# Adoption of Library Management Software for Effective Information Service Delivery in Some University Libraries in Katsina State.

**Muhammad Saifullahi Ilyasu**
Federal University, Dutsinma, msiliyasu@fudutsinma.edu.ng

**Habibat Umar Jaja**
Department of library and information science, Federal Polytechnic Bauchi
hujaja.list@fptb.edu.ng 07039553333

**Fauziya Umar**
Department of library and information science, Federal University, Dutsinma
ufauziy@fudutsinma.edu.ng 09033762131

**Audu Aliyu**
Department of library and information science, Federal polytechnic Bauchi
aaudu.lis@fptb.edu.ng 08032055154

## Abstract
*The study investigated the adoption of library management software for effective service delivery among university libraries in Katsina state. The study was guided by two research objective which includes; identifying the type of software packages installed for library services delivery among university libraries in Katsina state of Nigeria and finding out the challenges facing the the library management software for library service delivery in University Libraries in the study area. The study targeted all the library staff in the study area who were eight (99). The study employed positivism research paradigm using quantitative research method and questionnaire was used as the instrument for data collection. Furthermore, the data collected was analyse using descriptive statistics. The study found that the major challenges associated with the management and use of library management software which include inadequate managerial support for library service, cost of procurement of the hardware/software and issue of compatibility with hardware devices in the library, high maintenance cost, vendor's insincerity, inadequate funding in the library and proximity to virus in the library software, lack of training and re-training of library staff and software piracy in the library software. Conversely, the study recommended that digital Management Software Package(s) like Greenstone, Document Delivery Software Package(s) like Ariel, Serial Management Software Package(s) such as Cufts and Reference Management Software Package(s) such as EndNote should be installed to carry out all the basic functions of the libraries and to help the library to meet the user demand of the 21st century and among others.*
**Key words: Adoption, Library Management Software, Services Delivery, University Libraries**

## Introduction
Library Management Software is a global phenomenon that has captured the interest of numerous academics and writers worldwide for efficient library services. Various application software packages are now used in academic libraries to offer effective library services delivery. Examples of these LMS software includes TinLib, X-lib, graphic library automation software, fedora open-source software Koha, among others. Prior to computerization of libraries, each library tasks

performed manually and independently. The University of Texas started employing a punch card system to administer library services in 1936, which was the beginning of early mechanization (Khan, 2020). With the introduction of Mark Standard in the 1960s, which coincided with the development of computer technologies, library services underwent their next major innovation (Mumtaz, 2020). The 1970s saw advancements in both telecommunications and computer storage. These developments led to the debut of the Integrated Library Management System (ILMS). Through OPACs and online web-based portals, ILMS started enabling users to engage with their libraries more actively as a result of the internet's development throughout the 1990s and into the 2000s (Thomas, 2014). By the middle to late 2000s, ILMS vendors had increased not only the number of services offered but prices, which left several smaller libraries unsatisfied. Some libraries started utilizing open-source software like Koha and Evergreen. Avoiding vendor lock-in, avoiding license fees, and taking part in software development were often cited reasons for the turning to the open sources (Ganseman, 2015). The emergence of cloud-based solutions has been happening since the 2010s. Since the emergence of cloud technology, the use of cloud-based library management systems has dramatically increased (Breeding, 2014).

Many university libraries in the industrialized world are using application software to offer information services. For instance, Rowley (2016) points out that library services are offered in USA Library of Congress through a centralized system, where services are coordinated and offered through a variety of software applications independent of their geographic locations. Similar to this, Pressman (2011) notes that in United Kingdom , many libraries and/or information centres employ library software that has been fully integrated for the delivery of information services to their various, individual users.

In developing countries, university libraries have adopted software applications for the delivery of information services (Farouq, 2017; Reddy & Khan, 2019). Many libraries and information centres are quickly adopting application of library software, as seen, for instance, in Malaysia and South Africa. Rowley (2016) observed that regardless of their geographic locations, library services are given in a centralized system where services are coordinated and provided with a variety of software applications. Moreover, application of library software is gaining rapid popularity in wide range of libraries and information centres, for example, in Malaysia, and South Africa, Rowley (2016) noted that library services are provided in a centralized system, whereby services are coordinated and provided with various software applications regardless of their geographical locations.

In Nigeria, academic libraries began automating their libraries in the 1980s with library management systems (Ola, 2010; Moyo, 2017). University of Ibadan Library adopted the CDS/ISIS software, which was created and made available for free by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), in 1993. However, Echem and Udo-anyanwu (2018) pointed out that poor skills and a lack of software flexibility prevented users from carrying out the sophisticated tasks necessary for providing seamless library services. Similar to this, Shoneake (2017) reported that choosing a software package for a library is frequently challenging because the package must be powerful and versatile enough to handle all library processes for effective library service delivery to improve teaching, learning, and research activities especially in universities. Based on this assertion, the study sets to investigate the application of library software packages for effective service delivery among university libraries in Katsina state

**Statement of the Problem**

The core problem is lack of library management software for effective service delivery in university libraries in Katsina state. Nonetheless, library management software is an essential tool for effective service delivery. It facilitates the administrators to keep an eye on the library department's all functions, enables librarian and users to save time on tasks, reduced library's operating cost, customized reports for better management, remove manual processes to issue books and maintain records and enhances efficiency. The application of library software is designed to contribute well-management of library functions and therefore need to be applied or installed in the university libraries.

**Research Objectives**

The main objective of this study is to investigate application of library software packages for effective service delivery among university libraries in Katsina state. The specific objectives of this research are to:

- Identify the type of library management software adopted for library services delivery among university libraries in Katsina state of Nigeria.
- Find out the challenges facing the library management software for library service delivery in University Libraries.

## Literature Review

**Software is a collection of programmes required for computers to manipulate the data stored in the database to produce desired results. The software mainly consists of the operating system, programming language, application programmes among others. (Muller, 2011). On the other hand, hardware consists of the Central Processing Unit (CPU), the drives, the printers and the Video Display Unit (VDU). Magnetic tapes, floppy-diskettes, hard disk. Paper tapes,** optical **disks etc. are the storage Medias (Patel and Bhatt, 2020). Software requirement varies from library to library. Large scale libraries require integrated software** package **to be used on multi-user environment, but, at the same time small or middle level libraries may** or **may not require the integrated software package. Only specific module is sufficient for their library automation (Breeding, 2012). Some libraries give importance to On Line Public Access Catalog (OPAC) and Circulation Control rather than Acquisition, Technical Processing and Serials Control modules automation, as they need not have to acquire and process the books at their end (Patel and Bhatt, 2020).** According to **Khayyum Baba, Abdul Raheem and Bhasker (2015), Library software is designed to enhance all library routine activities as expected by the library users. A good and reliable software packages enhance management, control and easy access to information resources that are physical in a library and outside, for example, books, CD ROM, e-journal, e-books, e-databases, and repositories among others. It also helps to reduce time wastage in the delivery of services to the library users.**

Jordan (2017) averred that of library management software (LMS) is the current wave in the field of library automation. It combines several activities of the library into one integrated system, allowing the library staff to perform all their functions online. These activities include simple housekeeping activities like acquisition, cataloguing to user services, and inter-library loan activities. Muller (2011) noted that in choosing application of library software, libraries must base

their decision not only on the performance and efficiency of the system, but also on its fundamental flexibility to readily adapt to the future demands and needs of their patrons. With the advent of the Internet, the World Wide Web and open-source technologies, developers, contributors and open-source software users have turned more and more to free and open-source software (FOSS) library solutions. Since the emergence of such, developers have continuously increased the offerings of fast, freely available ILS software (Adekunle, Olla & Oshiname, 2016). Sobalaje, Ajala and Salami (2018) explained that the main type of software used in today's libraries is the integrated library system (ILS), which is the modern equivalent of the card catalogue. This software provides a search interface to the library catalogue and automates library tasks such as the tracking of book loans and returns. Although ILS vendors have added many different features, every ILS has nearly the same core components of cataloguing and circulation tracking. Because the ILS core is stable, it is suitable for collaborative development. Collaboratively developed computer programs are known as free software or open-source software (OSS). Librarians and programmers have worked together to produce several open-source ILSs (Sobalaje et. al., 2018)

There are many constraints to any kind of development in university libraries all over the world. It is not an easy environment in which to move ahead to computerize its operations and services. It is in this light that, Gbadamosi (2012) stated that the application of library software in the library has faced varied problems and challenges which may differ from one library to another depending on the disposition of the library to ICT application, funding and technical expertise of the librarian anchoring the project. Ming, (2015) highlighted some of the pressing challenges to include hardware breakdown, software problems, unreliable power supply, inadequate funding, staff training deficiency and planned obsolescence of commercial software.

## Methodology

The study was guided by the positivism research paradigm using quantitative research method. The population of the study are all university library staff in three University Libraries in Katsina State: Federal University Dutsin-ma Library: Umaru Musa Yar'adua University Library, and Al-Qalam University Library which is ninety-nine (99). The study adopted total enumeration sampling technique and the data was analysed using descriptive statistics and mean.

## Data Analysis

**Table 1:** Library Management Software (s) adopted in the library

| Items | Yes | | No | | | |
|---|---|---|---|---|---|---|
| | F | % | F | % | Mean | STD |
| G-lass | 1 | 1.1 | 88 | 98.9 | 2.00 | .00 |
| Tin – Lib | 7 | 7.9 | 82 | 92.1 | 1.92 | .27 |
| X – Lib | 3 | 3.4 | 86 | 96.6 | 1.99 | .11 |
| Liberty | 2 | 2.2 | 87 | 97.8 | 1.99 | .11 |
| Virtua | 5 | 5.6 | 84 | 94.4 | 1.98 | .11 |
| E- Lib | 3 | 3.4 | 86 | 96.6 | 1.99 | .11 |
| KOHA | 82 | 92.1 | 7 | 7.9 | 1.08 | .27 |
| Calibre | 15 | 16.9 | 74 | 83.1 | 1.83 | .38 |
| **Strategic Lib Automation & Mg** | | | | | | |
| CDS/ISIS | 28 | 31.5 | 61 | 68.5 | 1.67 | .47 |
| Lib info | 2 | 2.2 | 87 | 97.8 | 1.99 | .11 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Libsy | 0 | 0 | 89 | 100 | 2.00 | .00 |
| Millennium | 0 | 0 | 89 | 100 | 2.00 | .00 |
| SOUL | 2 | 2.2 | 87 | 97.8 | 1.99 | .11 |
| Evergreen | 28 | 31.5 | 61 | 68.5 | 1.67 | .47 |

Table 1 above indicated that 1 (1.1%) of the respondents agreed that g-lass is installed while 88 (98.9%) respondents indicated not installed, thereby reflecting a mean score of 2.00 and a standard deviation of .00. TINLIB was the second listed items that were presented to the respondents of which the majority of the respondents 86 (92.1%) revealed that tin – lib was not installed in their libraries while 7 (7.9%) responded tin – lib was installed. This is reflected in a mean score of scored 1.92 and a standard deviation of .27. For x-lib, liberty, for virtual and e- lib majority 84(94.4%) of the respondents revealed that such type library software were not installed in the libraries, there by reflecting in a mean score of 1.98 and a standard deviation of .11. For KOHA, the majority of the respondents 82 (92.1%) indicated that Koha software was installed in the library while 7 (7.9%) of the respondents indicated that the software was not installed, reflecting a mean score of scored 1.08 and a standard deviation of .27. Similarly, for Caliber, the majority of the respondents 74 (83.1%) revealed that this software was not installed while 15 (16.9%) of the respondents agreed, there by reflecting in a mean score of 1.83 and a standard deviation of .38.

With regards to items of strategic library automation and management software like CDS/ISIS and Evergreen, data from Table 6 above revealed that such type of software was not installed as stated by majority of the respondents 61 (68.5%) thereby, reflecting in a mean score of 1.99 and a standard deviation of .11. For lib info and SOUL, data revealed not installed in the libraries with 87 (97.8%) while 2 (2.2%) indicated these software applications were installed, thereby reflecting a mean score of scored 1.99 and a standard deviation of .11. for Libsy and Millenium, the data showed that 89 (100%) of the respondents indicated that such Software Applications were not installed in the libraries. It is reflected in a mean score of scored 2.00 and a standard deviation of .00. Digital management software package(s) such as D-space revealed installed with 65 (73.0%) response rates while 24 (27.0%) of the respondents indicated not installed; thereby reflecting a mean score of scored 1.27 and a standard deviation of .45. Data from green stone and e-print revealed that 10 (11.2%) and 28 (31.5%) of the respondents believed that such software were installed while 79 (88.8%) and 61 (68.5%) of the respondents answered not installed; thereby reflecting a means score of 1.89 and 1.67 and standard deviations of .32 and .47 respectively. For Fedora, data revealed that 89 (100%) of the respondents indicated that such software application was not installed in the libraries. It is reflected in a mean score of scored 2.00 and a standard deviation of .00.

**Table 2:** Challenges associated with the Library management software

| **Items** | **Yes** | | **No** | | | |
|---|---|---|---|---|---|---|
| | **F** | **%** | **F** | **%** | **Mean** | **STD** |
| There is insufficient manpower in the library | 41 | 45.1 | 48 | 54.9 | 1.55 | .50 |
| There is inadequate managerial support for library service | 58 | 65.2 | 31 | 38.4 | 1.34 | .49 |
| There is inadequate power supply in the library | 39 | 43.8 | 50 | 56.2 | 1.56 | .50 |

| | | | | | | |
|---|---|---|---|---|---|---|
| There is cost of Procurement of the hardware/software | 68 | 76.4 | 21 | 23.6 | 1.23 | .43 |
| There is high Maintenance Cost | 64 | 71.9 | 25 | 28.1 | 1.28 | .45 |
| There is Vendor's insincerity | 61 | 68.5 | 28 | 31.5 | 1.31 | .47 |
| There is Apathy on the part of Library Staff in library | 26 | 29.2 | 63 | 70.2 | 1.71 | .47 |
| There is inadequate Funding in the library | 69 | 66.3 | 30 | 33.7 | 1.34 | .48 |
| There is lack of training and re-training of library staff | 65 | 73.0 | 24 | 27.0 | 1.27 | .45 |
| There is compatibility with hardware devices in the library | 68 | 76.4 | 21 | 23.6 | 1.24 | .43 |
| There is software Piracy in the library software | 74 | 83.1 | 15 | 16.9 | 1.17 | .38 |
| There is Proximity to Virus in the library software | 69 | 66.3 | 30 | 33.7 | 1.34 | .48 |
| There is crashing Problem in the library software | 58 | 65.2 | 31 | 38.4 | 1.34 | .49 |

From the data in Table 2 above, it indicated that insufficient manpower in the library was not a challenge for the management of library management software. This was confirmed by the majority of the respondents with 48 (54.9%) while 41 (45.1%) indicated Yes. This is reflected in a mean score of scored 1.55 and a standard deviation of .50. Inadequate managerial support for library service is one of the challenges as revealed by majority of the respondents with 58 (65.2%) while 31 (38.4%) indicated Yes. This is reflected in a mean score of scored 1.34 and a standard deviation of .49. For inadequate power supply in the library, majority of the respondents disagreed with 50 (56.2%); there by reflecting in a mean score of 1.56 and a standard deviation of .50. For the cost of procurement of the hardware/software and issue of compatibility with hardware devices in the library, the majority of the respondents agreed with the statement by having 68 (76.4%) while 21 (22.6%) of the respondents indicated no, reflecting a mean score of scored 1.24 and a standard deviation of .43. Also, high maintenance cost where majority of the respondents agreed with the statement with 64 (71.9%) while 25 (28.1%) of the respondents disagreed, there by reflecting in a mean score of 1.28 and a standard deviation of .45.

Regarding vendor's insincerity, data from Table 2 indicated that 'Yes' option attracted 61 (68.5%) respondents, while 'No' option attracted 28 (31.5%) thereby, reflecting in a mean score of 1.31 and a standard deviation of .45. For the apathy on the part of library staff, data revealed that 26 (29.2%) of the respondents stated Yes while majority of the respondents disagreed with 63 (70.2%), thereby reflecting in a mean score of scored 1.71 and a standard deviation of .47. Inadequate funding in the library and proximity to virus in the library software showed 69 (66.3%) of the respondents indicated their agreement with the statement. This is reflected in a mean score of 1.34 and a standard deviation of .48. Lack of training and re-training of library staff, majority of the respondents agreed with the statement with 65 (73.0%) response rates; thereby reflecting a means score of 1.27 and standard deviations of .45. For the software piracy in the library software, majority of the respondents agreed that is a great challenge with 70 (83.1%) while disagreed respondents with 15 (16.9%), thereby reflecting in a mean score of scored 1.17 and a standard deviation of .38.

Data in Table 11 showed that the challenges associated with the management and use of library management software include inadequate managerial support for library service, cost of procurement of the hardware/software and issue of compatibility with hardware devices in the library, high maintenance cost, vendor's insincerity, inadequate funding in the library and proximity to virus in the library software, lack of training and re-training of library staff and software piracy in the library software. However, inadequate power supply and apathy on the part of library staff were not regarded as the challenges associated with installation and use of library software in the study area. Unless these challenges are addressed, the library software cannot provide effective information services that can meet the information needs of the university community in the area under study. In this regard, the opinions of the respondents were solicited on how the identified challenges could be addressed.

**Table 3:** Solutions to the Challenges associated with the Use of Library management software packages

| **Items** | ***Yes*** | | **No** | | | |
|---|---|---|---|---|---|---|
| | **F** | **%** | **F** | **%** | **Mean** | **STD** |
| There should be capable manpower of library staff | 28 | 31.5 | 61 | 68.5 | 1.67 | .47 |
| There should be adequate managerial support | 72 | 80.9 | 17 | 19.1 | 1.19 | .43 |
| There should be uninterrupted power supply i.e., generators, inverter and among others | 61 | 68.5 | 28 | 31.5 | 1.31 | .47 |
| There should be provision of funds for maintenance of the library | 68 | 76.4 | 21 | 23.6 | 1.24 | .43 |
| There should be provision of grants for training and retraining of library staff | 74 | 83.1 | 15 | 16.9 | 1.17 | .38 |
| Library staff and users should be given proper orientation on the benefits and use of library software | 69 | 66.3 | 30 | 33.7 | 1.34 | .48 |
| There should be enough flexible software | 64 | 71.9 | 25 | 28.1 | 1.28 | .45 |
| There should be user-friendly software | 61 | 68.5 | 28 | 31.5 | 1.31 | .47 |
| There should be more compatible software with hardware devices | 58 | 65.2 | 31 | 38.4 | 1.34 | .49 |
| There should be fortified software against virus attack | 68 | 76.4 | 21 | 23.6 | 1.23 | .43 |

The data in Table 3 indicated that the option 'capable manpower in the library' was not considered as a way forward for the management of library software applications by the respondents. This was revealed by the majority of the respondents 61 (68.5%), while only 28 (31.5%) respondents agreed that it was a way forward by indicating Yes. This is reflected in a mean score of scored 1.67 and a standard deviation of .47. Adequate managerial support for library service is one of the ways forward as revealed by majority of the respondents with 72 (80.9%) respondents, while 19 (19.1%) respondents indicated their disagreement. This reflected in a mean score of scored 1.19 and a standard deviation of .43. For the uninterrupted power supply such as generators, inverter etc. data revealed that 61 (68.5%) of the respondents stated Yes while 28 (31.5%) of the respondents disagreed, thereby reflecting in a mean score of scored 1.31 and a standard deviation of .47. Provision of funds for maintenance of the library is another way forward that showed 68

(76.4%) of the respondents indicated their agreement with the statement while 21 (23.6%) of the respondents disagreed with the statement. This is reflected in a mean score of scored 1.24 and a standard deviation of .43. Provision of grants for training and retraining of library staff, majority of the respondents agreed with the statement with 74 (83.1%) of the response rates while 15 (16.9%) of the respondents disagreed; thereby reflecting a means score of 1.17 and standard deviations of .38. Library staff and users should be given proper orientation on the benefits and use of library application software, majority of the respondents agreed that is another way forward with 69 (66.3%) while the others disagreed with 30 (33.7%), thereby reflecting in a mean score of scored 1.34 and a standard deviation of .38. Enough flexible software, data revealed that 64 (71.9%) of the respondents stated Yes while 25 (28.1%) of the respondents disagreed, thereby reflecting in a mean score of scored 1.28 and a standard deviation of .45. User-friendly software is another way forward that showed 61 (68.5%) of the respondents indicated their agreement with the statement while 28 (31.5%) of the respondents disagreed. This reflected in a mean score of 1.31 and a standard deviation of .47. Compatible software with hardware devices, majority of the respondents agreed with the statement with 58 (65.2%) response rates while 31 (38.4%) of the respondents disagreed; thereby reflecting a means score of 1.34 and standard deviations of .49. Fortified software against virus attack, majority of the respondents agreed that is a way forward with 68 (76.4%) while disagreed respondents with 21 (23.6%), thereby reflecting in a mean score of scored 1.23 and a standard deviation of .43.

**Discussion of Findings**

- **Type of library management software adopted for library services delivery in University Libraries in Katsina State of Nigeria**: The findings of the study indicated that library management software adopted in the university libraries in Katsina state was limited to only Koha and D-space. Followed by Calibre and Mendeley while other software applications like G-lass, TINLIB, CDS/ISIS and Evergreen, Greenstone and E-print, Cufts, Godot and ILL and Dbwiz and among others are not installed. These findings were not consistent with those of (Iroaganachi, Iwu-James and Esse 2015; Datir 2018; Sriram 2019) who found that Koha software has gained popularity over the years especially academic libraries in Nigeria with the highest software frequently used in South Africa and Nigeria.
- **Challenges facing the Library management Software for Effective Library Service Delivery in University Libraries in Katsina State.** The finding of the study indicated that the major challenges associated with the adoption of library management software which include inadequate managerial support for library service, cost of procurement of the hardware/software and issue of compatibility with hardware devices in the library, high maintenance cost, vendor's insincerity, inadequate funding in the library and proximity to virus in the library software, lack of training and re-training of library staff and software piracy in the library software. Datir's (2018) findings testified that the bottlenecks on the use of ILS were as follows; lack of awareness, poor Internet connectivity /low bandwidth, lack of information searching skills, lack of proper guidance from librarians, lack of funds to support automation project by library management, shortage of computer systems designated for library OPAC, lack of required ICT skills, complex OPAC interface design, erratic electricity power supply/high cost of running electricity generating sets and lack of user training on how to use the library software
- **Identifying the way forward of the identified challenges**. The findings of the study indicated that the way forward includes adequate managerial support for library service,

uninterrupted power supply i.e., generators, provision of funds for maintenance of the library, provision of grants for training and retraining of library staff, library staff and users should be given proper orientation on the benefits and use of open-source software, enough flexible software, user-friendly software, compatible software with hardware devices and fortified software against virus attack were the measures to be taken. With a slight difference from the findings of this study, Sriram (2019) revealed that that proper budget allocation, availability of standard library software in local markets, skilled human resources and management attitudes are the way forward for the problems hindering speedy adoption of information technology (IT) in Nigerian tertiary institutions. In corresponding with the finding of Akhil Kumar, Doraswamy Naick and Somasekhara Rao (2018) also revealed that the scarcity of financial resources. All 60 per cent of respondents to his survey mentioned budget (finance) as the number one problem in library automation in Pakistan

## Conclusion

In conclusion, this study examines the adoption of library management software for effective information services delivery in University libraries in katsina state. Consequently, the study concludes that the adoption of koha and claiber open source software in University libraries plays a significant role in providing effective information services delivery in the study area. Also, provision of computer systems, printes, scanners, telephone, projector, digital cameras, internet, public address systems, barcode reader, uninterrupted power supply and bandwidth, among othes, are imperative for enhancing the LMS for effective information services delivery in the study area.

## Recommendations

- That library management software such as Ariel, Cufts, Glass, Fedora and EndNote should be adopted in University libraries for effective information services delivery.
- Therefore, the study recommended that, sufficient funds, ICT infrastructures, provision of training and retraining, should be made available by the university administrations to meet either purchase or develop the standard library software to satisfy the present and prospective needs of the University library.

## References

Breeding, M. (2013). April 2). Automation marketplace 2013: The rush to innovate. *Library Journal: The Digital Shift.*

Echem, M. &Udo-Anyanwu, A. J. (2018). Information retrieval tools and library physical environment as correlates of library utilization by students in River State University Library, Nigeria. *Library Philosophy and Practice (e-journal),* 3(2), 1-21. Retrieved from: https://www.digitalcommons.uni.edu/libphilprac/1772 (Accessed on 26th November, 2021)

Farouq, B. L., Olatunji, O. &Idris M. (2018). Adoption of Integrated Library Management software (NEWGEBLIB): The experience of Kano University of science and technology Wudil, Kano state.

Gbadamosi, B. O. (2012). Emerging challenges to effective library automation and E- library: The case of Emmanuel Alayande College of Education, Oyo, Nigeria. Library philosophy and practice. *E-journal*, 9(29), 1-18

Khayyum, B. M. A; Abdul Raheem, M. & Bhasker, L. V. (2015). Library Automation by Using Newgenlib Open Source Software: A Case Study of Saiyid Hamid Library (Central Library) in Maulana Azad National Urdu University (Manuu). *Paripex - Indian Journal of Research,* 4(4), 12-29.

Muhammad, Y. & Binta L. F. (2017). Awareness, access and use of academic databases by faculty Members: A case study of Bayero University library, International Journal of Library & Information Science,6(3).13–26. Retrieved from http://www.iaeme.com/IJLIS/issues.asp?JType=IJLIS&VType=6&IType=3 (accessed on 6th April, 2023)

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

Mumtaz, R. & Khan, S. A. (2020). "Management and Organization of Theses held in University Libraries: An Investigation from Information Professionals in Pakistan". *Library Philosophy and Practice (e-journal).* 2(3), 42-54. Retrieved from: https://digitalcommons.unl.edu/libphilprac/4228 (Accessed on 26th November, 2021)

Ola, O.O. (2010). "Who is a librarian? A biannual publication of the Kenneth Dike Library, University of Ibadan", *Nigerian Libraries: Journal of the Nigerian Library Association*, 1(1), 23-46.

Patel, D. R. & Bhatt, B. P. (2020). Criteria for Selection and Evaluation of Library Software, 2nd Ed. New Delhi, Printing Press ltd.

Pressman, R. S. (2011). *Software Engineering: A Practitioners Approach*, 5th ed., McGraw Hill Ltd.,

Rowley, J. E. (2016). *Computers for Libraries*, K.G. Saur, New York, NY, p. 159.

Sani, A. & Tiamiyu, M. (2005). Evaluation of automated services in Nigerian universities. *The Electronic Library*, 23(3); 274-288.

Shoneake, O. A., Oluwole, O.A. and Gbenu, S. A. (2017). Evaluating user satisfaction with landmark University's online access catalogue. *Samara Journal of Information Studies. 14*(1&2), 13-19.