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ASSESSMENT OF LIBRARY MANAGEMENT SOFTWARE IN FEDERAL UNIVERSITY LIBRARIES IN NIGERIA

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ABSTRACT

This study evaluates the use of Library Management Software (LMS) in Federal University Libraries in Nigeria. A descriptive survey design was employed, with a target population of forty Federal University Librarians out of a total of forty-three. A census sampling technique was applied, meaning that all forty librarians participated as respondents. The study was guided by four key research questions. Data were collected using a self-designed, four-point Likert scale questionnaire titled Assessment of Library Management Software in Federal Universities in Nigeria (ALMSFUN). Descriptive statistics were utilized to analyze the data, which were then presented in tables and charts. The results indicate that KOHA is the most widely used LMS, implemented by 21 Universities, accounting for nearly 53% of the sample. Additionally, the study found that LMS plays a crucial role in supporting university management by streamlining workflows and enhancing the efficiency of librarians. Based on these findings, the study recommends, among other things, that Federal University Libraries implement comprehensive training programs for their staff to ensure effective utilization of LMS. It also advocates for the establishment of a consortium that would enable libraries to share resources, collaborate on research, and negotiate collectively for reduced access costs to digital information, which has become the primary medium for scholarly publishing.

Keywords: Library Management Software, University Library, Automation, KOHA, Librarians, Utilization.

Introduction

In an era in which information and communication technology (ICT) rules, individuals, organizations, establishments, institutions and nations are doing everything humanly possible to remain relevant in the global scheme of things. This is through embracing the technology which has enveloped every facet of human activities and human existence seems to hinge on it. Universities as academic institutions that are involved in teaching/learning and research are said to be in vintage position to make the best out of the technology. This is built on the premise that there is exponential growth of information in an astronomical progression and to meeting up with the growth and to ensure its full application and utilization the university has no option than to digital. At the epicenter of providing and managing the needed information for teaching, learning and research, is the University Library.

In this regard, Libraries especially University Libraries over the years have taken advantage of this technology that has spread like wildfire. One earlier side of ICT that has so much become part of the library operations and service delivery is Library management system. A library management system is an example of an information system. In the context of this study, library management system is software that is designed to manage all the functions of a library. A library management system therefore is used to maintain library records. It tracks the records of the number of books in the library, how many books are issued, or how many books have been returned or renewed or late fine charges, among others. With LMS, one can easily find books in an instant, issue/reissue books quickly, and manage all the data efficiently and orderly using this system. The purpose of a library management system is to provide instant and accurate data regarding any type of book, thereby saving a lot of time and effort. LMS is also called an automated library system. It is defined as software that has been established to manage basic

housekeeping function of a library. LMS helps to provide information on any book present in the library to the user as well as staff number. It also keeps a track of book published, given in return and added to the library (Ogundokun., Afolayan., Adegun & Afolabi, 2020).

The implication is that the emergence of ICT has actually forced librarians into using different types of software in discharging their duties. This software serves different purposes such as library automation, digitization, institutional repository, content management. In the library, many software have been taken to provide tools for integrated Library Management System, (An Integrated library system is an automated library system in which all the functional modules share a common bibliographic databases. In an integrated system, there is only one bibliographic record for a book. All transactions involving this book are linked to its bibliographic record) digital library and content management (Onwubiko, 2020). In order for university libraries to serve their patrons effectively, they need to keep up with the pace of emerging technologies which is being adopted by many libraries home and abroad in this digital age. As observed by Campbell (2006), numerous creative and useful services have evolved within academic libraries in the digital age: providing quality learning spaces, creating metadata, offering virtual reference services, teaching information literacy, choosing resources and managing resource licenses, collecting and digitizing archival materials, and maintaining digital repositories". Academic libraries presently are faced with not only the decision on what books and journals to acquire to satisfy faculty and students but also on how to remain relevant in the digital era, mindful of low budgets and resentment on the part of institutional administrators (Okoye, 2008).

It is in this regard that this study assess library management software in Federal University libraries in Nigeria, ascertaining the types used and the extended they have

contributed in the efficient management of the libraries and effective service delivery to their users becomes a necessity.

Statement of the Problem

Holistic application and effective utilization of any library management software act as a yardstick to establishing or determining how digitalized library operations and services are. Poor applications and utilization of computer related technologies or full automation of library operations has been noted to be responsible for ineffective operations of library management software selected by libraries (Adogbeji & Adomi, 2005). To this end, one major challenge facing libraries in the process of automation, is to ascertain vis-à-vis choose the appropriate software that can meet the needs of the library especially in the area of operations and providing the best of services that will satisfy the information needs of the clientele. Since the emergence of information and communication technology (ICT) powered by computers many university libraries in Nigeria have tried utilizing different library management software and the journey continues that one cannot specifically say, this is the type of software being used by university libraries in Nigeria especially Federal Government owned Universities that derive their funding from one source.

Inasmuch as few studies have examined effective utilization of software in individual university libraries and migrating from one software to another but no study to the best of the knowledge of the researcher has been carried as to ascertaining various library management software in use in Federal University Libraries in Nigeria and what type of software is most used by the libraries in a particular part of the country and the proficiency of such software being utilized. This study therefore is aimed at ascertaining library management software in use in individual Federal University Libraries in Nigeria and other things therein.

Purpose of the Study

The main objective of this study is to assess library management software in use in Federal University Libraries in Nigeria with a view to ascertaining the type of library management software in use in individual Federal University Library in Nigeria.

Specifically, the study is to;

1. Determine various library management software in use in Federal University Library in Nigeria;
2. Ascertain the extent to which the software has contributed in the management of library operation and provision of efficient and effective services;
3. Ascertain the reasons for selecting the type of Library Management software;
4. Determine strategies for enhancing effective application of LMS in Federal University Libraries in Nigeria.

Research Questions

This study was guided by the following research questions:

1. What types of library management software being used in Federal University Library in Nigeria?
2. What are the reasons for selecting the type of library management software?
3. To what extent has the software contributed in the library operations and provision of efficient and effective services?
4. What are the strategies for enhancing effective utilization of LMS in Federal University Libraries in Nigeria?

Literature Review

The birth of ICT has actually forced librarians into using different types of software in discharging their duties. The obvious is that Library management software solutions have evolved throughout the years. This is not only because of the need for software innovation but

also due to the general change in consumer behavior. Our on-demand culture has affected how library management software systems should be deployed. In fact, the recent upward trend of adoption is primarily driven by demands for online subscriptions and SMS alerts (Adroit Market Research, 2021). To keep up with these demands, librarians need more from their platforms. They need to have automation capabilities that can take over more menial tasks such as calculating fines and sending out overdue notices.

This software serves different purposes such as library automation, digitization, institutional repository, content management. In the library many software have been taken to provide tools for integrated Library Management System. The emphasis is that good number of libraries from public to corporate, have migrated to ready-made, tested-and-proven platforms for their operations. These platforms allow for advanced library management features like discovery, along with extended capabilities through integrations, providing users with many areas for customization. An Integrated library system is an automated library system in which all the functional modules share a common bibliographic databases. In an integrated system, there is only one bibliographic record for a book. All transactions involving this book are linked to its bibliographic record, digital library and content management (Onwubiko, 2020).

Invariably, that library management software or system cannot be discussed in isolation of library automation. As without library automation there will be no library management software. This is because the software can only thrive under an automated system. Library automation which is the application of computers to perform traditional library house-keeping activities such as acquisition, circulation, cataloguing, the reference service and serial control vis-a-vis the application of ICTs to library operations and services (Pandya 2015; UNESCO, n.d). Some

packages have been designed specifically to suit library functions and enable it to perform its operations. Ugah (2005) noted that wide range of library software is available and that most programmes deal with specific traditional library operations and are structured in modules. Today, there are many software packages in the market. Oyinloye (2004) submitted that these packages are specifically designed for libraries, information and documentation centres. Ugah (2005) further added that majority of library specific software are culturally specific and simply replicate what is currently being practiced in libraries.

As explained by Bardeby (2023), the Library management system is the application software that is developed to make a record of Book purchasing, book searching, book issuing and rent, book returned, catalogs, stock creation, all other fine books, popular and bestsellers and other Library related works. The main functions of the library management system is the realization of the automation of the management of library borrowing and return of books timely and the update of users and book information. Around these main functions, this system involves the following core functions such as: Borrowing management; Return management, Library management, Member management, Book information management and Query function. In other word, Library Management System has been intended to automate, oversee and care for the general handling of even enormous scale libraries. It oversees Book Issues, Returns, Magazine/Newspaper Subscriptions, Calculating/Managing Fine and Balances of installments from Members, creating different Reports for Record-Keeping and Review purposes, as per end client prerequisites

The software are classified into Open Source Software (OSS) (Open Source Software is software for which the underlying programming code is available to the users. They may read it, make changes and build new version of the Software incorporating their

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changes) and Censored Source Software. While the Open Source can be freely accessed and downloaded online, the later are subscribed for by purchase authorized by the Software provider. Some commonly used LMS Software states Onwubiko (2021) include; SURPASS, Lucidea Integrated Library Systems, KOHA ILS, L4U, OPALS, Destiny Library Manager, Handy Library Manager, Insignia Library System, Access-It Library, MODERN LIB, Atrium, LIBRARIAN, Reader ware. Others include: Dspace; ABCD, Greenstone, CD/ISIS, Evergreen, NewGenlib, Eprint, Nice for Windows, GLAS, OpenOffice.Org, VIRTUA, Wordpress, ADLIB, Drupal and MarcEdit.

However, according to Bouchrika (2022) the best twenty LMS in recent time are; CodeAchi Library Management System; Libero (A Platform for Every Library Type), Alexandria: The Highly-Customizable ILS, World Share Management Services, Infiniti Management Software, Evergreen ILS, Libib: Easy Cloud Cataloging for Mixed Media Collections, Mandarin M5, Atrium: Powerful Web-Based Library System with Mobile Applications, Know All Matrix, Apollo ILS, Evolve Integrated Library Software, Sydney Enterprise, Resource Mate, Library World, Surpass, Follett Destiny Library Manager, Genesis G4, Handy Library Manager and Koha (The First Free Open Source Library System).

In the case of Nigeria and software applications in university libraries available evidence did show that among the software packages available for database management in Nigeria from inception are Tinlib, Adio (1998), Ayo (1998), D-Base iv, Fatuyi (1998), Masterlib, etc; while Lib+ was introduced in Nigerian libraries in 2007. The most widely used library software in Nigerian academic libraries before now are GLAS, CDS/ISIS, X-LIB as well as, LIB+. GLAS is by assumption, a windows version of TINLIB as it is a registered trademark of Electronic Online Systems (EOS) International, the company that bought over IME, the manufacturer of TINLIB. Adedeji

(2004) asserted that TINLIB is also modular thus allowing for segmented automation or fully Integrated System. In cataloguing, GLAS enables the library to create multiple databases for cataloguing separate collections (Madu, 2004). Madu (2004), reported in his study that GLAS software is designed with inputs from librarians and that it has the capacity to meet the needs of any type of small to mid-size library, with modules which include cataloguing, circulation, serials, acquisition, data bridge, easy search etc. In addition, LMS enables the library to create multiple databases for cataloguing separate collections.

It is in consideration of the needs and benefits of LMS that in the area of library management where specialized function is offered with software solutions, many universities of the world are addressing the needs for remote access, improved security measures, and financial and user behavior analysis integration (Mageto, 2021). This is, of course, on top of improving the management of library transactions such as lending and reservations.

To this end, the accrued benefits and advantages of the application LMS are enormous. Some have been highlighted to include that library management systems facilitate the administrators to keep an eye on the library department's all functions; It enables librarians and users to save time on daunting tasks and enhances efficiency. It helps the university management to follow the work outline and fineness of different librarian's capabilities. The administrators get an opportunity to know how well-maintained the record of issued books and collection is. The librarian and the administration department can access various reports to implement new improvements and Librarians can get relief from performing manual library management operations that are responsible for making errors more often. It is also revealed that LMS reduces the tedious approach to maintaining library records through manual paper works and specify accurate information of books that have

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been issued or added automatically, Simple and Easy to operate, saves librarian time, and makes eligible to perform other important work., remotely accessible via mobile, Reduces overheads and library's operating cost, Students can easily search and find the books and issue them accordingly, Increase librarian's efficiencies, Mobile access, anytime, anywhere, Search, add, update, and view library materials online, Helps to manage library functions constructively, Reduce library's operating cost, Customized reports for better management as well as helps to remove manual processes to issue books and maintain records(Adroit Market Research, 2021).

Still on the benefits of LMS Mageto (2021) noted that despite the fact that Library management software has been around for many decades. Since originally deployed as on-premise discovery or search tools, their uses have expanded. Modern electronic library system (ELS) now help organizations manage important tasks such as appointments, lending, reserving, returning, processing payments, storage of book records, provide information, and processing invoices for orders. With this development, libraries, too, have expanded to offer on-demand access to print and electronic materials. Some platforms integrate with learning management systems to round out the provision of personalized learning pathways to students. Now, libraries provide patrons a wide variety of services. Some of which can be considered quite out of bounds of traditional library management practices.

One noted fact is that library management today is a far cry from its early iterations. As noted by Ogunsola (2011), a great transformation was witnessed among libraries both in their collection development and in their service structure. Libraries have expanded their roles from being mere repositories of resource materials to active partners in learning and discovery. This is not only to cater to the popular on-demand culture but also to reflect the efforts of librarians "to be more" for their

respective communities. Thus, in order to satisfy these new demands and goals, librarians need better tools to be greater than they already are. Meeting these needs, many times, require the help of powerful digital tools to help free librarians of their precious time so they can concentrate on mission-critical aspects of the service provision and strategic management. These digital tools can help manage menial processes, store and analyze key data, automate tasks, generate reports, and perform other clerical and critical functions using less manpower and time. This is basically why a good library management software solution is important.

Writing on the criteria for selecting management software for instance for any university library, Ugoji (2005) noted that there need to carryout among other things, needs assessment; ascertain credibility of the manufacturers, availability of local technical support, availability of user, manuals and documentation, frequency of upgrading, ease of availability locally, User interface, systems analysis, flexibility and integration. In order to enhance the use of library-oriented software packages, revealed Adedigba and Ezomo (2003), there is also need for proper staff training in that when the library staff is trained on the use of the software, the use will be maximized; purchase of adequate software on the ground that the software is actually meeting up with all the needs of the library, sort out of network challenges, bearing in mind that when the issue of network challenges is handled, it will reduce the problem of systems crash , create conducive working environment as computers are always needed to be placed in an air-conditioned rooms for optimal functioning noting that unfavorable environment can affect both the systems and their resulting in system failure and proper utilization of the software, suitably and adequately designed software with software manual which when acquired will improve upon the use of such software in libraries. Furthermore, there is need for occasional maintenance of the systems and

ensure that systems are quarantined as quarantined systems work better and with it records in the library database well preserved. Above all, needed fund to run the system should be released by both government and university management to prevent stories that touch the heart.

A number of studies have been conducted on computer technologies application in libraries in Africa, especially Nigeria in relation to how to enhance the utilization of LMS in university libraries. Among such studies is the one conducted by Oduwole (2005). In this study on information technology applications to cataloguing in Nigerian university libraries, the researcher used a four-part questionnaire to seek information on the state of automation in 33 university libraries, the types of software they use in library automation, increased retrieval of information by users using the OPAC, problems associated with automation of the library and comments on ways of improving the use of library automation differed widely among the libraries studied.

Research Methodology

Descriptive survey design was adopted for this study. The accessible population was forty (40) Federal University Librarians out of forty-three (43) Federal University Librarians. Census sampling technique was used for this study which made the sampling size the same forty university librarians as the respondents. The study was guided by four research questions. The principle instruments used in collecting data for this study was self-designed Likert type four scaled structured questionnaire titled: Assessment of Library Management Software in Federal Universities in Nigeria (ALMSFUN). Descriptive statistics were used to analyze the data and the data was presented in tables, charts and graph using frequencies and percentages.

The data as displayed in table 1 above did show various LMS in use by individual Federal Universities in Nigeria. As shown, Federal University, Dutsinma, Federal University, Lokoja, Federal University of Technology, Minna, Michael Okpara University of Agriculture, Umudike, Modibo Adama University of Technology, Yola, University of Nigeria, Nsukka, University of Jos and National Open University of Nigeria, Lagos were among the universities using KOHA while Federal University, Lafia, University of Ibadan, Ibadan, University of Jos and University of Nigeria, Nsukka apart from using KOHA also use DSpace. Three (3) universities exclusively use Visionary technology for Library Solution (VTLS) as their LMS. Visionary technology for Library Solution (VTLS)

The data in table 2 above and figure 1 below were on types of LMS used in Federal University Libraries in Nigeria. As the data revealed 21 or 52.5% of the 40 federal university libraries studied are using of KOHA as their LMS, another 12.5% representing 5 universities are using DSpace while 3 or 7.5% use Visionary technology for Library Solution (VTLS), this is followed by Alexandria LMS being used by only 2 or 5% of universities. Other LMS in use are SLAM, Millennium Innovative, VIRTUA, Alice for Windows, ADLIB and New Generation among others.

Among the software, KOHA by ranking is the most used as 21 or 52.5% out of the 40 Federal Universities were using it, followed by DSpace with 5 or % then Visionary Technology for Library Solution (VTLS) 3 (7.5%) and Alexandria 2 representing 5% while others such as SLAM, VIRTUA, Alice for Windows, LIBERTY, New Generation, Millennium Innovative, ADLIB and Concourse were in individual University usage basis were approximately 3% respectively and ranked 5th

The result presented in table 3 indicates that all the items in the table on reason for selecting the present software were rated positive. The ratings are above the criterion

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mean of 2.50. The choice for the LMS is based on factors such as user-friendliness; persuasions from the company that designed the software, the failure of the previous software to support the library operations, the software's compatibility with the existing hardware and the

Presentation of Data

fact that most libraries are acquiring it. This explains the reason why KOHA is mostly used in University Libraries in the Northern part of Nigeria and most first generation university libraries in the western and eastern parts of Nigeria.

Table 1: What are the LMS used by individual Federal University Libraries in Nigeria

S/No	Institution	LMS
1	Abubakar Tafawa Belewa University, Bauchi	KOHA
2	Ahmadu Bello University, Zaria	Visionary technology for Library Solution (VTLS)
3	Alex Ekwueme Federal University, Ndufu-Alike, Ikwu	ADLIB
4	Bayero University, kano	Visionary technology for Library Solution (VTLS)
5	Federal University, Birnin-Kebbi	Self made LMS
6	Federal University, Dutse	-
7	Federal University, Dutsinma	KOHA
8	Federal University, Gashua	-
9	Federal University, Gusau	-
10	Federal University, Kashere	-
11	Federal University, Lafia	DSpace- KOHA
12	Federal University, Lokoja	KOHA
13	Federal University, Otuoke	KOHA
14	Federal University, Oye-Ekiti	KOHA
15	Federal University, Wukari	New Generation LMS
16	Federal University of Agriculture, Abeokuta	KOHA
17	Federal University Petroleum Resources, Effurum	Alexandria
18	Federal University of Technology, Akure	DSpace
19	Federal University of Technology, Minna	KOHA
20	Federal University Owerri	Alexandria & DSpace
21	Michael Okpara University of Agriculture, Umudike	KOHA
22	Modibo Adama University of Technology, Yola	KOHA
23	National Open University of Nigeria, Lagos	KOHA
24	Nigerian Defence Academy, Kaduna	LIBERTY SOFTWARE
25	Nigeria Police Academy, Kano	KOHA
26	Nnamdi Azikiwe University, Awka	KOHA
27	Obafemi Awolowo University, Ile-Ife	Virtua
28	University of Abuja, Federal Capital Territory	KOHA, GIMP (Digitization)
29	University of Agriculture, Makurdi	-
30	University of Benin, Benin-City	Strategic Library Automation and Management (SLAM)
31	University of Calabar, Calabar	KOHA
32	University of Ibadan, Ibadan	KOHA, DSpace
33	University of Ilorin	KOHA
34	University of Jos	KOHA, DSpace
35	University of Lagos	Millennium Innovative
36	University of Maiduguri	Concourse
37	University of Nigeria, Nsukka	KOHA, DSpace
38	University of Port Harcourt	Visionary technology for Library Solution (VTLS)
39	University of Uyo	KOHA
40	Usman Danfodiyo University, Sokoto	Alice for Window & KOHA

Research question 1: What types of library management software are being used in Federal University Libraries in Nigeria?

Table 2: Types of LMS in use in Federal University Libraries in Nigeria

S/No	LMS	Frequency	Percentage	Ranking
1	KOHA	21	52.5	1 st
2	DSpace	5	12.5	2 nd
3	SLAM	1	2.5	5 th
4	Alexandria	2	5	4 th
5	Millennium Innovative	1	2.5	5 th
6	Visionary technology for Library Solution (VTLS)	3	7.5	3 rd
7	VIRTUA	1	2.5	5 th
8	KDL	1	2.5	5 th
9	GIMP	1	2.5	5 th
10	New Generation	1	2.5	5 th
11	Alice for Windows	1	2.5	5 th
12	Concourse	1	2.5	5 th
13	LIBERTY	1	2.5	5 th
14	Self-made software	1	2.5	5 th
15	ADLIB	1	2.5	5 th

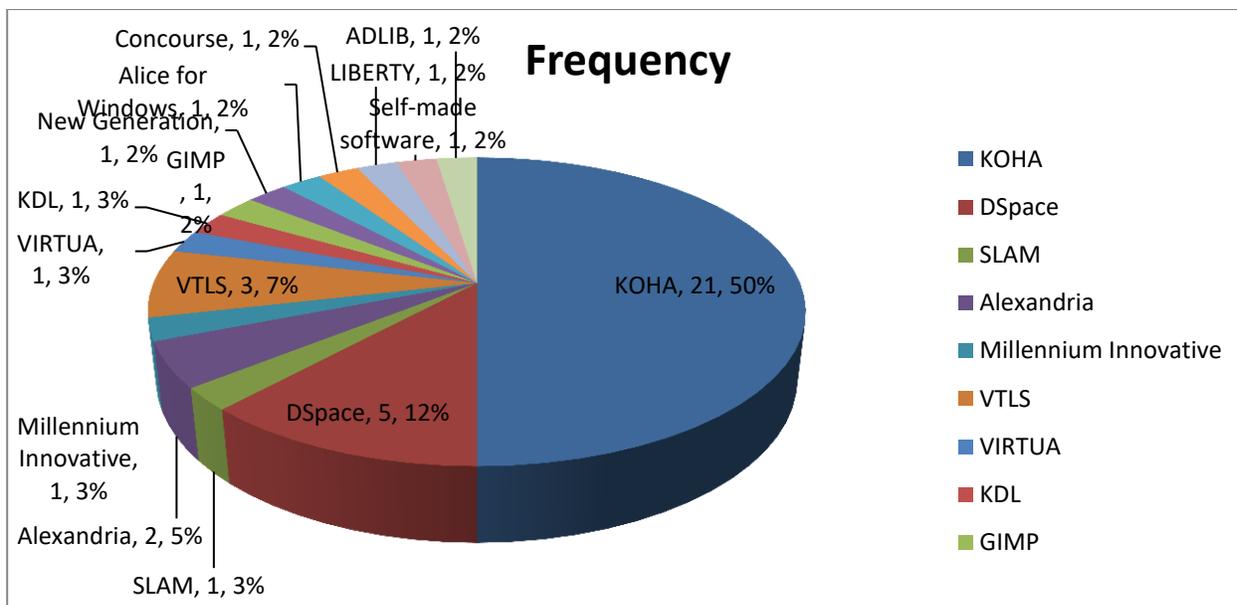


Figure 1: Types of LMS in use in federal university libraries in Nigeria

Table 3: Mean responses on reason for selecting the LMS by each federal university library in Nigeria

S/N	Item Description	Mean (X)
1	Its compatibility with the existing hardware	3.47
2	It is a cheaper software	2.76
3	Failure of the previous software to support the library operations	3.40
4	Most libraries are acquiring it	2.90
5	It is user-friendly	3.54
6	Persuasions from the company that designed it	3.55

Research question 3: To what extent has the software contributed in the library operations and provision of efficient and effective services?

Table 4: The extent LMS has enhanced the services of the university library

S/N	Item	VHE		HE		LE		VLE		Decision
		F	%	F	%	F	%	F	%	
1	It allows the university librarian keep an eye on the functions of all library departments.	35	87.5	5	12.5	***	***	***	***	VHE
2	It enables librarians and users to save time on daunting tasks and enhances efficiency	21	52.5	15	37.5	3	7.5	1	2.5	VHE
3	It helps the university management to follow the work outline and fineness of different librarian’s capabilities	18	45	20	50	**	**	2	5	HE
4	It gives the circulation librarian the opportunity to know how well-maintained the record of issued books and collection is	40	100	***	***	***	***	***	***	VHE
5	The librarian and the administration department can access various reports to implement new improvements	5	12.5	3	7.5	18	45	14	35	LE
6	Librarians can get relief from performing manual library management operations that are responsible for making errors more often	21	52.5	12	30	3	7.5	4	10	VHE
7	LMS reduces the tedious approach to maintaining library records through manual paper works and specify accurate information of books that have been issued or added automatically	40	100	***	***	***	***	***	***	VHE
8	It is simple and easy to operate thus saves librarians’ time, making it possible to perform other important work	12	30	5	12.5	19*	47.5	4*	10	LE

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9	Remotely accessible via mobile thereby Reducing overheads and library's operating cost,	10	25	5	12.5	15*	37.5	10*	25	LE
9	Through Mobile access, anytime, anywhere, students can easily search and find the books and have them issued to them accordingly	7	17.5	4	10	11*	27.5	18*	45	LE
9	With the LMS librarians can search, add, update, and view library materials online which Helps to manage library functions constructively	40	100	***	***	***	***	***	***	VHE

Key: * VHE=Very High Extent, *HE=High Extent, *LE=Low Extent, * VLE=Very Low Extent

Data in table 4 represent librarians views on the extent the use of the various LMS have enhanced the services provided by their libraries. 40 or 100% of the respondents indicated that LMS to a Very High Extent has made it possible that librarians can now search, add, update, and view library materials online which Helps to manage library functions constructively, reduced the tedious approach to maintaining library records through manual paper works and specify accurate information of books that have been issued or added automatically and gives the circulation librarian the opportunity to know how well-maintained the record of issued books and collection is, 87.5% representing 35 respondents, indicated that to a very high extent, the software has allowed the university librarian keep an eye on

the functions of all library departments while 21 or 52.5% of the respondents and another 37.5 indicated that the LS has to a very high extent and high extent respectively enabled librarians and users to save time on daunting tasks and enhances efficiency. On the other hand, over 50% of the respondents indicated that the LMS has only enhanced the services as stated in items 8-9 on a low extent. The response as noticed was relative as those who indicated to a very high extent have management software that an interfaces with all modules and has online public access catalogue (OPAC) which allows for remote and advance search while those that indicated to a low extent operate standalone software that even the modules cannot interface let alone having an OPAC that permits online and advance search.

Research question 4: What are the strategies for enhancing effective utilization of LMS in Federal university libraries in Nigeria?

Table 5: Strategies for improving effective utilization of Library Management Software in federal university libraries in Nigeria

Item	SA		A		DA		SDA		Decision
	F	%	F	%	F	%	F	%	
Proper Staff Training	40	100	***	***	***	***	***	***	Accepted
Purchase of adequate software	10	25	5	12.5	20	50	10	25	Rejected
Sorting of Network problem	25	62.5	15	37.5	***	***	***	***	Accepted
Conducive working environment	40	100	***	***	***	***	***	***	Accepted
Adequately designed software	40	100	***	***	***	***	***	***	Accepted
Quarantined systems	23	57.5	17	42.5	***	***	***	***	Accepted
Occasional maintenance of the systems	40	100	***	***	***	***	***	***	Accepted
Regular release of fund for maintenance	40	100	***	***	***	***	***	***	Accepted
Regular monitoring of staff on duty	4	10	3	7.5	11	27.5	22	55	Rejected

Key: *SDA=Strongly Agreed, *A=Agreed, *DA=Disagreed, *SDA= Strongly Disagreed

Table 5 represents the data collected in respect of strategies for improving effective utilization of Library Management Software in federal university libraries in Nigeria. The entire respondents which is 40 or 100% strongly agreed that proper staff training, occasional maintenance of the systems, adequately designed software, conducive working environment as well as regular release of fund for maintenance are best strategies for enhancing effective application and utilization of

LMS in Federal University Libraries in Nigeria. Other strategies agreed upon on a variation of strongly agreed and agreed totaling 100% include, quarantining systems and sorting of network problem. In the contrary 70% of the respondents strongly disagreed or disagreed that purchase of adequate software and regular monitoring of staff on duty are good strategies for enhancing effective utilization of LMS in Federal University Libraries in Nigeria.

Table 6: Mean responses on the strategies for enhancing effective utilization of LMS in Federal University Libraries in Nigeria.

S/N	Item Description	Mean (X)
1	Adequate training of staff	3.20
2	Purchase of adequate software	2.15
3	Adequate software design	3.49
4	Provision of Software manual	3.49
5	Sorting of Network challenge	3.60
6	Favorable working environment	3.20
7	Quarantined systems	3.18
8	Regular monitoring of staff on duty	2.08
9.	Regular release of fund for maintenance	3.49

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Table 6 shows the mean responses on the strategies for enhancing effective utilization of LMS in Federal University Libraries in Nigeria. It can be seen that all items with the exception of items 2 and 8 that the Mean (X) fall below the benchmark of 2.50 others were rated positive as strategies for enhancing effective utilization of LMS in Federal University Libraries in Nigeria. This implies that to enhance effective utilization of the various library management software, there has to be proper training of staff, adequate software design, sorting of network challenges, provision of software manual and conducive working environment among others.

Discussion of Findings

As shown in tables 1-2 and figure 1, LMS in use in Federal University Libraries in Nigeria include KOHA; DSpace, SLAM, Alexandria, Millennium Innovative, Visionary technology for Library Solution (VTLS) and VIRTUA. Others are KDL, GIMP, New Generation, Alice for Windows, Concourse, LIBERTY, Self-made software as well as ADLIB and the most in use by the University Libraries being the KOHA. This finding affirms the assertions of Onwubiko (2021) and Bouchrika (2022) that VIRTUA, DSpace and KOHA are among the best LMS in recent time. The popularity, application and utilization of KOHA in most Federal University Libraries in Nigeria is understandable in that apart from being open source software (OSS), it is also the first free open source library system. Besides, KOHA is an integrated library system (ILS) that has state of the art web interface, enriched content, faceted navigation, user contributions and rich site summary (RSS) (Tang, Hofmann & Week, 2009).

On the reason for selecting any of LMS by the University Libraries, it was discovered that compatibility with the existing hardware, cheaper software, failure of the previous software to support the library operations, acquisition by most libraries as well as being user-friendly and persuasions from the company that designed it were the main

reasons (see table 3). This discovering collaborates the finding of Ezomo (2003) who in his study found that most academic libraries select their software due to its compatibility with existing software to support the library operations, its user-friendliness, persuasions from the company that designed the software and the fact that most libraries are using the software and noted that given the past experience of research institutions, the staff formulates some broad software selection criteria which are: user friendliness; ability to accommodate smooth conversion of the existing database records; residence on a network micro-computers; flexibility of staff to perform in-house changes without having to depend on specialized technical support; reasonably low purchase price and maintenance costs.

In respect of how the software has contributed in the library operations and provision of efficient and effective services, the study found based on the data displayed in table 4, that the LMS in use in Federal University Libraries in Nigeria has made it possible for circulation librarian to know how well-maintained the record of issued books and collection is, librarians can search, add, update, and view library materials online which helps to manage library functions constructively. It has helped to reduce the tedious approach to maintaining library records through manual paper works and specify accurate information of books that have been issued or added automatically, relieving the pain of performing manual library management operations that are responsible for making errors more often and with it, the University Librarian can keep an eye on the functions of all library departments among many other benefits.

This result is in agreement with Adroit Market Research, (2021) finding that Library Management Systems facilitate the administrators to keep an eye on the library department's all functions; enables librarians and users to save time on daunting tasks and

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enhances efficiency, helps the university management to follow the work outline and fineness of different librarian's capabilities. The administrators get an opportunity to know how well-maintained the record of issued books and collection is, brought relief from performing manual library management operations that are responsible for making errors more often and reduces the tedious approach to maintaining library records through manual paper works and specify accurate information of books that have been issued or added automatically. The report further added that LMS, reduces library's operating cost, customizes reports for better management as well as helps to remove manual processes to issue books and maintain records.

The result further shows in table 5 and 6 in respect of research question 4 which sought to find out the strategies for enhancing effective application and utilization of LMS in Federal University Libraries in Nigeria that proper staff training, sorting of network problem, conducive working environment, adequately designed software, Quarantining the systems occasional maintenance of the systems and regular release of fund for maintenance though not all embracing are good strategies if applied will enhance effective applications and utilization of LMS in Federal University Libraries in Nigeria. Furtherance, data in table 6 which are all about the mean score of the strategies, as observed were rated positive excluding purchasing of adequate software and regular monitoring of staff on duty. The ratings were above the mean benchmark of 2.50.

This particular finding supports Adedigba and Ezomo (2003) discourse that there is also need for proper staff training in that when the library staff is trained on the use of the software, the use will be maximized; purchase of adequate software on the ground that the software is actually meeting up with all the needs of the library, sort out of network challenges, bearing in mind that When the issue of network challenges is handled, it will reduce the problem of systems crash, create

conducive working environment as computers are always needed to be placed in an air-conditioned rooms for optimal functioning noting that unfavorable environment can affect both the systems and their resulting in system failure and proper utilization of the software as well as suitably and adequately designed software with software manual which when acquired will improve upon the use of such software in libraries.

Conclusion and Recommendations

The outcome of this study did reveal that there are over 15 different LMS packages being used in Federal University Libraries in Nigeria. Of all, KOHA is the most used and this may be attributed to its openness, free subscriptions and state of the art web interface, enriched content, faceted navigation, user contributions and rich site summary (RSS). Furthermore, that KOHA is mostly used in Federal University Libraries in Northern part of Nigeria as well as first generation Federal University Libraries in the western and Eastern parts of Nigeria. The study also discovered that the reasons behind the selection and acquisition of a particular LMS are the cheapness of the system, compatibility with the existing hardware, user-friendliness of the system and acquisition by other libraries among others. The study also revealed that the application and utilization of LMS in Federal Universities has enhanced their services in so many ways and that among the strategies that can be applied to enhance effective applications and utilization of LMS include proper training of staff, sorting of network problem, conducive working environment, adequately designed software, Quarantining the systems occasional maintenance of the systems and regular release of fund for maintenance. Based on the outcome of this study the following recommendations are thereby put forward:

1. Federal University Libraries still operating stand alone LMS cannot claim to be fully automated such that the libraries should therefore upgrade and go

for LMS that has all the modules which include cataloguing, classification and acquisition, circulation, reference and serials and its usage maximized.

2. The libraries that have not gone on KOHA should ensure the setting up of OPAC with advanced searching features that can be accessed by the user from remote areas even with their mobile phones
3. Federal University Libraries should establish a consortium through which libraries can share resources, researches and to place themselves in better position to bargain collectively and aggressively for drastically reduced unit cost for the universities access to digital information which is now major medium for publication of scholarly research.
4. Funds should be released as when needed for regular maintenance services of the systems and ensuring that every network challenge is sorted out as it comes.
5. University management should ensure the supply of uninterrupted power as no system can effectively run without regular power supply.
6. Finally there should be regular training and retraining of the library staff in line with emerging technologies so as to enhance their effectiveness and efficiency on the job and not be found wanting.

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