An Open Access Journal available online

Automation in Academic Libraries: An Evaluative Study of Two Nigerian Libraries

Okeoma Chinelo Ezechukwu & Egbe Adewole-Odeshi

University Library, University of Uyo, Uyo.
Akwa Ibom State, Nigeria.
okeomaezechukwu@uniuyo.edu.ng
egbeodeshi@uniuyo.edu.ng

***Abstract*:** Automation is expected to embrace all the aspects of library operations, and these services fully made accessible online to library users. A lot of academic libraries are in different phases of automating their services. Most Nigerian academic libraries have not been able to automate all their operations due to varying factors. Thus library users are still unable to experience the ease of service expected through automation. The need to identify the aspects of library services and identify the factors impeding automation prompted this study. The study is significant to LIS study, Policy, theory and literature as it adds to literature on automation in Nigerian academic libraries. The design of the study was descriptive survey research. This study evaluated automation in the University of Uyo and Covenant University libraries. The structured questionnaire was used to collect data from all Library and Information Science (LIS) professionals working in these academic libraries. Data obtained was analysed using SPSS 15.0. The findings revealed that LIS professionals have a high degree of awareness of library automation in academic libraries. It was also discovered that only cataloguing and OPAC services have been partly automated at the University of Uyo Library, and although the ILS being used is web-based, the OPAC is not yet launched online. Conversely, all aspects of library services have been automated at the Centre of Learning Resources, Covenant University. In addition, it was also observed that the factors affecting the implementation of automation

in academic libraries vary from one institution to the other. It was therefore recommended that Library and Information Science professionals should be encouraged to start experimenting with all the various modules embedded in the Library Management System for other library operations. It was equally recommended that they consult with other academic libraries with the same needs and brainstorm to identify how to meet the needs for more effective automation of library services.

***Keywords*:** Automation, Academic Libraries, Integrated Library Management System, Library Services

Introduction

Change is a constant phenomenon applicable to every profession across the globe. The Library and Information Science (LIS) profession is not an exemption, as library services have continued on a steady transition from the traditional (analogue) to the digital sphere. Computerisation has overtaken many aspects of library services. In addition to this, information is fast becoming a vital national resource, resulting in the multiplication of areas of specialisation within the information profession. The profession is now more challenging with the continual advancement of modern technologies. The 21st century academic library is one that is expected to be fully automated. This implies the computerisation of all the routine housekeeping operations of the library including the maintenance of a functional and internet-accessible OPAC. Thus, the concept of library automation cannot be over-emphasised. In fact, as observed by Abbas (2014), automation is the reality of the 21st century and any library that ignores its capability to transform the information environment is at risk of losing grounds. Ossai-Ugbah (2010) opines that ignoring the potentials of this new technology for learning will even lead to institutions being less competitive and attractive to prospective students.

Library automation is the application of computers and utilisation of computer-based products and services in the performance of different library operations and functions and providing various services and producing outputs. It implies a high degree of mechanisation/computerisation of various routine and repetitive tasks to be performed by human beings, thereby reducing human intervention to a great extent (Kemdarne, 2012). Library automation is also the application of ICTs to library operations and services (unescobkk.org, 2015). The automated library is internet-technology based. The rapid development of technology has seen improvements in communication links and a lowering of costs in accessing the World Wide Web. The implication of this is that the Internet is now more widely available to more people. As a result, many establishments have capitalised on its potentials to reach a wider audience with their services (Ossai-Ugbah, 2010, Idiegbeyan-ose and Ilo, 2013). Automated libraries can also thus be used to reach all the potential library users without the library staff actually travelling out of the library. Suffice it to note here that the rate to which the automation process is completed however, varies between the developed and developing countries and, from one institution to another.

Shrama (2007) identified the following as reasons for library automation: facilitates bibliographic control, efficiency, expediency, accuracy, reduced workload and increased self-esteem of the library. Automation has a lot benefits which apply to users, the staff and the library in general. The benefits according to unescobkk.org (2015) and Shrama (2007) include: enhanced productivity/efficiency, better use of information resources through improved access, improved resource sharing through the virtual catalogue or network, reduced duplication of cataloguing effort, improved use of resources, improved customer services, improved image of the library, accurate production and evaluation of management information, optimised use of human and other resources, and facilitation of the acquisition of new skills and knowledge due to the adaption of modern technologies. One of the five laws of library science is to "save the time of the user". This is majorly made possible in an automated environment.

Automation in the University of Uyo Library

The automation of Uniuyo library started in 2007 with the choice of Strategic Library Automation and Management (SLAM), which is an indigenous software. The library was networked, staff were trained and retrospective conversion of data commenced in the library. The concentration was on the cataloguing module with the aim of converting all the bibliographic records from manual to online using the software for access through OPAC. However, this project experienced serious pitfalls and the converted data were lost as a result of the server that crashed. This project was suspended in 2010 and it started again in 2013 with the choice of free and open source software, KOHA (Ottong, Etim, Ukpanah, Umoh & Enidiok, 2015).

Automation in Covenant University Library

The Covenant University library is known as the Centre for Learning Resources (CLR). Automation in the CLR started with the use of Microsoft Access (in-house designed). It eventually changed to Alice for Windows library software which was used to build a usable OPAC (Yusuf & Iwu, 2010). Due to a few shortfalls and for visibility on the web, they again migrated to Millennium Library software and through it can boast of a functional virtual library service, which gives staff and students, access to the Web Public Access Catalogue (WebPAC).

Statement of Problem

The process of cataloguing, classification, circulation, acquisition and other library services was completely manual before the adoption of Information Communication Technologies into Librarianship. This made it tedious, slow, time consuming and prone to error and mistakes. Book order and the processing was completely manual resulting in longer time for newly acquired books to make its final journey to the shelf. Library users were denied quick and easy access to these materials. Filing of catalogue cards to ensure that all the library holdings are represented was very tedious as a lot of filing and re-filing will need to be done in order to incorporate new titles in the catalogue. At the circulation unit, books loaned out could not be accounted for because of the voluminous book used for

record keeping that one may need to search through first. This process made library services unattractive to users because of the time wasted in getting information resources. The advent of integrated management system has gone a long way in easing access to resources and ensuring quick service delivery in the library. Automation is expected to embrace all the aspects of library operations, and these services fully made accessible online to library users. It is thus very essential that the library staff are aware of the automation procedure as they are the ones working behind the scenes.

A lot of academic libraries are in different phases of automating their services. Most Nigerian academic libraries have not been able to automate all the operations due to varying factors. These factors range from individual to management and other socio economic issues.

The result is that library users are still unable to experience the ease of service expected through automation. It thus becomes necessary to carry out an evaluative study of some of these academic libraries to find out how far they had gone in automating their services as well as identify the factors impeding the process.

This is thus an evaluative study on automation in academic libraries using two academic libraries in Nigeria as case study. The specific objectives are to:

1. ascertain the level of awareness by LIS professionals of library automation in the academic libraries.
2. examine the extent of library automation in the academic libraries.
3. examine the factors affecting the implementation of automation in academic libraries.

Literature Review

Studies have been carried out across the globe on library automation. Shrama (2007) carried out a comparative study on the library automation software packages used in academic libraries of Nepal Majority of the academic libraries use locally developed software. He asserted that the present need, long-term requirements, hardware and software requirements, financial resources of the library and customer support from software developers must be kept in view at the time of selection of any automation software. He identified the following as problems of locally-made software, lack of trained manpower, lack of training facility, inadequate funds, and lack of National Information Policy. Singh (2003) carried out a study on the problems and prospects of library automation in academic libraries in India. He identified the following as some of the reasons for the differences in automation levels in the libraries:

- Attitude and awareness of the management;
- Attitude and awareness of the users especially faculty;
- Resources available;
- Non-availability of suitable software;
- Level and skill of staff;
- Geographical location.

A study was carried out by Ossai-Ugbah (2010) on the impact of automated library services and usage on students' academic performance in Nigerian universities. The study examined the extent to which the use of automated electronic information

services by students has influenced the academic performance of students in three tertiary institutions in Nigeria. The study revealed that having pre-university computer literacy did not account for better academic performance, and students who made use of automated library services were better exposed to academic materials and performed academically better than those who did not make use of the services of an automated library. However, respondents identified slow internet speed and insufficient access to automated library facilities as the major constraints.

Abbas (2014) enumerated the following as steps necessary for achieving automated library system:

a. Planning and managing the implementation project;
b. Infrastructural development;
c. System Configuration:
   i. Automation software,
   ii. Determining the hardware components,
d. Ensuring system integration/ compatibility;
e. Engaging in staff trainings;
f. Retrospective conversion of library records.

Eyitayo and Akintunde (2007) listed the following as standards in library automation software:

- ❖ Meta data standard;
- ❖ z35.50 standard;
- ❖ Interoperability standard.

According to Hodgson (2002), implementing information products and systems that support standards can ensure that libraries will be able to:

- integrate electronic content products from multiple vendors;
- resource-share on a wider geographic scale, even globally;
- participate in more cooperative programmes with other organisations, including ones outside the library community;
- speed up the "time to market" of library materials, i.e. the time to acquire, catalogue, process and circulate an item;
- provide remote access to library services; reduce the need for user training;
- operate successfully with their parent organisation's computing infrastructure;
- migrate cost effectively to newer systems; and
- more easily adopt new technologies.

She further observed that the widespread use of Integrated Library Systems (ILS), global communications via the Internet and the growing number of digital library initiatives have made the need for compliance with standards more critical than ever. Most Integrated Library Systems separate software functions into discrete programs called modules, which are then integrated into a unified interface. Examples of modules include: acquisitions (ordering, receiving and invoicing materials), cataloguing (classifying and indexing materials), circulation (loaning materials to patrons and receiving them back), serials (tracking magazine and newspaper holdings) and OPAC (public interface for users).

Methodology

This is a survey research carried out, through a well-designed questionnaire consisting of a combination of single-choice and multi-choice items. The target population was the professionals and para-professionals working in the University of Uyo and Covenant University libraries. The questionnaire was distributed through a simple

random sampling technique and consisted of a total of nine items which were structured to answer the research questions raised by the study. It was also designed to gather information on the demographic data of the respondents. Thirty (30) copies of the questionnaire were distributed but twenty five (25) copies were retrieved, thus giving a response rate of 83.3%. All the received copies of the questionnaire were valid so they were all used in the analysis.

Data Presentation and Analysis

With the exception of figure 1 to 3 which constituted the demographic distribution of the respondents, data was analysed according to the research questions. Statistic software SPSS 15.0 for Windows was used to analyse the data in simple percentages.

Figure 1: Respondents by Institution

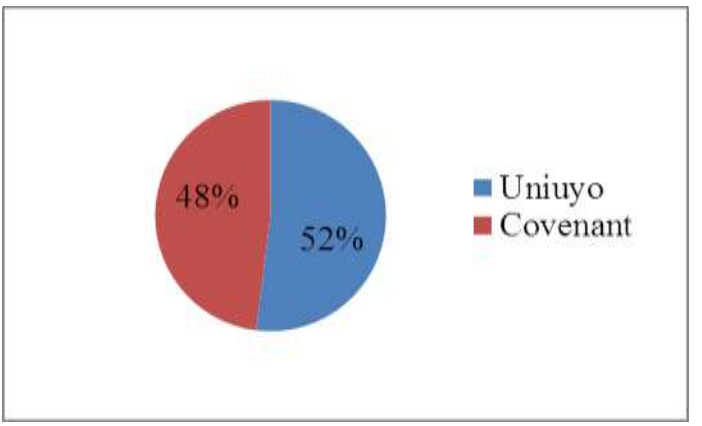
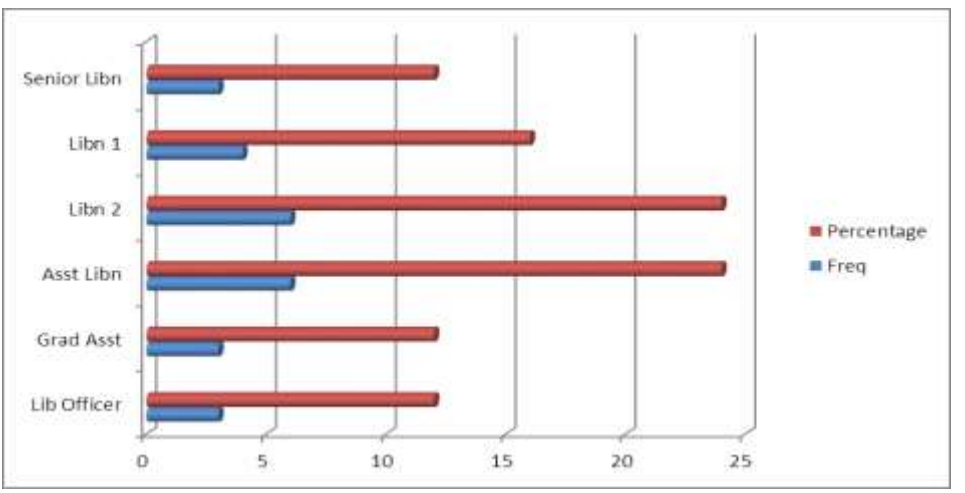


Figure1 represents the distribution of the respondents according to their institutions. University of Uyo library had a total of 13 respondents constituting a percentage of 52, while Covenant University library had a total of 12 respondents constituting a percentage of 48.

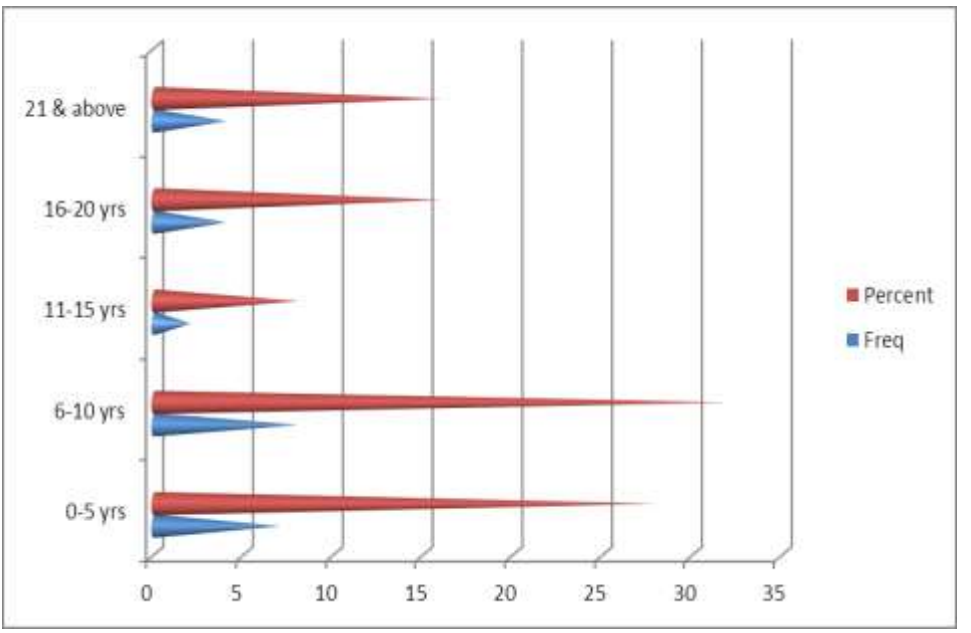
Figure 2: Rank of Respondent



From Figure 2, it can be deduced that the respondents' distribution in terms of rank are as follows: Senior Librarian were 3, representing 12%; Librarian 1 were 4, representing 16%;

Librarian 2 were 6, representing 24%; Assistant Librarians were 6, representing 24%; Graduate Assistants were 3, representing 12%; and Library Officers were 3, representing 12%.

Figure 3: Years of Experience of Respondents



Respondents that had worked between 6-10 years had the highest number at 8 (32%), closely followed by 0-5years at 7 (28%). Respondents that had spent 16-20 years as well as 21 years and above were 4 (16%) respectively, while the least were those that had worked for 11-15 years at 2 (8%).

Research Objective 1: Awareness of library automation

Table 1: How automated is your library?

Level of Library Automation	Frequency		Percentage	
	UUL	CLR	UUL	CLR
Fully Automated	1	11	8.0	92.0
Partly Automated	11	1	84.0	8.0
Not Automated	1		8.0	0
Total	13	12	100.0	100.0

Table 2: Is your library presently using an Automated Library Management System?

Automated Library Management System Use	Frequency		Percentage	
	UUL	CLR	UUL	CLR
Yes	12	12	92.0	100.0
No	1	-	8.0	
Total	13	12	100.0	100.0

Table 3: Is the Library Management System Web based?

Web based Library Management System	Frequency		Percentage	
	UUL	CLR	UUL	CLR
Yes	12	12	92.0	100.0
No	1	-	8.0	-
Total	13	12	100.0	100.0

From the tables 1, 2 and 3, it could be deduced that LIS professionals are aware of library automation in academic libraries. In Table 1, it could be observed that a greater percentage (84%) of the LIS professionals in University of Uyo Library agreed that their library is partly automated. This is in contrast with the Centre for Learning Resources where 92% of the LIS professionals agreed that their library is fully automated. Table 2 shows that 92% of the LIS professionals in the University of Uyo Library are aware that the library is making use of an automated Library Management System, while 100% of the LIS professionals in the Centre for Learning Resources agreed that the Library uses an automated Library Management System. Table 3 also reveals that 92% of the population sample in the University of Uyo Library agreed that the Library Management System is web-based, as against the 100% of the population sample in the Centre for Learning Resources who agreed same. From the findings above we can conclude that LIS professionals in the institutions studied have a high degree of awareness of library automation in academic libraries.

Research Objective 2: Extent of Library Automation

Table 4

Automated LMS Services	Frequency and Percentage of Yes		Frequency and Percentage of No	
	UUL	CLR	UUL	CLR
Cataloguing	10(76%)	12 (100%)	3 (23%)	0
Serials	3 (23%	11 (92%)	10 (77%)	1 (8%)
Acquisition	3 (23%)	9 (75%)	10 (77%)	3 (25%)
Reference	3 (23%)	10 (83%)	10 (77%)	2 (17%)
Circulation	4 (31%)	12 (100%)	9 (69%)	0
OPAC/WEBPAC	11 (85%)	12 (100%	2 (15%)	0

Table 4 shows the extent of library automation in the institutions under study. This is measured by the services carried out by the automated Library Management System. The table reveals that Cataloguing and OPAC services constitute the highest percentages of 76 and 85, respectively in the University of Uyo Library. This implies that only Cataloguing and OPAC services have been automated in the University of Uyo Library. Observation also shows that the OPAC is not yet launched into the Internet, thus it is not available on the World Wide Web. Serials, Acquisition, Reference and Circulation services are yet to be automated. However, in the Centre for Learning Resources, it indicated that a greater number of library services have been automated as the entire population sample disclosed that WEBPAC, Cataloguing and Circulation have been automated, respectively. These were closely followed by Serials, Reference and Acquisition as indicated by 92%, 83% and 75% of the respondents, respectively. Furthermore, the fact that the OPAC of the Centre for Learning Resources was called WEBPAC was due to its visibility on the World Wide Web.

This result of the study indicate that while University of Uyo is partly automated, Centre for Learning Resources is fully automated. The fact that University of Uyo OPAC is yet to be visible online unlike that of her counterpart's WEBPAC, makes it a more complex situation. Koha software being used by University of Uyo Library is web-based and so capable of being launched online.

Research Objective 3: Factors affecting the implementation of Automation

Table 5

Factors affecting the implementation of library automation	Frequency		Percentage of Yes		Frequency		Percentage of No	
	UUL	CLR	UUL	CLR	UUL	CLR	UUL	CLR
Lack of funds	9	3	69%	25%	4	9	31%	75%
Lack of requisite skills	6	2	46%	17%	7	10	54%	83%
Management	10	6	77%	50%	3	6	23%	50%

bureaucracies								
Lack of awareness of existing standards	4	2	31%	17%	9	10	69%	83%
Inadequate workforce	8	4	62%	33%	5	8	38%	67%

Table 5 shows that the factors affecting the implementation of automation in academic libraries vary from one institution to the other. Among the respondents from the Libraries under study, it could be observed that management bureaucracy is the major factor affecting the implementation of library automation, as indicated by 77% and 50% of the LIS professionals in the University of Uyo Library and the Centre for Learning Resources respectively. The other major factors as indicated by 69% and 62% of the respondents from the University of Uyo Library are lack of funds and inadequate workforce, respectively.

Discussion of Findings

In University of Uyo Library, the findings revealed that the Cataloguing and OPAC services have been automated. Majority of the staff have agreed that the library is partly automated which implies that not all the services have been automated. Automation of OPAC/cataloguing is very important as agreed by Singh (2003) and Abbas (2014) who agreed that the automation process commenced in this direction in the academic libraries they studied viz University of Roorkee, India and University of Ibadan, Nigeria respectively. Automation of cataloguing/OPAC services is also very essential as it speeds up the process for library materials to get to the shelves on time and minimises the problem of document location. In the Centre for Learning Resources, WEBPAC, Cataloguing and Circulation have been fully automated with Serials, Reference and Acquisition nearly completed. The finding is in sync with a similar study by Abbas (2014) who revealed that University of Ibadan have fully automated cataloguing module, with acquisition and serials partially implemented while reference and circulation are still at proposal stage.

Management bureaucracy, lack of funds and inadequate workforce were identified as the major hindrances to automation in the University of Uyo and Covenant University libraries. The problems of automation however goes beyond the ones studied as Emezie and Nwaohir (2014); Mishra, Thakur, and Singh (2015); and Athanasius (2018) identified lack of infrastructure facilities, insufficient power supply, poor funding, poor administrative support and inadequate staff training as problems of automation.

Conclusion

One of the laws of library science states that the library is a growing organism states one of the laws of Library Science (Bhatt, 2011). The implication of this is that Library and Information Science is a profession that is dynamic and always open to change. The era of the switch from pure book based services to web-based services through automation has come to stay. There is the need for academic libraries to embrace this change and reflect it in their services.

Recommendations

Based on the findings made in this study, the following conclusions and recommendations are put together:

a. Automation of all the routine library operations is very possible in an academic library as shown by the results of the study of the Centre for Learning Resources. In view of this, it is recommended that academic libraries across the nation should move beyond using only the cataloguing and OPAC modules. Library and information science professionals should be encouraged to start experimenting with the various modules embedded in the Library Management System for other library operations.
b. Academic libraries have peculiar needs, depending on the individual institution and the management. There is need for Library and information science professionals to identify the problems peculiar to their respective institutions. This will go a long way in enabling them to seek for positive ways of overcoming them. They may need to scout for and consult with other academic libraries with the same needs and brainstorm to identify if such problems could be solved by networking and collaborations.

References

Abbas, K. D. (2014). Automation in Nigerian University Libraries: Mirage or Reality? Information and Knowledge Management 4 (4). Retrieved from*www.iiste.org/Journals/index.php/IKM/article/download/12251/12604*

Athanasius, J. (2018). Problems and Prospects of Library Automation in Nigeria. Retrieved from https://infoguidenigeria.com/problems-prospects-library-automation-nigeria/

Bhatt, R. K (2011). Relevance of Ranganathan's Laws of Library Science in Library Marketing. Library Philosophy and Practice (e-journal). Retrieved fromhttps://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1582&context=libphilprac

Emezie, N.A. & Nwaohiri, N. M. (2014). The challenges of library automation in Nigerian universities of technology: the example of federal university of technology, Owerri, Nigeria. The Information Technologist, 11 (1). Retrieved fromhttps://www.ajol.info/index.php/ict/article/view/109506

Eyitayo, S.A., & Akintunde, S. (2007). Guiding Principles for Choosing Library Automation Software. Paper presented at Library and Information Technology Today organised by Information Technology section of the Nigerian Library Association.

Hodgson, C. (2002). The RFP Writer's Guide to Standards for Library Systems. Bethesda, Maryland: National Information Standards Organisation. Retrieved from www.niso.org/publications/press/RFP_Writers_Guide.pdf

Idiegbeyan-ose, J & Ilo, P. (2013). Libraries and Libraries in the 21st Century: A New Perspective. African Journal of

Information and Knowledge Management, 1(1) pp.68-74

Kemdarne, S.B. (2012). Library Automation and Networking in Dental College Libraries.Retrieved from shodhganga.inflibnet.ac.in/bitstream/10603/5661/9/09_chapter%204.pdf

Mishra, A., Thakur, S. & Singh, T. (2015). Library Automation: Issues, Challenges and Remedies. Retrieved from https://www.researchgate.net/publication/277668181

Module 2 Introduction to Library Automation (n.d.). Retrieved fromwww2.unescobkk.org/elib/publications/ICTEIP/…/EIPICT_MOD2_1_1.pdf

Ossai-Ugbah, N. B. (2010). The Impact of Automated Library Services and Usage on Student's Academic Performance in Nigerian Universities. International Journal of Library and Information Science, 2(9), pp. 169-176. Retrieved fromhttp://www.academicjournals.org/ijlis

Shrama, S. D. (2007). Library Automation Software Packages Used in Academic Libraries of Nepal: Comparative Study. Retrieved from *eprints.rclis.org/22581/1/Sabitri%20final%20thesis.pdf*

Singh, Y. (2003). Library Automation in Academic Libraries in India: Problems and Prospects.Retrieved from *ir.inflibnet.ac.in/handle/1944/188*

Ottong, E.J., Etim, F.E., Ukpanah, M., Umoh, M. O., & Enidiok, O. (2015). Subject Metadata Development and Awareness for Digital Resources in University of Uyo Library, Nigeria. Paper presented at the IFLA WLIC held at Cape Town.

Yusuf, F., & Iwu, J. (2010). Use of Academic Library: A Case Study of Covenant University, Nigeria. Retrieved from www.white-clouds.om/iclc/cliej/cl30YI.pdf