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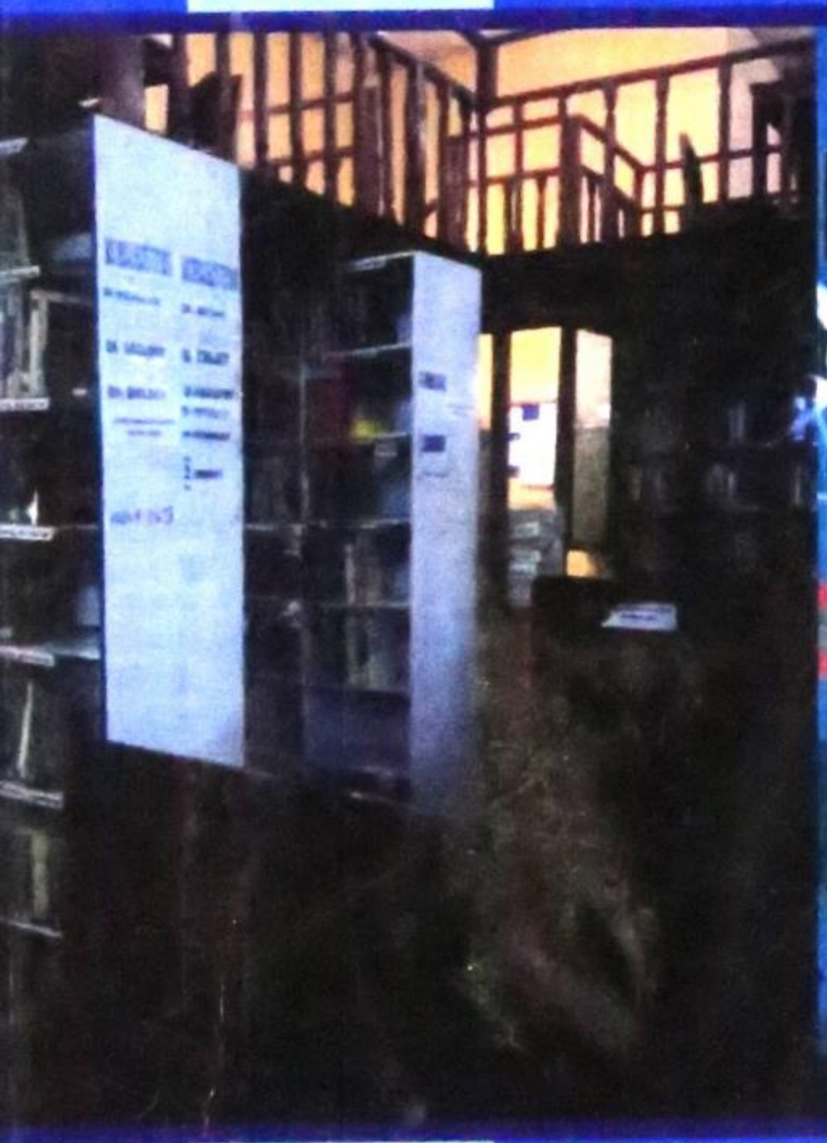

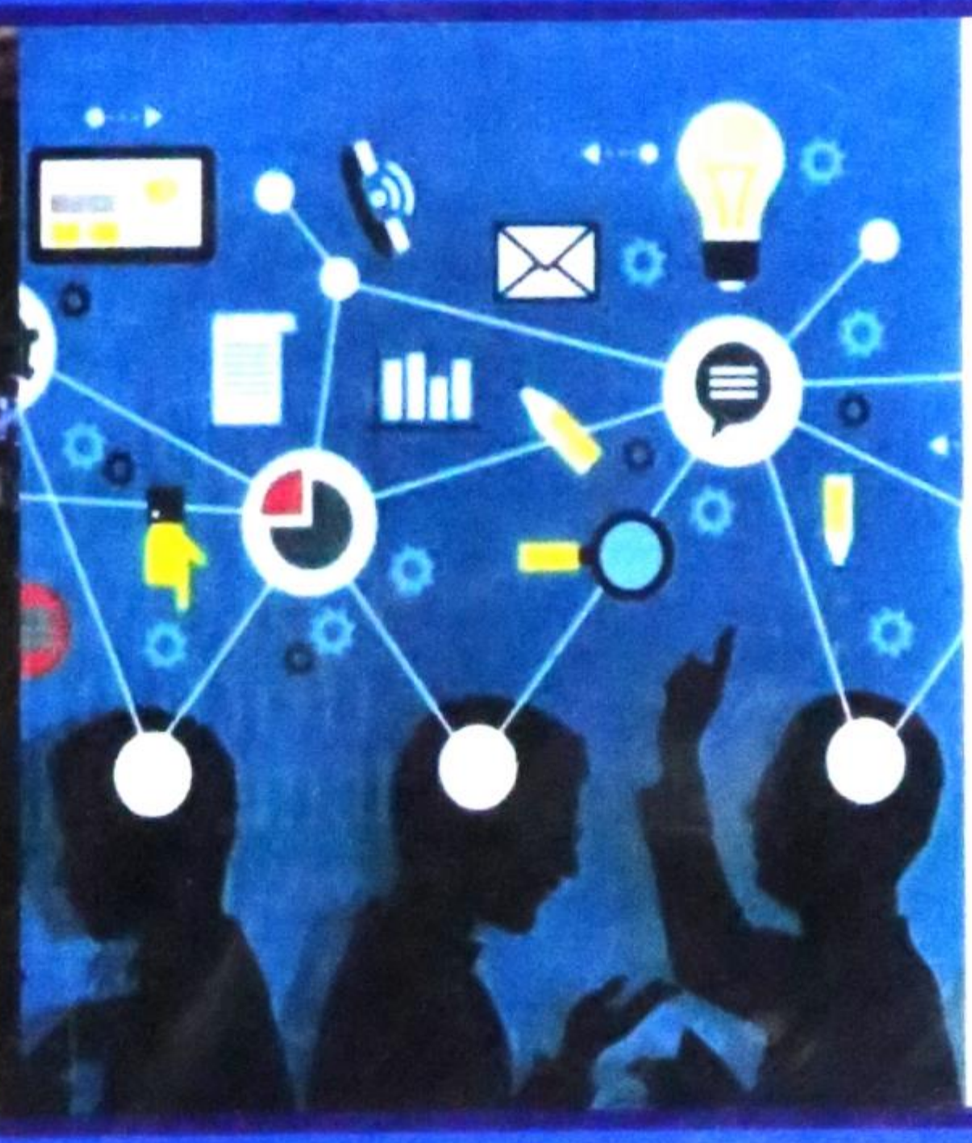

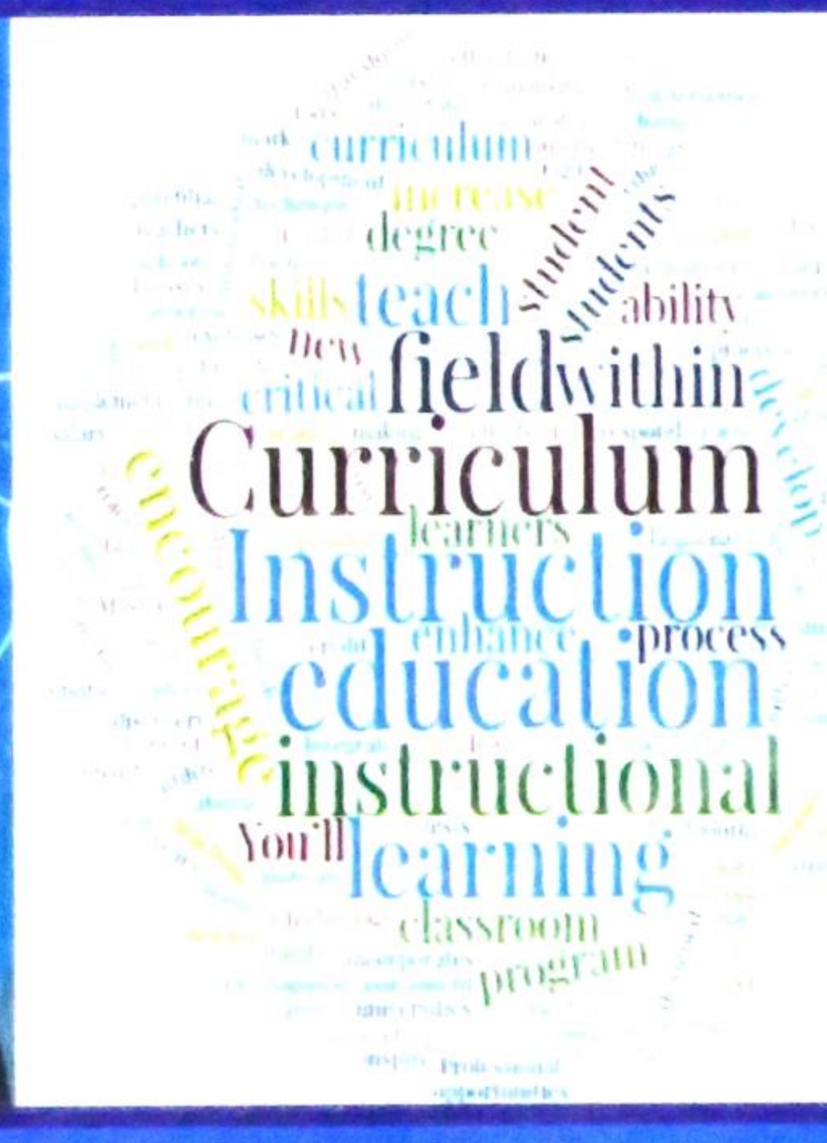

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AUTOMATION OF ACADEMIC LIBRARY: CHALLENGES AND PROSPECTS

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ABSTRACT

Automation of the academic library has played indispensable and inevitable roles for university undergraduate students by bringing academic information closer to them conveniently. Thus, this study was conducted to investigate the challenges and prospects of automation of academic library among Nigerian university undergraduate students. Four research questions were raised and answered for the study. This study adopted a descriptive survey design. One hundred respondents were selected from University of Ilorin, Ilorin and National Open University, (NOUN) Ilorin Centre using simple random sampling technique. Questionnaire on the Challenges and Prospects of Automation of Academic Library" (QCPAAL) was used to collect data for the study. Descriptive statistics of mean and standard deviation were used to answer the research questions. Findings showed that the majority of the respondents which represented 74% agreed that the level of automation of academic library in Nigerian Institutions was high. It was shown that the Micro Computerized Documentation System/Integrated Set of Information Storage and Software Package (CDS/ISIS) constituted the software packages that have been used for automation of academic library which has a highest mean score. The findings indicated that the abnormal termination of the system constituted the major challenge facing effective utilization of automation of academic library which has highest mean score. It was shown that improving on network problem constituted the major way out for enhancing the effective utilization of automation of academic library which has the highest mean score. Based on the findings, it was recommended among others that the university management should endeavour to make adequate provision for the effective utilization of automation of academic library among university undergraduate students so that level of automation of academic library in Nigerian Institutions should be improved holistically. The university management should ensure that software packages for automation of academic library should be provided adequately and effectively.

Keywords: Library Use, Library Automation, Management Information System

INTRODUCTION

The term Automation was first concerned by D. S Harder in 1936. Automation is a process of using machinery for easily working and saving human power and time. It is the techniques of making a process or a system operate automatically. That means it is the mechanized form of manipulating information storage, selects, presents as well as records data. Library Automation started in the late 1970s in few special libraries has now reached most of the University libraries.

In recent time, most of the higher institutions adopted automation of academic libraries whereby academic resources are housed for the library clientele. Resources of this kind could come in form of physical materials such as theses, dissertations, books, inaugural lectures, institution newsletters, ephemeral, grey literature which are materials that can hardly be found elsewhere, or electronic materials such as Compact Disk Read-Only Memory (CD ROM), Automation of academic library which are located in databases, but could be thereafter be printed and bounded in hardcovers for perusal. Such higher institution libraries that house the aforementioned kind of materials are called academic libraries.

Automation of academic library was developed at the Raw Materials Research and Development Centre in Abuja, the capital of Nigeria as a local library software developed to meet the immediate needs of Nigerian libraries. It is commonly used in polytechnics and colleges of education, although some universities have started adopting it. The system, according to Oyinloye (2004), completely automates the management of the library. acquisitions, catalogue and other allied readers' services. Automation of the academic library has been in use in Nigerian libraries since 1996. It is a windows-based package and it is a product of a local effort accepted by Madu and Adeniran (2004).

Edoka (2013) opined that the existence of automation of academic library in higher institutions of higher education such as Universities, Colleges of Education and Colleges of Technology polytechnics was low. Automation of academic libraries is in Universities (public and private), Colleges of Education, Polytechnics and Monotechnics. The collection of automation of academic library is tailored towards the achievement of the institutional goals of teaching, learning and research. They serve the students, lecturers, administrative members of the academic communities as well as others (Omekwu & Ugwuanyi, 2009).

On the other hand, special libraries existed in state government parastatals, ministries/private companies, agencies, non- governmental organizations, churches. These kinds of libraries are often small depending on the size of the organization where they exist. Edoka (2013) added that special libraries go all out to provide every information they can muster to further the activities of their parent organizations. Both automation of academic library and special libraries exist to aid the actualization of the goal and visions of the parent body wherein they exist. Such libraries are the hearts of their parent bodies. In other words, the major goal of automation of academic library is

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to actualize the dream of the parent body via the provision of resources required for research. Academic and special libraries have specific functions which they carry out in a bid to actualize the dreams of the parent body. Edoka (2013) stated seven functions of automation of academic libraries, the seventh of which is to provide specialized information service to appropriate segments of the wider community. He also stated that special libraries provide required information quickly and precisely.

In order for automation of academic library 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. Numerous creative and useful services have evolved within the automation of 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 (Campbell, 2006). Automation of academic libraries is 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 (Anunobi & Okoye, 2008).

Information technology systems and telecommunications have revolutionized library operations and services and become a growing emphasis in library and information science education (Dike, 2000). This is due to the manner in which computers speed up activities and increase available information. There is no doubt that the use of computers in libraries has helped in many ways. Mohammed (2017) added that computers have had a tremendous impact on the acquisition, storage, processing, retrieval, access and dissemination of information. Mohammed went further to say that resources are not just confined to the traditional texts. Rather, new information resources are being produced in combinations of text, graphics, video and audio sounds, animation and virtual reality.

Manual work, involving the use of the hand, paper, biro and human brain in the performance of library duties, can be cumbersome as well as inadequate. In view of the above, Madu (2004) noted that one of the reasons for automation of academic library is the apparent and visible improvement in the access to information for users. According to Bozimo (2006), the information explosion has made it increasingly obvious that access to, rather than ownership of resources is the only way to manage and exploit resources. Especially for electronic resources, access to and sharing of resources are dependent on the automation of library operations through the use of Information and Communication Technologies (ICTs) (Garcia, 2016). It has been noted that the key to great libraries is providing access to the resources in a reliable, easy to use, and affordable manner. Access relies on several important factors including the catalogue and developing a library website, robust local area network, adequate facilities and sufficient and reliable infrastructure.

According to Omoniroa (2001), automation of academic library is the application of information and communication technologies to the automation of its

operations as long ago as 1972. The computer systems that perform the various operations in the library exist in two forms: hardware and software. Hardware refers to the physical components of the system that can be felt. Alhasaan (2003) defined hardware as referring to all the physical devices that make up a computer system. On the other hand, software refers to the detailed instructions that control the operation of a computer system.

Statement of the Problem

Software proficiency is a big determinant of effective computer application in academic libraries. The poor use of computers in library operations can be caused in part by the inadequacies of the selected software in Nigerian institutions (Adogbeji, 2004). One of the most important decisions to be made by any library in the process of automation is, therefore, the choice of software that will best meet the needs of the library. Since the introduction of computerization, Nigerian academic libraries have tried various software without consensus on the most appropriate and proficient one. After trying other types, a number of libraries adopted the X-LIB software due to such capabilities as the menu-driven feature, which provides options like acquisition, cataloguing, circulation, systems administration (Oketunji, 2004). Some of these libraries have recently upgraded their software from X-LIB to LIB-PLUS, which purports to be an upgraded version of X-LIB. Despite this, many of the institutions are still facing some challenges of automation of academic libraries and the implementation of this adoption of automation of academic libraries was low in institutions.

Purpose of the Study

The main purpose of this study was to investigate challenges and prospects of automation of academic library among Nigerian university undergraduate students. Other purposes were to:

1. find out the level of automation of academic library among Nigerian university undergraduate students?
2. examine the software packages that have been used for automation of academic library?
3. investigate the challenges facing effective utilization of automation of academic library among Nigerian university undergraduate students?
4. ascertain the ways out for enhancing the effective utilization of automation of academic library among Nigerian university undergraduate students?

Research Questions

The following four research questions were raised to guide the conduct of the study

1. What is the level of automation of the academic library in Nigerian Institutions?
2. What are the software packages that have been used for automation of academic library?
3. What are the challenges facing effective utilization of automation of academic library?

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4. What are the ways out for enhancing the effective utilization of automation of academic library?

Literature Review

Automation of Academic Library

This has to do with the software that the program which instructs the system to carry out the required tasks. Rowley (2018) defined automation of academic library as a suite of programs that are packaged together because they perform specific functions academically. Oketunji (2003) defined automation of academic library as denoting the program of defined sequences of instructions that computers execute to accomplish given information processing tasks. One can refer to computer software as a program. A computer program as a set of instructions to the micro-computer designed to carry out the desired operation. The computer is functionless without a program or software. some necessary guidelines in selecting automation of academic library application software; these include hardware peripherals, rights in respect of software, history of the supplier, etc. In choosing library software, the history of the software should be considered that is, whether it has been supportive to library operators, or whether it has been compatible with the library"s database, or hardware.

Rowley (2018) listed three different types of software on automation of academic library follows: (i) operating system (ii) utility software (iii) application software. The software of interest in this study is the application software. Automation of academic library Application software is a sequence of instructions that will tell the computer what to do, how to manipulate data and how to relate to users. Choice of application software is so crucial to the success of any library because if a library should choose the wrong software, it will affect the entire operations in that library. As Nigerian research and academic libraries began to computerize their library operations, certain software packages were tried. Adogbeji (2004) found out that out of seven libraries considered, software selection and acquisition was imposed by management decision in the three of the automation of the academic library. Recently, new library software has been introduced to Nigerian universities libraries. Automation of academic library software called LIB+ has been acclaimed by the Nigerian Library Association as a major breakthrough in library management in Nigeria.

Challenging facing Effective Utilization of Automation of Academic Library

Some challenges have been noted to hamper the effective utilization of automation of academic library. These include according to Howden (2000)

The complexity of the Software challenges: It is not all software that is easy to master. In such situations, it could take a long time to study such software, especially without the assistance of the software developer. This poses a great hindrance to the effective utilization of such software as the users could make mistakes along the line while trying to do some applications. CDS/ISIS can only be used on a single user system. In other words, it does not allow two people to use it at the same time.

Poor power supply: This is another challenge of effective utilization of automation of academic library due to lack of steady light can seriously affect the utilization of software. The unstable power supply has been a problem in Nigerian

academic and special libraries. This is can cause a serious breakdown of some expensive machinery. It can also cause crashing of huge databases.

Lack of staff training: Some libraries purchase software for utilization of automation of academic library without arranging for the training of the staff that will be involved in the use of the software by the software developer. Sometimes, the software developers do not go to the libraries, instead, they send some support staff that will aid them in installing the software in such libraries. Consequently, the library staff ends up by just studying the manual, thinking they can operate the software by themselves.

Inadequate Design of the Software: Some features/modules of the software may not work properly for the effective utilization of automation of academic library. This is a big problem.

Virus Attack of the system: Most times, virus attacks the software. In such situations, the system may be hanging, or some modules in the software may not work properly.

Inadequate Software Maintenance: Software maintenance is often neglected by libraries. This is done by correcting some errors that occur in the software.

Mahmood (2018) also listed some other challenges in the utilization of Micro Computerized Documentation System/Integrated Set of Information Storage and Software Package (CDS/ISIS) which include; installation errors, system hangs, abnormal termination, data corrupted, inverted file removed, errors in inverted file generation, incorrect search results, errors in printing/sorting, backup errors and errors in import/export. Adogbeji (2005) listed some constraints to the automation of academic library such as (i) epileptic power supply (ii) fear of retrospective conversion of data. (iii) Finance (iv) Network problem (v) Crashing of systems (vi) Inaccessibility of some of the workstations to the server (vii)Manpower problem (viii) Maintenance (ix) Working environment (x) Staff fear of the use of a computer. Ogunleye (1997) outlined such problems as (i) absence of systems analysis study (ii) poor funding (iii) personnel (iv) power supply (v) equipment maintenance. Okentunji (2000) enumerated some general problems facing the effective utilization of technologies in libraries as follows: a large exploitative local computer market and unsatisfactory after-sales maintenance and support, an inadequate pool of relevant technical staff and problems of recruitment and retention, the potential of library staff resistance to the introduction of computer technology, the potential of users resistance and failure to adapt to use of on-line information, the database conversion problems and frequent changes in technology. A number of factors militate against software selection in academic and special libraries such as:

Lack of proper insight on the software capabilities: Some libraries may decide to procure software that they have little understanding of the features. They may just read about the software online or the manual and decide to purchase the software.

Unreliability of the vendor: The vendors are always trusted in the issue of software procurement. Software vendors are viewed as agencies that come in between the software manufacturer and the software consumer. Their main role is to supply consumers with software that meet their needs, and to offer support and maintenance

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services. The software consumers (libraries) may trust the vendor involved in the software purchase instead of trying the software out themselves.

Lack of fund: A library may decide to choose particular software against their wish because it is cheap.

Involvement of the wrong staff in making the choice: In choosing software for any institution, the computer analyst of programmer should be involved. This is because they have better insight and experience with software applications.

Prospects for Improving Automation of Academic Library

Oriented software packages: In order to enhance the use of automation of academic library, there should be oriented software packages

Proper Staff Training: When the library staff are trained on the use of the software; the user will be maximized.

Purchase of adequate software packages: This is when the software serves all the needs of the library.

Sorting of Network problem: When network problems are handled, there will be no crashing of systems.

Working environment: Computers are always placed in an air-conditioned room. A hot environment can affect the systems and the people operating the systems. In such situations, the systems will break down, thereby affecting the use of the software.

Software Design: Adequately designed software, when purchased will improve upon the use of such software in libraries.

Frequent maintenance of the systems: Quarantined systems work better, thereby preserving the records in the library database.

Release of Funds: Funds should be released by the government to libraries for the purchase of inadequate software

Overview of Computerization in Automation of Academic Library

Ekpo (2001) defined information as data that have been collected about events in a given society, processed into messages for the purpose of consumption and dissemination. Ige ((2001) added that information is that which adds to human knowledge. Information functions alongside communication. For communication to take place, information needs to be passed across, as both factors have always formed the basis of human existence. This fact has made man to relentlessly seek ways of improving the processing of information and communicating such information to one another irrespective of distance and on a timely basis (Ndukwe, 2000). Hamelink (1997) categorized these technologies into five namely, capturing technologies, storage technologies, processing technologies, communication technologies, communication technologies, and display technologies. These technologies have some implications in the automation of academic library operations.

In response to the demand for modern technology, many academic libraries have gone into the business of automating their library operations. Automation in this respect goes beyond mere data entry operations like input and output of data and records; rather it encompasses various aspects of Information and Communication Technology like

teleconferencing, videoconferencing, online resource sharing, networking, processing and management system. This was the scene until 1994 when the National Universities Commission (NUC) introduced the US $120 million World Bank credit facility. This spurred most university libraries to computerize their services.

Myriad benefits are derivable from library automation. Some of these benefits are enhanced productivity, increased output, more productive tasks in documentation and information processing, network enhancement and control of record management and retrieval. Libraries and Information centres have been employing ICT and electronic information resources and services to satisfy the diverse information needs of their users. He further said that ICTs have tremendously increased because they provide enhanced user satisfaction, cost-effectiveness, rapid responses and easier operational procedures. However, while libraries automate their library management activities and procure expensive electronic resources, these may not be optimally used. This is the main concern of libraries around the world. There are many reasons for this state of affairs, including a lack of sufficient funds, inadequate infrastructure, and lack of qualified library professionals. Okentunji (2000) and Anaeme (2006) cited the following additional major problems that can face libraries as they become progressively involved with the use of technologies: general inadequacy in the level of relevant infrastructure, particularly telecommunication facilities and power supply; a large exploitative local computer market and unsatisfactory after-sales maintenance and support; an inadequate pool of relevant technical staff and problems of recruitment and retention; the potential of library staff resistance to the introduction of computer technology; the potential of user resistance to the introduction of computer technology; staff problems in terms of lack of adequate training; collaboration and consortium linkage.

METHODOLOGY

This study adopted a descriptive survey design. The population of this study comprised all the students in the University of Ilorin, Ilorin and National Open University, (NOUN) Ilorin Centre. Purposive random sampling technique was used to sample 50 students from the University of Ilorin, Ilorin and fifty students from National Open University, (NOUN). One hundred respondents were selected using simple random sampling technique. An instrument tagged "Questionnaire on the Challenges and Prospects of Automation of Academic Library" (QCPAAL). Copies of the research instrument were personally distributed to the undergraduate students in the University of Ilorin, Ilorin Nigeria and NOUN, Ilorin Centre with the assistance of two of my colleagues in the department. The data collected were subjected to analysis using SPSS 21 version. The generated research questions were answered using descriptive statistics of mean and standard deviation.

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Results

Research Question 1: What is the level of automation of the academic library in Nigerian Institutions?

Table 1: Level of Automation of Academic Library in Nigerian Institutions

Responses	Frequency	Percentage
High	74	74.0
Moderate	16	16.0
Low	10	10.0
Total	**100**	**100.0**

Source: Field Work

Table 1 shows the analysis of the responses given by the respondents on the level of automation of academic library in Nigerian Institutions. It was indicated that 74% agreed that the level of automation of the academic library in Nigerian Institutions was high, 16% agreed that it was moderate while the remaining 10% agreed that it was low. This indicates that the majority of the respondents which represent 74% agreed that the level of automation of the academic library in Nigerian Institutions was high.

Research Question 2: What are the software packages that have been used for automation of academic library?

Table 2: Software Packages used for Automation of Academic Library

Software Packages	Mean	Standard Deviation	Decision
Bibliophile	2.46	.378	6th
The Information Navigator Library Management Software (TINLIB)	2.91	.352	2nd
ALICE	2.55	.221	5th
X-Windows Library Automation System (X-LIB) .	2.67	.323	4th
Graphical Library Automation System (GLAS)	2.80	.299	3rd
Micro Computerized Documentation System/Integrated Set of Information Storage and Software Package. (CDS/ISIS)	3.89	.295	1st

Table 2 indicated the software packages that have been used for the automation of academic library. Micro Computerized Documentation System/Integrated Set of Information Storage and Software Package. (CDS/ISIS) was ranked 1st with the mean score 3.89, The Information Navigator Library Management Software (TINLIB) was ranked 2nd with the mean score of 2.91, Graphical Library Automation System (GLAS) was ranked 3rd with the mean score of 2.80 while Bibliophile was ranked 6th with the mean score of 2.46. As a result of this, it is shown that the Micro Computerized Documentation System/Integrated Set of Information Storage and Software Package (CDS/ISIS) constituted the software packages that have been used for automation of academic library which has a highest mean score.

Research Question 3: What are the challenges facing effective utilization of automation of academic library?

Table 3: Challenges Facing Effective Utilization of Automation of Academic Library

Items	Mean	Standard Deviation	Decision
Errors of system installation	2.88	.341	3rd
Hanging of systems	2.56	.201	6th
Abnormal termination of the system	3.11	.267	1st
Corruption of relevant data on the system	2.75	.223	4th
Removing of inverted file	2.25	.198	9th
Errors in inverted file generation	3.02	.310	2nd
Errors in printing/sorting	2.41	.225	7th
Backup errors	2.40	.264	8th
Errors in import/export	2.70	.241	5th

Table 3 indicated the challenges facing effective utilization of automation of academic library. Abnormal termination of the system was ranked 1st with the mean score 3.11, errors in inverted file generation were ranked 2nd with the mean score of 3.02, errors of system installation were ranked 3rd with the mean score of 2.88 while removing of inverted file was ranked 9th with the mean score of 2.25. As a result of this, it is shown that the abnormal termination of the system constituted the major challenge facing effective utilization of automation of academic library which has highest mean score.

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Research Question 4: What are the ways out for enhancing the effective utilization of automation of academic library?

Table 4
Ways out for Enhancing Effective Utilization of Automation of Academic Library

Items	Mean	Standard Deviation	Decision
Provision of effective Oriented software packages	3.12	.672	5th
Provision of adequate software packages	3.89	.521	2nd
Proper library staff training	2.50	.452	9th
Good working environment	2.61	.269	7th
Improving on network problem	4.11	.531	1st
Frequent maintenance of the systems	3.38	.451	4th
Releasing of funds	3.55	.472	3rd
Improving on software design	2.98	.591	6th
Provision of software manual	2.55	.422	8th

Table 4 indicated the ways out for enhancing effective utilization of automation of academic library. Improving on network problem was ranked 1st with the mean score 4.11, provision of adequate software packages was ranked 2nd with the mean score of 3.89, releasing of funds was ranked 3rd with the mean score of 3.55, improving on software design was ranked 6th with the mean score of 2.98 while proper library staff training was ranked 9th with the mean score of 2.50. As a result of this, it is shown that improving on network problem constituted the major way out for enhancing effective utilization of automation of academic library which has the highest mean score.

Discussion of Findings

The findings indicated that the majority of the respondents which represent 74% agreed that the level of automation of the academic library in Nigerian Institutions was high. The findings indicated the implementation of automation of academic library in Nigerian Institutions was high. Therefore, this finding is in line with the findings of Edoka (2013) who stated that the existence of automation of academic library in higher institutions of higher education such as Universities, Colleges of Education and Colleges of Technology polytechnics was high.

The findings revealed that the Micro Computerized Documentation System/Integrated Set of Information Storage and Software Package (CDS/ISIS) constituted the software packages that have been used for automation of academic library which has a highest mean score of 3.89. This was confirmed by Rowley (2018)

who stated that automation of the academic library as a suite of programs that are packaged together because they perform specific functions academically.

It was shown that the abnormal termination of the system constituted the major challenge facing effective utilization of automation of academic library which has the highest mean score of 3.11. Adogbeji (2004) found that the poor use of computers in library operations can be caused in part by inadequacies of the selected software in Nigerian institutions. Mahmood (2008) also listed some other challenges in the utilization of Micro Computerized Documentation System/Integrated Set of Information Storage and Software Package (CDS/ISIS) which include; installation errors, system hangs, abnormal termination, data corrupted among others. It was shown that improving on network problem constituted the major way out for enhancing the effective utilization of automation of academic library which has highest mean score of 4.11. Haneefa (2017) concluded that the provision of stable and good network services could improve on the effective utilization of automation of academic library in Nigerian institutions.

CONCLUSION

The result of the finding of this study has revealed that the challenges and prospects of automation of academic library among university undergraduate students. The technologically changing world, there is a need for an approach to managing the change in the tertiary education sector. Automation of an academic library is still in their formative stages. Libraries, librarians and university administrations must initiate automation in order to provide effective and efficient services to students. Library professional must upgrade their skills in order to meet the growing expectation of users from libraries in the survival of tertiary education institutions in the 21st century

RECOMMENDATIONS

The following recommendations were made put forward:

1. The university management should endeavour to make adequate provision for the effective utilization of automation of academic library among university undergraduate students so that the level of automation of the academic library in Nigerian Institutions should be improved holistically.
2. The university management should ensure that software packages for automation of academic library should be provided adequately and effectively.
3. The university management should endeavour to provide absolute solutions to the challenges facing effective utilization of automation of academic library among university undergraduate students

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