turnkey systems. The table reveals that the majority 63.5% reported that PhpMyBibli was available, while 55.9% and 42.9% reported Koha and UI-ILMS to be available.

Table 3: ILMS Available

S/No	ILMS software	No %	Yes %
1	PMB (PhpMyBibli)	36.5	63.5
2	KOHA Software	44.1	55.9
3	UI ILMS	57.1	42.9
4	VIRTUA Software	84.7	15.3
5	TINLIB software	88.2	11.8
6	Alice4Windows Software	92.4	7.6
7	CD/ISIS Software	93.5	6.5
8	NewGenLib Software	94.7	5.3
9	ABCD Software	96.5	3.5
10	WEBLIS Software	90.6	3.5
11	Others, please specify	91.8	8.2

Virtua, TINLIB, Alice4Windows, and CDS/ISIS were reportedly available by 11.8%, 76%, 6.5% and 65% respectively. The least used ILMS are WEBLIS Software and ABCD, 3.5% each. It is informative that 8.2% of the respondents reported that their libraries were using ILMS software not listed in the instrument, but they did not indicate which packages they were.

Modules of the ILMS already Deployed

The result shows that the cataloguing module is the most deployed module (68.8%), followed by the circulation module (60.6%).

Table 4: Distribution of modules of ILMS deployed

S/N	ILMS Modules	Responses %				
		SD	D	U	A	SA
1	Cataloguing module	.6	1.8	1.2	27.6	68.8
2	Circulation module	.6	2.4	4.7	31.8	60.6
3	Serial management	.6	4.1	1.8	34.1	59.4
4	Acquisition module	1.2	6.5	2.4	32.4	57.6
5	Reference module	1.2	10.0	6.5	28.8	53.5

SD= Stringy Disagree, D= Disagree, Unsure, =A= Agree, SA= Strongly Agree

The others are serial management (59.4%), and acquisition module (57.6%) while the reference module is the least deployed module (53.5%).

Level of Satisfaction

Table 5 shows the distribution of the level of user satisfaction with the use of ILMS. Majority of the respondents 98 (57.6%) indicated a very high level of user satisfaction with the library registration service. Most of the respondents 84 (49.4%) had a very high level of user satisfaction with access to e-resources. 80 (47.1%) of the respondents are satisfied with online public access catalogue (OPAC). The least of the respondents 76 (44.7%) revealed a very high user satisfaction with the returning of information materials (discharging) service.

Table 5: Level of User Satisfaction

S/N	User Satisfaction	Responses%				
		Very Low	Low	Medium	High	Very High
1	Library Registration Service	2.9	5.3	8.8	25.3	57.6
2	Access to e-resources Service	2.4	7.6	14.1	26.5	49.4
3	Online Public Access Catalogue (OPAC) Services	2.9	5.9	18.2	25.9	47.1
4	Returning of Information Materials (Discharging) Service	3.5	7.1	11.8	32.9	44.7
5	Reference Service (ask-a-librarian)	29	7.6	7.1	31.8	40.6
6	Loaning of Information Materials (Charging) Service	3.5	5.9	15.3	35.3	40.0
7	Self-Renewal of Information Materials Service	5.9	14.7	14.7	25.9	38.8
8	Notifications on New Arrival (Current Awareness Service) Service	5.3	11.8	17.1	28.2	37.6
9	Book Reservation Service	2.9	10.0	24.1	28.2	34.7
10	Connections to websites of various offices, faculty, departments and units of the library through provided links	7.6	8.2	21.8	28.8	33.5
11	Connection to the ILMS or electronic resources of other Higher Institution libraries abroad through provided links	10.6	15.3	20.0	24.7	29.4
12	Connection to the ILMS or electronic resources of other Higher Institution libraries in Nigeria through provided links	15.3	20.0	29.4	27.6	7.6

Table 5 shows further that 18 (10.6%) have a very low satisfaction with connection to the ILMS or electronic resources of other higher institution libraries abroad through provided links while respondents 13 (76%) revealed a very low connection to websites and connection to the ILMS or electronic resources of other higher institution libraries in Nigeria through provided links. Also 10 (5.9%) indicated a very low user satisfaction with self-renewal of information service while 9(5.3%) also indicated very low level of user satisfaction with notification of new arrival services.

Librarians' Opinions about Factors Influencing their Satisfaction with ILMS

From table 7, the major affecting satisfaction with the use of the ILMS is technical know-how where the majority of the respondents agreed with the assertion (Mean=4.40, SD=0.700). The majority of the respondents also agreed with all other factors, with the mean ranks lying between 3.5 and 4.5.

Table 7: Factors influencing ILMS

Issues	Mean	SD	Min	Max
Technical know-how	4.40	0.700	2	5
Cost of software	4.26	.839	1	5
Ease of use on accessibility	4.26	0.867	1	5
Maintenance problems	4.25	0.996	1	5
Cost of processing the software	4.23	0.923	1	5
Product service support	4.19	0.936	1	5
Reference of other college librarians on accessibility, availability, and usability of the integrated library management software	4.17	0.864	2	5
Revision policy	4.15	1.013	1	5
Digital literacy	4.14	0.967	1	5
The outcome of the evaluation of the modules	4.09	0.978	1	5
Quality of vendor service support	4.09	1.056	1	5
Free and open-source nature of the software	4.07	1.075	1	5
Demo of the software before purchase	4.06	1.047	1	5
Peer pressure from people with prior knowledge about the system	3.89	1.099	1	5
Anxiety	3.85	1.175	1	5

The factors include the cost of software, ease of use on accessibility, maintenance problems, and cost of processing the software, product service support, reference of other college librarians on accessibility, and, availability and usability of the integrated library management software. Others are revision policy, digital literacy, and outcome of the evaluation of the modules, quality of vendor service support, free and open-source nature of the software, a demo of the software before purchase, peer pressure from people with prior knowledge about the system, anxiety

Strategies to Overcome the Challenges faced by Library Staff when using ILMS

The study also inquired from the respondents about the strategies they would consider appropriate to address the issues they have observed. Table 8 shows that the respondents strongly agreed that sponsorship to seminars, conferences, and workshops was the major strategy to prepare the librarians to use the ILMS effectively.

Table 8: Strategies to overcome the challenges faced by library staff when using ILMS

Issues	Mean	SD	Min	Max
Staff should be sponsored to attend seminars, conferences, and workshops where they will be trained on how to use the ILMS	4.69	.568	2	5
The University management should provide needed technical and financial support	4.65	.548	2	5
Alternative means of power supply should be provided	4.65	.646	2	5
The internet bandwidth should be increased	4.64	.694	1	5
The library management should provide the necessary technical facilities needed for the smooth running of the ILMS	4.60	.629	2	5
More staff should be deployed	4.36	.796	1	5

They also strongly agreed that the University management should provide needed technical and financial support, alternative means of power supply should be provided, the internet bandwidth should be increased, and the library management should provide the necessary technical facilities needed for the smooth running of the ILMS. Deployment of more staff was the least strategy suggested by the librarians (Mean =4.36, SD =0.796).

Table 9 relates to the regression result of the analysis explaining the relationship between accessibility factors and librarians' satisfaction with the use of ILMS in their institutions.

Table 9: Regression analysis of user satisfaction with ILMS use

Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-1.981	.814	.025	-2.433	.016
Level of Education	.013	.063	-.004	-.048	.002
Position at work	-.028	.016	-.043	-.511	.010
Number of years in service	-.002	.039	-.004	-.058	.954
Gender	-.060	.094	-.040	-.638	.524
Age	-.078	.086	-.062	=.901	.039
System quality	.024	.026	.122	.918	.030
Service quality	.042	.029	.200	1.433	.154
Net benefits	.051	.022	.429	2.274	.024
Availability	-.013	.095	-.009	-.142	.008
Accessibility	.054	.074	.049	.728	.468
Utilization	-.039	.060	-.044	-.653	.514
Affordability	-.010	.015	-.002	-.126	.028
Adequacy	.254	.027	.038	.627	.357
Acceptability	.232	.035	-.002	-.163	.416

With respect to the demographic characteristics, Table 9 shows that level of education (B=0.13, p=0.002) positively but marginally predicted librarians' satisfaction with ILMS; position at work (B=-0.028, p=0.010) also predicted user satisfaction, but negatively. Also, age (B=-0.078, p=0.039) predicted user satisfaction with the negative slope showing that younger librarians expressing more satisfaction with the use of ILMS than older ones. With respect to the accessibility factors, net benefits (B=0.051, p=0.024) and availability (B=-0.013, p=0.008), all marginally but positively predicted librarians satisfaction with the ILMS. Finally, affordability (B=-0.010, p=0.028) also negatively and marginally predicted satisfaction with the use of the ILMS by the librarians. The Table 9 further shows that number of years spent in service, gender of the librarians, service quality, accessibility, utilization, adequacy and acceptability did not significantly predict librarians' user satisfaction with ILMS.

Discussion of Findings

This study examined librarians' use of Integrated Library Management Systems in selected high educational institutions in Oyo State, Nigeria. The study revealed that the majority of the selected higher educational institution libraries make use of KOHA software while the University of Ibadan UI ILMS and Dominican University make use of in-house software. This concurs with the findings of Madhusudhan and Singh (2016) that ILMS have become essential tools that are deployed for the effective support of various library services. It also buttressed the findings of Egbonodje (2016) that several library software such as KOHA is deployed for effective and efficient library service.

Also, the perception of librarians on the ILMS modules deployed in the institution libraries revealed that the cataloguing module was the most deployed module of the ILMS, followed by the circulation module and others including serial management, acquisition module while the reference module is the least deployed module. This opinion is supported by the work of Pratheepan (2014) that ILMS is used to manage various aspects and activities of the libraries. This justifies why England and Miller (2016) noted that libraries rely more on electronic resources, and effective management of these resources is

crucial to the provision of library services. This supports the assertion of Ukachi et al. (2014) that the deployment of ICTs to provide library services to the public is inevitable, especially in the era of the global internet.

There is also a very high degree of accessibility of ILMS in the selected higher educational institutional libraries as a majority have access to ILMS anytime. However, the findings of the study revealed a very low level of utilisation of ILMS. Also, there is a very high degree of availability of ILMS among the libraries as a very high percentage indicated that ILMS in their libraries is available anytime. In addition, apart from the distinct barrier of making the ILMS available, availability of ILMS, accessing the software, and, utilization of ILMS are a major barrier to using ILMS among the libraries. This contradicts the works of Gbadamosi, (2011) and Otulugbu et al (2019) that none of the academic libraries in Oyo State was adequate in terms of deployment of technology to aid the library services due to the failure of many proprietary and open-source software. The finding of this study supports the work of Zhang, Tlili, and Nascimbeni (2020) that accessibility is a major factor that could affect the use of open educational resources which refers to the use of ILMS among libraries. However, the findings of this study support the works of Oyewusi and Oyeboade (2009) and Abbas and Song (2020) that accessibility of such library software is high among users. This also contradicts the work of Egbonodje (2016) who indicated a very low level of availability of digitisation software which refers to the use of ILMS among the libraries.

The findings also revealed a very high level of user satisfaction with the library registration service, especially with access to e-resources, online public access catalogue (OPAC), and the returning of Information Materials (Discharging) Service. Also, a majority have a very low user satisfaction with connection to the ILMS or electronic resources of other Higher Institution libraries abroad through provided links, connection to website and connection to the ILMS or electronic resources of other Higher Institution libraries in Nigeria through provided links, with self-renewal of information service, and with notification of new arrival services. The findings of this study revealed that the use of ILMS has several net benefits such as it saves time, makes the library

more efficient and effective in service delivery, augmenting speed, productivity, adequacy, and efficiency of the library staff, it helps libraries to manage the internal and external resources, it aids effective access to library collections, collections management and services management by the Institution library, among others. Others include creating and trying out new ideas for routine work, assisting in decision making by supporting information flow, aiding job performance and satisfaction, and regulating work processes and performance.

This findings is in line with Gatete and Uwizeyimana (2020) that ILMS could enhance automated administrative activities and assist decision-making by supporting information flow. This supports the findings of Ukachi *et al*. (2014) and Ankrah *et al*. (2019) that new technologies such as the ILMS usage in academic libraries have diffused into higher educational institutions due to the wide range of benefits they provide. This also concurs with the findings of Madhusudhan and Singh (2016) and Pratheepan (2014) that ILMS is used to manage resources such as library and information resources made available for users. The findings of this study also concur with the work of Aladeniyi and Owokole (2018) that the utilization of information resources is high which in this study could refer to ILMS.

This study revealed a high system quality, service quality, affordability, adequacy, and acceptability of the ILMS. The study also revealed several challenges that affect ILMS such as maintenance problems, technical know-how, cost of processing the software, revision policy and free and open-source nature of the software, demonstration of the software before purchase, anxiety, internet network issue, erratic power supply, insufficient manpower, the lack of technical facilities, unfriendly user-interface of ILMS, lack of Supervision and lack of training and re-training of staff. This finding supports the work of Obajemu *et al*. (2013) and Umoh (2017) that several challenges mitigate the use of ILMS such as technical difficulties, maintenance problems, poor revision policy, and the prohibitive cost of processing and maintenance. The findings also concur with the works of Uzomba *et al*. (2015) that the lack of fundamental flexibility to readily adapt to the future trends of library demands is a major challenge in combating the availability, accessibility, and use of ILMS.

A possible way to explain the marginal explanation of the user satisfaction of the librarians with the use of ILMS by all the variables might be related to the fact of the ease of use of the ILMS; they appear not to be complex and do not require users to be very highly educated to use them. However, younger librarians have some more satisfaction advantage compared to older ones, possibly because of the popular IT/IS savviness often attributed to young persons compared to their older counterparts. Underpinning their conversance with the systems, the librarians are able to assess the quality of the system, and that is why their satisfaction with the ILMS was only marginally explained by system quality. Affordability is actually a variable that could be addressed at the institutional level, and this may why the librarians did not consider the variable a serious factor in their opinions about their satisfaction with the ILMS, as exemplified by the negligible slope.

Conclusion

Majority of the institution libraries use PMB, followed by KOHA software, and only two institutions namely the University of Ibadan UI ILMS and Dominican University make use of in-house software. Cataloguing module is the most deployed compared to other modules of the ILMS in use. The most available module of the ILMS is the cataloguing module while the library registration service is the most accessible. Librarians with higher qualifications, who have lower positions at work, and less number of years in the services, are females, and younger in age expressed satisfaction with the ILMS compared to others. With regards to specific accessibility factors, only system quality, net benefits, availability, and affordability were significantly related to satisfaction of the librarians in respect of use of the ILMS to meet their libraries' services' needs. The number of years the librarians have spent in service, and the gender of the librarians are not significant variables in respect of satisfaction of the librarians with the ILMS. The quality of service delivered by the systems, accessibility, utilization, adequacy, and acceptability which are ordinarily considered as crucial factors, did not predict satisfaction with the use of the ILMS.

References

Abbas, K.B. and Song, U.M. (2020). Accessibility and Utilization of Electronic Information Resources for Research Activities in Agricultural Research Institutes in Kaduna State, Nigeria. *Covenant Journal of Library and Information Science* 2682-5295e, doi: 10.47231/SKJC6572.

Adegbore, A. (2020). An evaluation of integrated library management systems use in selected Nigerian university libraries. *Conference on Library, Information and Knowledge-Management International Conference* (Virtual), October 12-15, 2020

Adegboye, G.O. (2015). Availability, accessibility and utilization of Information Resources and services for prison inmates in the North Central states of Nigeria. *Unpublished Thesis*. Department of library and information science, Ahmadu Bello University, Zaria, Nigeria.

Ahmad, H. and Bakhshi, S.I. (2021). Library Automation Software Packages: A Comparative Study of e-Study of Virtua, Alice for Windows, SOUL, and LIBSYS. *Library Philosophy and Practice*, available at https://digitalcommons.unl.edu/libphilprac/6168, accessed on August 25, 2022.

Aladeniyi O, and Owokole A (2018). Utilization of Library Information Resources by Undergraduate Students of University Of Medical Science Ondo, Ondo State, Nigeria. *American International Journal of Contemporary Research* 8(4)e, doi:10.30845/aijcr.v8n4p9.

Ankrah, E. A., Agbodza, R. and Atuase, D. (2019). Library Management Systems in Public Academic Libraries in Ghana: Situations and Challenges. *Journal of Information Science, Systems and Technology* 3(2), 22-41.

Bhardwaj, R. K., and Shukla, R. K. (2000). A Practical Approach to Library Automation. Library Progress (International), 20 (1), 1-9.

Breeding, M. (2012). Perceptions 2011: An International Survey of Library Automation. Available at: http://www.library technology.org, accessed August 28, 2022.

Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–339.

Delone, W. and Mclean, R.E (1992). Information Systems Success: The Quest for the Dependent Variable. *Journal of Management Information Systems* 3(4):60-95.

Delone W and Mclean E (2003).The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19(4):930.

Egbonodje, O. (2016). Availability, utilization and awareness of open source software in libraries and the way forward. *Global Educational Journal of Library and Information Science* 4 (2): 102-110.

Emasealu, H.U. (2020). Automation of Academic Libraries and web Development: A review or Reality. *International Journal of Knowledge and Content Development and Technology* 9 (1): 43-56.

England, L.A., and Miller, S.D. (2016). *Maximizing electronic resource management in libraries: Applying business process management.* Amsterdam: Chandos Publishing.

Gatete, M., and Uwizeyimana, F. (2020) Development of an Online Integrated Library Management Information System: Case Study University of Gitwe International Journal of Scientific Research in Computer Science and Engineering 8(2): 65-76.

Gbadamosi, B.O. (2011). Assessing library automation and virtual library development in four academic libraries in Oyo, Oyo State, Nigeria. *US-China Education Review* 8(5): 711-717

Helen, P., Andreas, S. and Christopher, P. (2015). Toward a unified definition of Web Accessibility, doi: 10.1145/2745555.2746653.

Incose. (2015). *Systems Engineering Handbook: A Guide for System Life Cycle Processes and Activities*, version 4.0. San Diego, CA, USA: International Council on Systems Engineering (INCOSE), INCOSE-TP-2003-002-04.

Kingdom H.K. and Ebikabowei E.B. (2014). The use of library software in Nigerian University Libraries and challenges, Emerald Group Publishing Limited, 0741-9058, *Library Hi Tech News* 3:15-20, doi: 10.1108/LHTN-09-2013-0053.

Madhusudhan, M. and Singh, V. (2016). Integrated library management systems Comparative analysis of Koha, Libsys, NewGenLib, and Virtua, *The Electronic Library*, Vol. 34(2): 223 – 249.

MDN Web Docs (2022). Cognitive accessibility, in Web technology for developers: Accessibility, Mozilla and individual contributors, available at https://developer.mozilla.org/en-US/docs/Web/Accessibility/Cognitive_accessibility, accessed on August 28, 2022.

Muller, T. (2011). How to Choose a Free and Open Source Integrated Library System *International Digital Library Perspectives* 27(1): 57-78.

Obajemu, A.S., Osagie, J.N., Akinade, H.O.J., and Ekere, F.C. (2013). Library software products in Nigeria: A survey of uses and assessment. *International Journal of Library and Information Science,* 5(5)e. Available at http://www.academicjournals.org/IJLIS, accessed August 28, 2022.

Olatunji, O. (2020). Evaluation of the Adoption and use Integrated Library Management Software in selected private university libraries in Osun State, Nigeria. Unpublished Dissertation (M.Inf.Sc). Department of Data and Information Science, University of Ibadan.

Omopupa, K.T., Adedeji, A.A. and Sulayman-Harron, O.S. (2019). Adoption and use of Koha Integrated Library System in the University of Ilorin Library. *International Journal of Information Processing and Communication* 7(1): 230-241.

Okuonghae, O. and Idubor, I. (2021). Assessment of the Use of Open Source Library Software in University Libraries in South-South Nigeria. *Nigerian Libraries* 5(1):104-118.

Olagoke, P.D. and Kolawole, J.A. (2019). Effect of Library Automation on Performance of Librarians in Private Universities in South-West Nigeria. *Information and Knowledge Management* 9(5):1-10.

Osaniyi, L. (2010). Evaluating the X-Lib Library Automation System at Babcock University: A Case Study. *Information Development* 26(1):87-89, doi:10.1177/0266666909358306.

Otulugbu, D., Omoike A. and Agwu, P.U. (2019). Developing In-House Library Software Application: University of Ibadan Library Integrated Software (UI-ILS). *Journal of Applied Information Science and Technology* 12(1): 112-126

Oyewusi, F.O. and Oyeboade, S.A. (2009). An Empirical Study of Accessibility and Use of

Library Resources by Undergraduates in a Nigerian State University of Technology" (2009). *Library Philosophy and Practice (e-journal).* Paper 277. Available at http://digitalcommons.unl.edu/libphilprac/277, accessed August 25, 2022.

Penchansky, R. and Thomas, J. W. (1981). The concept of access: Definition and relationship to consumer satisfaction. *MediCare* 19:127–140.

Pot F.J, van Wee B, and Tillema T. (2021). Perceived accessibility: What it is and why it differs from calculated accessibility measures based on spatial data. *Journal of Transport Geography* 94(1), doi: 10.1016/j.jtrangeo.2021.103090.

Pratheepan, T. (2011), *Integrated Library Management Systems (ILMS) – Open Source and Commercial Software: An Assessment of the Merits and Demerits*, Rochester, New York, NY. Available at: http://ssrn.com/abstract=2215414, accessed August 22, 2022.

Saurman, E. (2016). Improving access. Modifying Penchansky and Thomas's Theory of Access *Journal of Health Services Research and Policy*, 21(1), 36-39, doi: 10.1177/1355819615600001.

Ukachi, N.B., Nwachukwu, V.N. and Onuoha, U. D. (2014) Library Automation and Use of Open

Source Software to Maximize Library Effectiveness. *Information and Knowledge Management 4(2)* Available at https://www.iiste.org/Journals/index.php/IKM/article/view/10939, accessed August 22, 2022.

Umoh, E.B. (2017). Information and Services Provision by Academic Libraries in Nigeria. *International Journal of Academic Library and Information Science* 5(5): 153-159

Uzomba, E.C, Oyebola, O. J. and Izuchukwu, A.C. (2015). The Use and Application of Open Source Integrated Library System in Academic Libraries in Nigeria: Koha Example. *Library Philosophy and Practice* (e-journal) 1250. Available at http://digitalcommons.unl.edu/libphilprac/1250, accessed August 22, 2022.

Uzomba, C.E., Akinyede, B.M. and Ubogu, J.O. (2021). Adoption of library management software in selected university libraries in Southwestern Nigeria. *Journal of Library Services and Technologies,* 3(1):25-39, doi: 10.47524/jlst.v3i1.4.

W3C (2008), Web Content Accessibility Guidelines (WCAG), 2.0 W3C Recommendation 11 December 2008, available at https://ysu.edu/sites/default/files/mathematics-achievement-center/Hawkes%20Learning_Web%20Content%20 Accessibility%20Guidelines %20%28WCAG%29%202.0.pdf, accessed August 23 2022.

Zhang, X., Tlili, A. and Nascimbeni, F. (2020). Accessibility within open educational resources and practices for disabled learners: A systematic literature review, *Smart Learning Environments* 7(1), doi: 10.1186/s40561-019-0113-2.

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