

**THE EFFECT OF USING COMPUTER-BASED LIBRARY MANAGEMENT
SYSTEM ON INFORMATION PROVISION IN UNIVERSITY LIBRARIES: THE
CASE OF UNIVERSITY OF ZAMBIA LIBRARY**

Precious Wamuwi Nganga

**A Dissertation submitted for the degree of Master of Library and Information Studies
in the Department of Library and Information Studies, School of Education of the
University of Zambia.**

2012

DECLARATION

I, Precious W. Nganga do hereby declare that this dissertation represents my own work and that it has not been previously submitted for a degree at this or any other University.

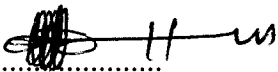

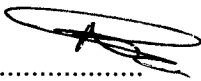
Signed

Date

CERTIFICATE OF APPROVAL

This dissertation of PRECIOUS WAMUWI NGANGA has been approved as partial fulfilment for the award of the degree of Masters of Library and Information Studies by the University of Zambia.

NAMES OF EXAMINER, DATE AND SIGNATURE

NAME	DATE	SIGNATURE
1. Benson Nyobvu	21/08/12	
2. Francina Makondo	29/08/12	
3. Dr. Akakandelewa Akakandelewa		

ABSTRACT

The study used a case study to assess the effect of using computer-based library management system (LMS) on information provision at the University of Zambia library. Respondents comprised librarians (n=19), academic staff (n=34), and students (n=115) from University of Zambia Great East Road Campus.

Data was collected via interviews with librarians in charge of housekeeping functions and these are acquisition, cataloguing, serials, and public service while questionnaires were distributed to other librarians, and library users who were academic staff and students. The specific objectives were to 1) assess whether using computer-based LMS had resulted in acquiring library materials efficiently 2) investigate whether using computer-based LMS in cataloguing had resulted in processing library materials efficiently 3) establish whether using computer-based LMS at circulations control had made information provision to library users faster 4) assess whether using computer-based LMS at serials section had resulted in improved information provision to library users 5) investigate whether using computer-based system had an effect on information access by library users.

Using a qualitative research design, the study revealed that using computer-based LMS had enhanced efficiency in providing library and information services at the UNZA library. This was because the use of computer-based LMS removed the repetitive traditional library routines that characterised the processes of acquiring, processing, retrieval and dissemination of information in the manual system.

The study also revealed that there were challenges faced by both library staff and users such as high computer-student ratio; poor internet connectivity; shortage of manpower for operations and poor maintenance of computers; obsolete equipment, mainly as a result of lack of funds. The other challenges faced by both staff and library users was lack of user education policy and shortage of staff to train library users on how to use the equipment and software provided by the library for effective information retrieval.

The study made recommendations such as the need to have a library server so as to minimise the poor internet connectivity since most of the library functions and operations rely on the availability of internet; the need to employ qualified manpower for operations and maintenance of computer; and need to come up with user education policy to equip the users with knowledge and skills on information retrieval and other library services available.

DEDICATION

To the memory of my parents Mr Alexander Nganga Mukubesa and Esther Mwaaba Milapo, brothers David Mukubesa and Evans Mwanagombe and sisters Justina Mufalo Nganga-Katebe, Grace Pelekelo and Melody Mubiana whose contribution to my education is immensurable.

And to my daughter Joy, who endured this long process with me always offering me support and love.

ACKNOWLEDGEMENTS

In several respects, this study is a product of invaluable assistance I received from individuals and institution. However, I wish to particularly thank my supervisor Dr Hudwell Mwacalimba and my co-supervisor Dr Vitalicy Chifwepa who respectively supervised me in the writing up of my research proposal and dissertation. Their constructive criticisms enabled me not only avoid some pitfalls in the presentation of materials but also expand my academic horizon.

I am also deeply indebted to my employer, the University of Zambia for awarding me a paid study leave and a scholarship respectively.

I also wish to thank my sister Charlotte, my nephews and nieces and my friend Mrs Walumweya Mwanangombe-Lubinda for their support; my cousin Mrs Nobutu Mooka-Daka for the professional typesetting and printing of my drafts and final dissertation.

TABLE OF CONTENTS

Dedication.....i

Declaration.....ii

Approval.....iii

Abstract.....iv

Table of contents.....v

List of Abbreviations.....vi

List of acronyms.....vii

List of Tables.....ix

CHAPTER ONE

1.0 BACKGROUND INFORMATION TO THE
STUDY.....1

1.1 Library management systems..... 3

1.2 Use of computer-based library management systems in university libraries.....4

1.3 The university of Zambia.....5

1.4 The University of Zambia Library.....6

1.5 The use of computer-based library management system at UNZA library.....6

1.6 Problem statement..... 8

1.7 Main objective.....8

1.8 Specific objectives.....8

1.9 Research questions.....9

1.10 Conceptual consideration.....9

1.11 Operational definitions.....10

1.12 Significance of the study11

CHAPTER TWO

2.0 LITERATUREREVIEW.....12

CHAPTER THREE

3.0 METHODOLOGY.....24

 3.1 Research design.....24

 3.2 Population.....24

 3.3 Sampling design.....24

 3.4 Sampling procedure.....24

 3.5 Data collection.....24

 3.6 Data analysis.....25

 3.7 Limitations of the study.....25

CHAPTER FOUR

4.0 FINDINGS.....26

 4.1 Results from interviews with heads in charge of housekeeping functions.....26

 4.1.1 Acquisition.....26

 4.1.2 Cataloguing.....27

 4.1.3 Serials control.....29

 4.2 Public service division.....30

 4.2.1 The circulations control.....31

 4.2.2 Short loan collection.....32

 4.2.3 Online public access catalogue (OPAC).....32

 4.3 Results from other library staff.....33

 4.3 Results from library users.....35

 4.3.1 Academic staff.....36

 4.3.2 Students.....42

CHAPTER FIVE

5.0 DISCUSSION.....48

 5.1Benefits of using computer-based library management system.....48

 5.1.1 Acquisition.....48

 5.1.2 Cataloguing.....49

 5.1.3 Circulations.....51

 5.1.4 Serials control.....52

 5.2 Challenges faced in using computer-based library management system.....52

6.0 Conclusion.....	55
7.0 Recommendations.....	55
References.....	57
Appendix 1: Interview guide for housekeeping functions.....	62
Appendix 5: Questionnaire for other library staff.....	63
Appendix 6: Questionnaire for academic staff.....	67
Appendix 7: Questionnaire for Students.....	71

LIST OF TABLES

Table 1:	Whether using computer-based LMS has an effect on providing information to users.....	37
Table 2:	Questionnaire distribution to library users.....	39
Table 3:	Utilisation of library services by Academic staff.....	41
Table 4:	Summary of how respondents view the efficiency of library services.....	42
Table 5:	How Academic staff became aware of the availability of OPAC.....	43
Table 6:	How using OPAC has influenced information search.....	44
Table 7:	Gender of students.....	46
Table 8:	How often students utilise library services.....	47
Table 9:	How students view the efficiency of library services.....	48
Table 10	Type of catalogue students use.....	49
Table 11:	Reasons why students do not use OPAC.....	50
Table 12:	How students describe the use of OPAC.....	51

LIST OF ACRONYMS

CAMAS	Computer for Academic, Management and Administration Support
CD-ROM	Compact Disk Read Only Memory
CDS-ISIS	Computerised Information System – Integrated Set of Information Systems
COMESA	Common Market for Eastern and Southern Africa
EBZ	Export Board of Zambia
ICT	Information Communication Technology
I T	Information Technology
FINNIDA	Finnish International Development Agency
LAN	Local Area Network
LMS	Library Management System
MARC	Machine Readable Catalogue
NGO	Non-Governmental Organisation
PSD	Public Service Division
OPAC	Online Public Access Catalogue
OSL	Official Shelf List
SMEs	Small and Medium Enterprises
TINET	Trade Information Network
USA	United States of America
WAN	Wide Area Network
UNZA	University of Zambia

CHAPTER ONE

1.0 BACKGROUND INFORMATION TO THE STUDY

Libraries are repositories of human knowledge and culture. They have always played a very important role in human life by processing information and transferring knowledge for optimum accessibility and usability. Their functions had always been acquiring, processing or organising, storing, retrieving and disseminating information.

In the university environment, the library is a major information providing system that supports teaching, learning and research by providing information materials of various types to the university community (Anunobi, 2010). This has put a university library at the centre of academic excellence in the university system. To emphasise the importance of the university library in the university, Verner, (1974:p19) stated that *“for a long time the library has been the “heart of the university”. Until the advent of computer, little could challenge the supremacy of the library as a principal resource of an educational institution”*.

Before the introduction of computers, university library operations were predominantly manual in acquiring, processing and dissemination of information. Changes in society and in technology have impacted significantly on university libraries and consequently on their services and users. With the introduction of technology there was an increase in publishing industry resulting in literate populations. The demand for university education increased the number of students entering universities and subsequently in courses offered in universities resulting in high demand for library services. The manual systems however, became cumbersome for both staff and library users resulting in library services and provision of information to be slow. The work in university libraries such as cataloguing and circulation processes were repetitive thereby they became cumbersome for staff and slow in the provision of information to users.

The introduction of computers in university libraries brought a relief and efficiency since computers could store large amounts of information in computerised databases. The result of purchasing and using of equipment enabled data to be accessed was the biggest single growth in academic libraries. This growth has tended to create the impression that mechanised information sources provide an answer to every library problem at all levels (Doust, 1988).

Major computer applications to the processing of bibliographic information did not start until the early 1960s. The past decades have seen an increase in the amount of information being stored in computerised data bases. This period witnessed the development of library automation during which time consideration of computerised automation of various libraries functions has been the forefront. According to Munshi (2003), mechanization of library housekeeping operations, predominantly by computerisation, is known as library automation.

The need for automation was felt because of the workload in all spheres of library operations directly involved in providing library services to users. Philosophical plans for such libraries can be dated as early as Vannevar Bush's article in the Atlantic over 60 years ago. Bush envisioned a personalised library of information contained in a single desk aptly named "memex". All personal correspondence, files, and records would be stored on microfilm along with uncounted number of books (Bush (1945) quoted by Ansari and Amita (2008). However, a landmark work was issued a couple of years later by Lancaster in which researcher would possess office computers to create, transmit, and receive information (Lancaster, 1978).

The announcement by IBM in 1964 of its system 300 occurred at the most opportune time for the American library community. Within this relatively unknown environment, universities and libraries entered into software development process which could enable them to catch up where they have been falling behind (Verner, 1974). A system such as the IBM 1401 was popular in library use during early 1960s. The implication of these technological advancements in terms of library application was to usher in the era of online automation (Dhawan, 1997).

The advent of high speed electronic data processing systems has enabled libraries to adopt computer applications in their activities. Almost all functions carried out in libraries have been altered to some extent by advances in electronics, computerisation, and telecommunications. In light of the ever growing quantity of information resources and the increase in demand for the library services, libraries came to realise that with the availability of technology, they can deliver effective and efficient services by applying technology. Chishti (1989) lists the application of microcomputers in the fields of cataloguing, circulation, indexing, reference and database searching, acquisition and ordering, administration, teaching, distribution, inventories, network, recreation, information, serials control and many others.

The development of machine readable catalogue (MARC) system by the United States Library of Congress was considered the most significant development in the history of library automation. The aim was to include all the data traditionally given in the catalogue record as flexible as possible for manipulation in a wide range of machines and situations. According to Cramer (1979) the MARC project has attracted most attention in the area of computerised cataloguing. The MARC format was standardised as ANSI/NISO Z39.2 and is now being used by libraries around the world to provide computerised access to their collections (Fisher and Rowley, 1994).

1.1 Library management systems

Library management systems (LMS) were developed as a response to technical advances and user requirements, mainly in developing electronic interfaces, and evolve from the horde of various forms of manual systems used such as acquisition and cataloguing systems. Management information systems comprise three components: facilities for handling ad hoc enquiries; facilities for standard report generation; and management information modules, or report generators that support the production of user-defined reports. A list of standard reports covering acquisitions, cataloguing, circulation control, serials and inter-library loans is provided (Fisher and Rowley, 1994).

According to Clayton and Batt (1992: p.41) “A *library management system is a computer application developed in the 1960s, first and foremost, as a means of automating the task of circulations control*”. Library management system is therefore a computer system which deals with one or more library processes. The first system employed punched cards which were read by sensors, but today the barcode has become the universal means of capturing data. Modern computer-based LMS evolve from the horde of various forms of manual systems used from time immemorial.

Today, most university libraries have migrated or in transition from manual to electronic systems. These developments have made library organisation, administration and other technical processing easy and faster thereby simplifying the way libraries carry out their functions.

With the increase in power and storage of microcomputers, it is now possible for full records networked to terminals connected to minicomputers and provides public access to the library

catalogue in form of an open public access catalogue (OPAC). Introduced in U.S.A. in the late 1970s OPAC has significantly changed the traditional role of the concept of access to information by enhancing searching capabilities (Ansari and Amina, 2008). The introduction of OPAC has changed the traditional concept of access to information in a significant way because it has enhanced searching capabilities, minimised response time and comprehensiveness provided for in what is retrieved. With the advent of internet and more recently the World Wide Web, most library catalogues can now be accessed from any corner of the globe.

1.2 Use of computer-based library management systems in university libraries

University libraries being large were slow to adopt the new technologies, but with the increasing demand for education, they were faced with challenge of the ever increasing number of students and courses, the workload became cumbersome and slow. The purpose of using computer-based library management systems in university libraries is to enable the user access the information required and library services. Using computer-based library management system is said to have more benefits for university libraries. According to Oketunji (2000) as cited by Okiy (2005), Nkanu and Okon, (2010) named the benefits to include:

- Elimination of some uninteresting and repetitive work in the library system;
- Increased efficiency and effectiveness; cooperation and the formation of library networks; provision and marketing opportunity of their services;
- Offers quick and easier ways of performing increased workload of library tasks with greater efficiency;
- Enhances adequate easy accessibility of information by patrons; and
- Enables information handling of library activities such as acquisition, cataloguing, information retrieval, circulation, serials control and other technical services efficiently.

The application of information technology in university libraries varies from one library to another and from one country to another. Africa as region library operations remained manual until mid-1980s when ICTs were introduced. At that time, PCs and CD-ROMs were used for literature searches. Later local databases such as the African Index Medicus were developed using CDS/ISIS (Musoke, 1997).

In southern Africa, early efforts were made by University libraries in the region to automate their operations. For example, some University libraries such as Zimbabwe University Library was automated in the mid 1990s using Erudite Library System, Moi University library was automated in 1993 using Tinlib Library System, the University of Namibia Library used the Urica Library System, the University of Botswana Library was automated in 1992 using Tinlib Library Integrated System, the National University of Lesotho library was initially automated using Styliis library system. However, these early efforts were faced with problems of one form or another such as lack of funds and expertise. Today, the Southern African region is making good progress in the availability of Internet connectivity in almost all Universities of the region and most University libraries have successfully automated their library operations (Mutula, 2001).

Zambia like other developing countries, university libraries computerised their operations in the mid-1990s with Copperbelt University library installing Styliis system while University of Zambia library installed the Dynix system.

1.3 The University of Zambia

The University of Zambia (UNZA) was established in 1965. In October 1965, The President of the Republic of Zambia gave his assent to Act Number 66 of 1965, and its commencement on 12 November 1965 of the same year brought the University of Zambia into legal existence. The University began with three Schools: Education, Humanities and Social Sciences, and Natural Sciences - but as facilities developed and needs were recognised new Schools were added: Law (1967), Engineering (1969), Medicine (1970), Agricultural Sciences (1971), Mines (1973), Business and Industrial Studies (1978, at Ndola Campus), Environmental Studies (1981, at Ndola Campus), and Veterinary Medicine (1983).In its first academic year the University enrolled 312 students. The numbers rose to over 1 000 in 1970 and ten years later stood at over 4 000. It was envisaged that eventually the total enrolment would level off at about 8 000 students. By 2007 enrolment stood at 11500 (University of Zambia, 2007).

University of Zambia is a predominantly undergraduate University with postgraduate programmes on the increase. It also has a population of more than 2000 distance learners. It has two campuses the Main University Campus situated on the south side of the Great East Road about nine kilometres from the town centre in Lusaka and the Ridgeway Campus which

situated near the University Teaching Hospital opposite Central Statistics Office on Mbita Road. The rest of the schools are situated at Main Campus while the school of Medicine is based at Ridgeway Campus (University of Zambia, 2008).

1.4 The University of Zambia library

The University of Zambia library, also established in 1965 with its parent organisation, is the largest academic library in the country holding over two million items of monographs, books, manuscripts, periodicals, microforms, rare books and different types of special collections. The University of Zambia library was established in 1965 initially at the Ridgeway campus now housing Medical school. It moved to its current building on 27 August 1969. UNZA library system comprises main library and two branch libraries. The Library supports all subject areas taught by the University at both undergraduate and post-graduate levels. In addition, the Library provides its members with a large number of services and resources, including an extensive range of electronic resources. It was declared national reference for Zambia on official opening on 27 August 1969). Owing to its status as a National Reference Library, the University Library facilities may also be used for reference or borrowing purposes by members of the public on whatever terms and conditions the University Librarian deems necessary (Mwacalimba, 1999).

The main library is located at the main campus and other two are medical library and veterinary branch libraries. The medical library is situated within the University Teaching Hospital (UTH) complex and it serves the information needs of the School of Medicine. The other is the Samora Machel Veterinary library which is located within the school of Veterinary Medicine. It provides the information needs of the students in School of Veterinary Medicine and School of Agricultural Sciences.

1.5 The use computer-based library management system at UNZA library

The decisions to computerise UNZA Library and the Copperbelt University Library dates back to mid-1980s when heads of division committee meeting approved the formation of Library Computer Committee when Copper belt University was still a branch of University of Zambia, (Lungu, 2002). Since then, the library continued to explore the possibilities of applying ICT to its functions. In 1990, the UNZA Library started creating its own in-house database using the database software called dbase Plus. Printed indexes for Short loan

collection, serials management and newspaper indexes were produced for students to identify materials they required (Mwacalimba, 1999).

The libraries of University of Zambia and Copper belt University, acquired their first microcomputers and other related equipment in 1992 and 1993 respectively. This was mainly from funds provided by the Finnish government through its aid agency, the Finish International Development Agency (FINNIDA) (Chisenga, 1995).

The University of Zambia library was automated using Dynix library system through funding from FINIDA. With funds from FINNIDA project, UNZA Library migrated from manual system and installed DYNIX a UNIX based library automated Library Management System in June 1995. The University network was therefore provided access to library services to staff and students such as OPAC and a range of information on the library home page. UNZALIBS' connection to the intranet and internet also meant that OPAC was accessible on Local Area Network (LAN) and Wide Area Network (WAN) to any interested users with password access.

The DYNIX Library system was installed with the following modules of Cataloguing, Acquisition, Serials and Reserve Book Loan (Short Loan Collection), Circulation, Online Public Access Catalogue (OPAC). Cataloguing and OPAC were implemented immediately. The other modules could not be implemented due to logistical problems.

Retro Link Associates of Provo, Uta, U.S.A. was contracted to convert UNZA Library manual card catalogue into U.S.MARC format. An experienced technician from Provo, Uta, U.S.A. carried out onsite imaging of Official Shelf list (OSL) cards onto a data tape and then used that to convert card catalogue into US MARC. Converted records were loaded into UNZALIBS in March 1996. Retrospective conversion of bibliographic records was done and more than 2 629 000 bibliographic records of books available in the Library can now be accessed through the online public access catalogue (OPAC). In 1998 UNZALIBS became dysfunctional after a BNC hub blew up and could not be replaced immediately. The Compaq prolant 4000 also developed other hardware problems (Mwacalimba, 2002).

The computerisation of UNZA library coincided with the Computer for Academic, Management and Administrative Support (CAMAS) project at the University of Zambia, whose aim was to facilitate the integration of computers through a network. The network was

intended to facilitate the internal communication through an intranet and facilitate external communication by linking CAMAS network to the rest of the world through internet and via a central hub (University of Zambia, 2001).

Currently, UNZA housekeeping operations are computerised and a web based LMS (UNICORN) which is integrated is used. With the use of computer-based LMS the library database is being updated on day-to-day basis and the OPAC is accessible on the internet, making the information of the library accessible not only within the walls of the library but eventually from the outside as well.

1.6 PROBLEM STATEMENT

There are many studies and opinions on the use of Information Technology (IT) with regard to library migration from manual to computer-based systems in university libraries. However, not much has been found in the literature as regards the areas on the effect of using computer-based library management system on information provision at the University Zambia library. Hence, this study set out to address this gap by identifying the extent the use computer-based library management systems has on information provision at the University library.

1.7 MAIN OBJECTIVE

The main objective of the study was to establish whether the use of computer-based library management system at the University of Zambia library had an effect on information provision to the library operations and library users.

1.8 Specific objectives

1. To assess whether using computer-based LMS has resulted in acquiring library materials efficiently.
2. To establish whether using computer-based LMS in cataloguing has resulted in processing library materials efficiently.
3. To establish whether using computer-based circulations control system has made information provision to library users efficiently.
4. To assess whether using computer-based LMS at serials section has resulted in improved information provision to library users.

5. To investigate whether using computer-based system has improved information access by library users.

1.9 Research questions

1. To what extent has the use of computer-based library management system on acquisition, cataloguing, circulation and serials control at UNZA library improved information provision to library users?
2. To what extent has use of computer-based LMS at UNZA library improved information by library user?

1.10 Conceptual considerations

A concept according to Smyth, (2004) cited by Kombo and Tromp (2006), is a word or phrase that symbolises several interrelated ideas. Unlike theory, a concept does not need to be discussed to be understood.

The concept of computer-based library management system refers to the computer software that is used to carry out the functions and operations of the library at the University of Zambia library and, is perceived in the light of the following postulations:

- There is a difference that exists between traditional and modern methods of acquiring, processing, storing, dissemination and retrieval of information on information provision at UNZA library.
- Computer-based library management system is a system that increases the effectiveness and efficiency in the provision of information services and performance of library tasks.
- That computer-based library management system is a system that store library database electronically and make accessible to users through electronic system and network but having no single physical location.

1.11 Operational definitions

Housekeeping functions:

Refers to the library functions such as acquisition, cataloguing, circulations and serials control;

Library automation:

Refers to the application of automatic and semi-automatic data processing machines (computers) to perform traditional library house-keeping functions.

Computer-based Library management system:

Refers to a computer system that operates one or more library functions;

Acquisition:

Refers to the selection and ordering and purchasing library materials for the purpose of building the library collection

Cataloguing:

Refers to the process of creating a database of library materials held in the library collection and establish the library catalogue;

Circulation:

Means lending and receiving library materials to users and keeping track of who has what item from the collection on loan and keeping statistics on the usage of library materials;

Serials control:

Means the process of acquiring, processing and disseminating of information in serials publications;

Efficient:

Means the extent to which time or effort will be used for intended task or purpose. It is often used for the specific purpose of relaying the capability of a specific application of effort to produce a specific outcome effectively with a minimum amount of or quantity of waste, expense, or unnecessary effort;

Effective:

Means the capacity of producing a desired result;

Computer catalogue:

Refers to a catalogue accessed using a computer usual referred to as online public accessed catalogue (OPAC).

1.12 SIGNIFICANCE OF THE STUDY

For effective and efficient information provision to library users, baseline information on the effect of using computer-based LMS on information provision is vital. Ideally, studies for such information should be done at regular intervals in order to assess whether the library has achieved its objective of migrating from manual to computer-based library management system.

It is hoped that the findings of the study will therefore, provide knowledge on the effects that a computer-based LMS has on information provision thereby providing direction to policy makers and management and contribute to in promoting the use of computer-based library management systems. It will also contribute to policy review by the University of Zambia library management and practising librarians.

CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter reviews scholarly literature related to the study. Antonius, (2003) describes literature review as having the function of allowing us to build on what other researchers have done before us.

Molholt (1987) in her paper on the influence of information technologies on libraries and librarianship informed that, the introduction of computers after World War II with their capacity to store, process, and provide access to data was more important to libraries because such activities form the core of library work. She further notes that although systems such as those used for cataloguing, circulation and acquisition have made library easier and increased productivity, they have not substantively changed what is done in the library.

She however, points out that, the use of computers especially in circulation has brought efficiency because in circulations system, the patrons don't sign for books, a light pen reads their identification card and the system charges the book out to them making the process of information provision faster. She also adds that automation has made things easier, and the variables to be considered when planning to use computer-based LMS include the cost, number of users, type of use, availability of terminals, and ease of direct patron use. The results were seen to be faster as compared to the manual system.

Verner (1974) investigated the political and financial factors which inhibited the ready application of computers to individual academic libraries during the period 1967-71. Twenty four institutions were visited and approximately one hundred persons were interviewed. The findings showed that substantial future change was envisaged in both the structure and function of the library, if the emerging trend of coalescing libraries and computerised information centres continued.

The study stated factors which hindered the application of computers to library problems at that as governance, organisation, and management of the computer facility; personnel in the computer facility, and deficiencies in the library environment. The findings showed that substantial future change was envisaged in both the structure and function of the library, if the emerging trend of coalescing libraries and computerised information centres continued.

Jones (1984) in his paper on the impact of technology on academic libraries observes that early efforts to apply computing to library problems, large academic libraries attempted to create local integrated computing systems to support work in cataloguing, serials control, circulation and inventory control, acquisitions, fund accounting, and the resulting database for reference use. The extent of technology adoptions by academic libraries that might have been expected to affect library users were that, materials were being processed rapidly into the collections because of rapid spread of shared cataloguing services.

He further points out that Library materials were being ordered more rapidly because of computer-based acquisition systems. Further he observes that circulation systems were designed to help control inventory and charging activity were fairly common.

He also notes that circulations system may have caught up with delinquent library users. He however, notes that the only time a computer-based system has an effect on library users is when the system does not work, especially if it was a circulations system.

Mitchell (2003) in her study on implementing library management system at Merthyr Tydfil Public Libraries investigated the need for automation at the library and the impact on staff. The findings of the study were that emphasises the need to prepare before implementing the system. She informed that staff had been through a period of extreme change and reorientation. With the introduction of library management system, all staff use computers daily for a wide variety of tasks unlike in the past when computers were

She concludes that the automation of the library had been a big challenge that had been faced but was successful. It further concluded that altering people's preconception on how things should be done had been a major hurdle and the public to change from using cardboard tickets to each having one credit style ticket had been hard.

MacLean (1993) investigated automation of libraries of Sao Paulo, with a purpose to address the problems affecting the viability of library automation. The findings showed that economic reasons were emphasised as the main basis for all the difficulties.

The psychological factor was as a result of fear of automation because they were not aware of its advantages and disadvantages. The other observation was lack of information policy resulted in libraries having low priorities within the organisational system. The study also

found that lack of personnel with expertise in the field and infrastructure sufficient for the development of automation.

The study concluded that the development of library automation was hampered by poor resources and cooperation, lack of professional and technical expertise, communication and by other psychological, organisational and human related factors.

Abdul (1990) surveyed the extent of computer application in 333 libraries in Jordan. A basic survey was initiated to study the extent of computer applications and use in libraries and information centres in Jordan with the objectives to look at the extent of using computers in library functions and services.

The findings show that computers were used in acquisition's record of books in order, received, billing and so on; computerised cataloguing to produce catalogue cards; serials control, circulations, reference and bibliographic services (producing specialised lists of books, and/or lists of periodical articles); indexing and abstracting services with the intention of building bibliographic database, current awareness services, administration purposes (correspondence, follow-up on book orders; producing proposed National Union Catalogue (NUC) and producing lists of the library's holdings of serials. The study however, revealed that libraries in Jordan were handicapped by shortage of funds.

Munshi (2003) in the study on Library automation in Bangladesh: the Dhaka University Library experiences revealed that the Dhaka University Library has installed a proven library software GLAS (Graphical Library Automation System) equipped with a network server and a number of PCs distributed in a local area network (LAN) within the different sectors of the library and faculty buildings of the university. Further it revealed that the system is being used for creating bibliographic data bases, controlling acquisition, cataloguing and serials, effecting bar-coded circulation, reservation and recall systems, current awareness services (CAS), selective dissemination of information (SDI) services and online literature searches of the national and international data bases through CD-ROMs and also via internet.

Peyala (2011) assessed the perceptions of opinions of 100 staff working in libraries on the impact of using information technology (IT) on library housekeeping operations and

information services, in eight central university libraries in India. Data was collected using different methods comprising questionnaires, observation and informal interviews.

The findings showed that IT had a tremendous impact on the efficiency of library operations and delivery of information services. Use of IT had facilitated networking and resource sharing, eliminated duplication of effort, improved the speed of operations, increased access to information resources and improved the quality of information services.

The study concluded by pointing out that, use of IT had become inevitable in view of offering a wide range of opportunities and benefits in libraries. IT serves as a powerful tool in the management of library housekeeping operations and information services. It also pointed that library staff had expressed greater appreciation of the immense potential of new technologies in performing library operations efficiently and in providing information services effectively.

Cramer (1976) in the study on the computerised catalogue in a University Library, informed that the impact of technology on various operations of a library, which is, acquisition, cataloguing, reference, circulations, interlibrary loan, etc are: increased effectiveness for both staff and clientele; and impact of technology on people, both staff and users and their environment.

The study further observed that the card catalogues have been relatively easy to use because consistency has been developed in their organisation. In a card catalogue, the cards are and the data on the cards are tangible and legible. On the other hand, an electronic catalogue, in which the records and data in their stored form are neither tangible nor legible, opens up a range of problems not encountered with card catalogue. Users who are not familiar with accessing data through the terminals and/or not comfortable with computers will need systems that give them more assistance.

He points out that since the first application of computers to cataloguing operations, it was becoming possible for libraries to harness the benefits of automation to solve the problems which they face. He adds that, computerisation of the catalogue held out the promise of better access to the library stock through additional sequences to the traditional author/title and classified forms and more copies of the catalogue available within the library, in all satellite libraries and possibly at strategic points on campus.

He further observes that, with the daunting effort and use of physical resources which go into construction a library catalogue, it was striking that readers frequently ignore the catalogue and go straight to the shelves. The study further revealed that a number of readers failed to use the catalogue successfully as a finding tool. This was usually due to inaccurate or insufficient information about the item being sought although carelessness and a lack of persistence were also other reasons for failure. He adds that, it was frequently stated that the cost of electronic access are greater, but that more services are provided by automated system with only small increases in cost.

Adeyemi (2002) examined the impact of Information Technology (IT) on the cataloguing of materials to find out whether the introduction of IT would a success story at the cataloguing section at University of Ibadan. The revealed that necessary equipment, both hardware and software given to library and that CDS/ISSIS was the software first used for cataloguing of books. But CDS/ISIS was eventually replaced with TINLIB. The TINLIB software however, gave the library a lot of technical problems which systems librarians could hardly manage the consequence was an incessant breakdown of the system, frequent network errors and low operational speed of the system.

The study observes despite the efforts taken by the library to automate the cataloguing process, there were challenges encountered some of them include: attitude of management in automation; capital intensive facilities and cash constraints problems; shortage of management and technical expertise, and ill-equipped library schools which was affected by lack of funds.

Anunobi (2010) investigated the use of ICT facilities for serials functions in southern Nigeria Federal University libraries. Using a questionnaire and observation checklist the study gathered facts and opinions of serials staff from 11 university libraries.

The findings of the study showed that there was a general low use of ICT facilities for serials functions except in the areas of serials public services and preservation. The low use of ICT facilities for acquisition and processing was attributed to the non-availability of serials software which would enable the use of ICT for the very complex acquisition and processing activities involved in serials functions.

He further notes that serials functions in the southern Nigeria federal university libraries were still predominantly manually performed with ICT application being more prominent in the public services and prevention functions. The study also revealed that public services

activities involving the use of ICT facilities were mainly access to and retrieval of serials and articles titles.

Furthermore, the findings showed that though few libraries use internet, LAN (local area network), and OPAC (online public access catalogue), photocopiers, personal computers and CD-ROM are the most commonly used ICT facilities in the serials unit.

He however, notes that the low availability and use of ICT facilities in serials facilities unit of the university libraries is not a determinant of its use for serials operations.

Adedigba, et al (1995) reviewed the contribution of the International Institute of Tropical Agriculture to education and training on library automation in Africa from 1985-1992. The review revealed that the institute trained students ranging from computer science students, library and Information Science students, fairly and highly experienced librarians, documentalists, lecturers and information specialists equipping them with the expertise which was lacking in most libraries in Africa. The training was aimed at making trainees familiar with basic system operations especially acquisition (ordering), cataloguing and circulation and to formulate and execute search strategies, undertake compilation of computerised bibliographies, make data entries and search CD-ROM databases as an effort to contribute to library automation.

Adedigba and Ezomo (2003) investigated the management of system migration in an Africa setting with special reference to the International Institute of tropical Agriculture (IITA) with the objective of sharing the library's experience in system migration with those who may wish to automate their libraries or change the software.

The findings of the study showed that there were problems in the migration such as that: the manuals did not cover some aspects of library applications like serials tracking, resulting in the activity being done manually; the provision for training staff was omitted by the computer manager who purchased the software; the other disadvantage was that when the large number of records has been retrieved, if any of them are omitted from the printout, each has to be omitted on the display screen.

The study further revealed that there were benefits of migration some of which were: computerisation made the operations of the library easy, faster and more efficient resulting in increased user satisfaction; the frequent breakdown due to obsolescence of the VAX had been

eliminated; the OPAC was easy to use as INMAGIC was user friendly; searching of the library database could be done not only in the library but from any of the computers connected to the institute's LAN, enabling library users to search the library collection even when the library is closed.

The study also revealed that operations relating to acquisition, pre-order checking, vendor monitoring, recording and correspondence had been made easier, faster and more efficient. The study further revealed that, a book was only recorded once, i.e. in acquisition module and every other information was generated for such a book during cataloguing and loan transaction would only involve addition or subtraction from the existing record. Further it was revealed that overdue notices were printed from the system and bibliographies could also be produced easily.

Ansari and Amita (2008) investigated the awareness and use of OPACs in five Delhi libraries with the objective to establish the opinion of users with respect to the awareness and utilisation of, as well as their satisfaction level with, the use of the online public access catalogue (OPAC). A questionnaire was developed and distributed randomly to 128 users including undergraduates and post graduate students as well as MPhil and PhD scholars.

The study found that the OPAC system has changed the traditional concept of access to library resources as it allows simple as well as complex searches. The study however, revealed that a high percentage of respondents are utilising the OPAC as a search tool for retrieving documents although in some searches users were not able to find relevant documents on account of various factors.

The study further revealed that most of the users handle the OPAC themselves and the satisfaction level of users was high with the OPAC facilities. Nevertheless, not many users are aware of the expert searches provided by OPAC.

Nok (2006) in her paper investigated the challenges of computerising a University Library in Nigeria: The Case of Kashim Ibrahim Library, Ahmadu Bello University, Zaria. The study informed that initial efforts at automation of library services in Kashim Ibrahim Library of Ahmadu Bello University were made in the 1990s. Reasons for delay were lack of funds and trained manpower.

The findings of the study revealed that challenges of computerisation were mainly lack of reliable local area network (LAN). In Kashim Ibrahim Library, although there is a LAN in

the computer room where data entry is occurring, achieving a reliable LAN within the whole library is a Herculean task. The library building did not originally incorporate cabling for LAN. A LAN would have to be achieved through surface cabling with its attendant risks.

The study further revealed that many of the staff of university libraries were not computer literate, this was a great setback in computerisation. There was also a negative attitude from staff as they were reluctant to change their old mindset which resists change as many were conservative and traditional, and suffer computer phobia.

The study revealed that there was also a lack of technical support. Only one librarian was formally trained to initiate, develop, implement, and maintain computerized applications in the entire university library system.

The study further revealed that, poor state of power generation remains a problem in Nigeria. Frequent power outages constituted a serious bottleneck to automation. The cost of running generating plants was prohibitive. There was also poor maintenance and update culture which was another challenge. The size and complexity of the task had almost completely eroded maintenance at Ahmadu Bello University. This erosion was manifested in the frequent computer and network breakdowns and/or failures. To handle the growth of the library database and ensure fast data entry, retrieval, and inquiry through the OPAC, there was need for regular and consistent upgrade of computer facilities.

The lack of IT skills and the slow process of automation meant that the library staff took long to become very familiar with the ALICE package. If the library staff found it difficult to get comfortable, the situation was worse for library users, who depended so much on the library staff for orientation and user instruction. Unfortunately, the library orientation programme and the entire user education package did not fully address IT skills.

Education and training was another challenge since most staff were trained in traditional librarianship they found it difficult to cope with the requirements of the electronic age. Staff training and retraining had not been given a pride of place. Kashim Ibrahim Library has initiated computer literacy training for all staff, which has had a lukewarm reception. This attitude is a great deterrent to the computerization of library services.

In his study on financing public Universities in eastern and southern Africa, Mutula (2001), observes that University libraries in the region had made progress in library automation. The study however, revealed that the problems faced by university libraries in automating their operations were mainly lack of funds and expertise.

The study observes that, some of the university libraries such as the University of Zimbabwe, the library was automated in the mid 1990s using URIDITE library system but due to the failure of the University to honour contractual obligations such as payment of licensing fees, the vendor stopped providing support and thus the system virtually collapsed. At Moi University, the library was automated in 1993 with funding from Overseas Development Agency using TINLIB library system, but it took several years before the system became operational as staff got bogged down with retrospective conversion for three years. The University of Botswana was automated in 1992 using TINLIB library integrated system but had teething problems with the system and so migrated in 2000 to INNOPAC interfaces systems.

The study further observes that in South Africa several libraries in Universities environment are automated using one of the four most common systems in the country: Erudite, Urica, Stylis and Innopac.

Musoke (2007) in her paper on strategies for addressing the University library users' needs and practice in Sub-Saharan Africa observes that, University library operations remained manual until 1985 when ICTs were introduced. At that time, PCs and CD-ROMs were used for literature searches. Later, local databases such as the African Index Medicus were developed using CDS-ISIS. Library materials were accessed by searching the manual subject and author catalogues located in the main and branch libraries.

She notes that, internet has expanded the sources of information and created a new environment which has increased the expectation which include the growing number of students, the increase in study programmes coupled with paradigm shifts, the increase of research and rapid ICT developments have changed the routines of traditional academic librarianship. This has resulted in University libraries in Sub-Saharan Africa to acquire library systems such as ERUDITE system at the United States International University, Kenya; ADLIB at the University of Dar es salaam, Tanzania; INNOPAC at the University of Zimbabwe Library; VIBUSMART at the University of Nairobi, Kenya; and ISIS and

WEBLIS at the Sokoine University of Agriculture, Tanzania; and Uganda Martyrs University.

She however, notes that, although various achievements have been recorded, there are still some challenges which need to be addressed such as library user-computer ratio which Makerere university the overall university ratio was 1:25 in 2006. As African Universities struggle to address the user-computer ratio acquiring more computers, the bandwidth gets less and less. This has resulted in inadequate connectivity and bandwidth hindering utilisation of online resources and the success of library automation.

She further observes that inadequate funding had remained one of the key challenges of meeting the needs of library users in University libraries in Sub-Saharan Africa. The other challenge the study found was that of library space in most University libraries in Sub-Saharan Africa as one of the standards required for quality assurance.

Olatunde (1997) examined the computerisation efforts at the University of Botswana library. The study surveyed nine libraries and found that only six of them were computerised. The findings revealed that, functions automated were acquisition, cataloguing, serials, circulation and OPAC. There was also information skills instructions conducted for students as part of a regular university course while personalised OPAC tutorials were conducted for staff and students on demand.

The study however, revealed that there were problems such as that most libraries had no standard format of record creation for a meaningful local and international resource sharing. The recruitment and retention of a systems librarian was also another problem observed which resulted in the library not being able to articulate its needs at the onset. This was observed to have greatly affected the speed at which libraries automated their functions.

Chisenga, (1995) investigated the status of information technology in libraries in Zambia. The findings showed that at that time there was no single library installation supporting library in-house operations such as acquisition, cataloguing, circulation, serials control and management information system nor databases development, retrospective searches and selective dissemination of information.

The study revealed that the delays were attributed to lack of diversity and slow development in computer technology application. There was also inability to exploit other information

technologies in information management which was mainly due to lack of computer knowledge and skills among librarians in the country.

Kashweka, (2000) investigated the performance of the trade information Network(TINET)of the Common Market for Eastern and Southern Africa(COMESA).It discussed the operations of TINET and the services which it offers to meet the information needs of the business community in Zambia, with a specific reference to Lusaka.

The population for the study were large business organisations and small and medium enterprises(SMEs)involved in various business activities such as manufacturing, agriculture, whole selling/retailing as well as service companies registered as users of TINET. It also focused on TINET members of staff and the Export Board of Zambia (EBZ), the national focal point for TINET. Although the aim of TINET is to provide information to organisations such as government institutions, intergovernmental organisations and non-governmental organisations (NGOs), the study focused only on business organisations.

The study revealed that TINET is most helpful in assisting business organisations identify market opportunities for their products and/or services. It also revealed that TINET was helping businesses through exposure of their products and identifying sources of inputs and consumer items. However, the study found that there is much to be done if the network is to function according to the expectations of users.

The study identified inadequacy of the information available to meet user needs, financial constraints, understanding, absence of an information policy, lack of co-ordination among participating partners and inadequate publicity about the existence of TINET and its services as some of the problems affecting the operations and functions of the network. The study revealed that TINET was in the process of providing information at a fee in order to improve its operations and services.

The study concluded by recommending TINET to consider various types of information and a range of services if the system is to serve its clientele better. It recommends that using the funds that will be generated TINET should take its services accessible via libraries and other information centres.

Mbewe (2002) examined the process and the experience of changing from manual circulation system to an automated one by the Copperbelt University Library using STYLIS library

management. He notes that in comparison with the manual system, the improvement of library services in general was tremendous. This is because, he observes that He observes that the operation, performance and efficiency of manual system was characterised by large volumes of loans transaction, loans and transaction that were painfully slow and tedious; very high consumption of stationery, large workforce and numerous human errors.

He points that with the use of computer-based LMS, a large workforce was no longer required since most of the work was efficiently using computers, and that library users benefited in terms of time, improved access to material and delivery of services.

He further notes that with automating the major and immediate impact of computerisation of library services was the experience by both staff and users through the OPAC and the circulation system which made retrieval of information faster.

Mwacalimba (2002) in his paper on the University of Zambia library: past, present and future discusses the automation experience the library. He outlines the success and challenges the library faced to computerise its operations. The paper informs that the interest to automate the library dates back to 1974. He however, notes that, the library management system DYNIX was only installed in 1995, with financial support from FINNIDA. The modules that were fully paid for were acquisition, cataloguing, circulations Online Public Access catalogue (OPAC), Serials and Reserved book loan (Short Loan Collection).

He further notes that the cataloguing and OPAC were implemented immediately while other modules could not be implemented due to some logistical problems. UNZALIBS was connected to the internet in 1996 meaning that OPAC could be accesses on the web to any interested users with a password. The system was installed together with monitors which were located on various decks in the library for users to access information in the catalogue.

CHAPTER THREE

3.0 METHODOLOGY

The aim of this chapter is to describe the methodology that was selected and used in the study. The methodology includes the research design, the target population, sampling techniques, data collection and analysis.

3.1 Research design

This study adopts a multiple case study approach since this permits the use of a combination of varied data collection techniques. The case study approach study was adopted because it has the advantage to apply the findings directly to the object of inquiry.

3.2 Population

The population of the study was library staff, Academic staff and students at the University of Zambia. . However, the study targeted 37 Library staff; 405 Academic staff; and 3 054 resident students (who were accommodated) at the University of Zambia Great East Road Campus. The University of Zambia had 11,573 full time students, 522 Academic staff and 62 library staff (University of Zambia, 2008).

3.3 Sample size and sampling procedure

A sample size of 264 comprised 24 library staff; 80 academic staff and 160 students. A non-proportional stratified sampling method was used to select the sample for the study because of the nature of the population so as to guarantee the representation of various strata. The stratified sampling method was adopted as the researcher was convinced that with type of the sample, it was the best in order to come up with useful results.

3.4 Data collection

The research used two data collection instruments, namely questionnaires and interviews. In the questionnaire both closed and open-ended questions were employed. The semi-structured interview schedule was used to collect a broad spectrum of different subjects and the interviewees were invited to discuss their experiences on the use of computer-based library

management system in the day to day work as heads in-charge of sections, and these are acquisition, cataloguing, public service and serials. . On some occasions observation was occasional used though casual and informal on some students to see how they used the online public access catalogue (OPAC) to retrieve information.

3.5 Data analysis

The data was analysed according to themes in relation to the objectives of the study. The data collected from interviews with heads of was analysed using simple descriptive analysis. And data collected from questionnaires was inputted into a computer. Statistical package for social sciences (SPSS) 16.0 for windows to come up with frequency counts, percentages and tables.

3.6 Limitations of the study

The main limitation of the study that a case study approach though has an advantage to apply the findings directly to the object of inquiry lacks representativeness of a case used as point of observation for issues constituting the object of study.

The other limitation was that study only concentrated on the Great East Road Main campus and in case of students only those who were accommodated as a result generation of the findings might not be suitable.

CHAPTER FOUR

4.0 RESEARCH FINDINGS

4.1 Results from interviews with heads in charge of housekeeping functions

The heads of sections interviewed were those in-charge of: - 1) Acquisitions 2) Cataloguing and classification 3) Public service; and 4) Serials control.

4.1.1 Acquisitions

The study ascertained through an interview with the librarian in charge of acquisitions to assess whether using computer-based LMS has resulted in acquiring library materials efficiently

On staffing levels the study revealed that there were two members of staff comprising the librarian in charge and a senior library assistant. The study also established that both members of staff had received training on how to use the acquisition module and had over ten (10) years experience in using computer-based LMS.

Asked whether computerisation of acquisition function had an effect on information provision, the study revealed that the section has benefited immensely in carrying out its functions of building the library collection. This was because the computer-based acquisition module is able to handles many functional activities such as bibliographic verification, order preparation, purchase orders functions, and make easy and quick access to information of the publishers, vendors, and the cost of books. The ability to handle these functions has made the work easier and increased efficiency.

Asked how these benefits have contributed to information provision to library users, the study revealed that most functions of acquisition were carried out more rapidly with the use of computer-based acquisition system. This is because the system provides an efficient bibliographic verification method of entering and tracking information recommended for acquisition by the stakeholders. It has also been faster and less costly to provide feedback to those who recommend books since communication is via e-mail. his development has made the section more effective and efficient.

The study further revealed that there was a reduction on time taken from the time the materials are ordered and purchased to the time when they are received since these activities

are carried out online. The availability information about publishers, vendors and the cost of the books on the internet is another advantage in the reduction of time.

Asked what were the other advantage of using a computer-based LMS, the study revealed that the system was also able to provide several types of reports, such as reports on orders, reports on received items, and reports on claims and can be accessed easily and faster. It also made the compilation of statistics of the materials ordered, received, claims and other vital information to be generated quickly. This facility has reduced the usage of stationery.

Despite the many positive outcomes of using computer-based LMS, it was revealed that the acquisition module was underutilised due to lack of funds to purchase books. As a result, it was stressed that staff in the section will still need to be trained in at the time when funds will be available.

4.1.2 Cataloguing and classification

The study sought to establish whether using computer-based LMS in cataloguing has resulted in processing library materials efficiently. The study revealed that the main function of the cataloguing and classification section was to create and maintain the library database by processing books. There were four members of staff comprising of the librarian in charge, two cataloguers and one who was responsible for labelling books.

Asked whether using computer-based LMS has had an effect in the task of cataloguing library materials, the study revealed that the section has benefited immensely from using computer-based LMS. Firstly, the use of the system has reduced the tedium process of cataloguing and it is now more streamlined. The cataloguing module was said to be able to handle specialised tasks such creation of new records, modification of existing records, harmonisation of authorities, routing items to desired destination, and managing status of items.

Asked on how the system handles the various tasks and how that was contributing the provision of information to users, the study revealed that, on the task of creating the new record the cataloguing module has a complete catalogue worksheet that allows the creation of a new record. This provision has made work easy and fast to catalogue books since the cataloguer only fills in the required fields such as author, title, call number, subject headings,

the imprint and physical description. The system also allows using the duplicate function to add a record to an already existing record in the system.

On the harmonisation of authorities, the study further revealed that the system allows latitude for authority expansion and modification. The cataloguer is also able to route materials to different destination for instance, short loan, medical library, and veterinary library or open stacks.

The study also revealed that, the use of computer-based LMS has also facilitated the establishment and maintenance of online public access catalogue (OPAC). Through the catalogue window the system provides a detailed view of a particular catalogue record. Through this window, one can easily capture and access detailed information about materials in the library such as the author(s), title, ISBN, accession number, call number or subject

The system is also very useful in inventory control and the preparation of statistics for catalogued books and other statistics resulting in the reduction in paper work. . It was further revealed that the computer-based cataloguing system was efficient and more user friendly for both cataloguers and end users. All these benefits have enabled the section to improve in work output by providing accurate information to users very efficiently.

Asked whether the module had security measure taken for the record not to be deleted from the database, the study revealed that the cataloguing module has a security measure under authority control which is exclusively accessible to the chief cataloguer and not even to cataloguers.

Asked whether the section encountered challenges in using computer-based LMS, the study revealed that there were various challenges encountered. Firstly, the system being restricted from discarding corrupted authorities that were already admitted previously, this has resulted in the chief cataloguer not to able to clean the system. Secondly, the problem of poor internet connectivity which would sometimes affect the work in the section since the system depends on the availability of internet. Thirdly, the problems of obsolete computers given to the section and the issue of viruses sometimes affect the work output of the section as computers stop working while replacing such equipment is not instant.

Fourthly, technical faults such as lack of backups at the time of migration from manual to computer-based LMS and from Dynix system to unicorn has resulted in the loss of some

records in the system. This development has resulted in re-entering books which were not captured in the system during the migration. This development has resulted in slowing down the processing of new books as cataloguers have to work on the books which are usually brought in from the issue desk.

4.1.3 Serials control

The study sought to establish whether using computer-based serials control system has made information provision to library users more efficient. The study revealed that the serials control was responsible for acquiring, processing and maintain a database for all serials publications as well as dissemination the information in its collection. There were three members of staff comprising the librarian in charge and two senior library assistants.

Asked whether using computer-based LMS had an effect on information provision in the section, the study revealed that using serials module has benefited the section in many ways. The major benefit mentioned was that the system was able to handles several tasks such as acquisition, cataloguing, circulation as well as maintaining lists such as, vendors list, defaulters list and over dues.

Asked how the use of serials module benefited in the provision of information, the study revealed that, the module provides the acquisition which enables the purchase of the journals efficiently. It has also facilitated journal subscription control, order preparations, accounting, and preparation of serials records entries and transaction control to be carried out efficiently. It is also fast in tracking journal subscription claims and managing of their expirations and renewals.

Asked how the tasks contributed to the provision of information, on cataloguing the study revealed that it has become very easy and faster to catalogue because the system provides a worksheet for creating serials catalogue record as a result the users are able to have access to journal titles by searching the OPAC. This has increased accessibility to journals titles in the OPAC and has increased the usage of journals by students who have been making requests with journal titles and call numbers.

Asked whether the section faced problems in using computer-based system to provide information to users, the study revealed that there several challenges and major ones that

were encountered were that the steps of cataloguing had many steps, thereby, making the process of cataloguing long.

The other challenge was that the system does not provide an allowance for modifications and did not allow content cataloguing and this development meant that the use of computer-based system did not add value to provision information in the journals to users since the journals are only accessed by title not volume or issue.

4.1.4 Public Service Division

The study sought through an interview with the librarian in charge of the division to establish whether the use of computer-based LMS had an effect on the provision of information by the division. The study revealed that the PSD comprise of various sections such as: Reference, Issue Desk and Short Loan Collection. The study revealed that the main function of PSD is to provide information directly to users on the services provided by the library and how to access materials in the library.

The division has the responsibility of issuing identity card to students and university staff. It also handle the external users by issuing them with reference cards for those who want to use the library for reference only and provide membership to those who want to be members of library.

The division also has the responsibility of training library users on how to use the various services and retrieve information they need for learning, teaching and research.

On the use of computer-based-LMS the study revealed that the PSD have benefited immensely from computerisation of the library and noted that the benefits to the division were very comprehensive since the system provides many settings and options that the division utilises to provide information to users more efficiently.

With the use of the system, the PSD has created the patron management system database (PMSD) for all library users. The database provides a window that displays a detailed view of a patron's record. There are several fields within the patron's record window that allows one to enter important information for each patron. The PMSD provide a circulation tab, which displays all the current transaction for a patron by using a barcode on the identity card of the user.

were encountered were that the steps of cataloguing had many steps, thereby, making the process of cataloguing long.

The other challenge was that the system does not provide an allowance for modifications and did not allow content cataloguing and this development meant that the use of computer-based system did not add value to provision information in the journals to users since the journals are only accessed by title not volume or issue.

4.1.4 Public Service Division

The study sought through an interview with the librarian in charge of the division to establish whether the use of computer-based LMS had an effect on the provision of information by the division. The study revealed that the PSD comprise of various sections such as: Reference, Issue Desk and Short Loan Collection. The study revealed that the main function of PSD is to provide information directly to users on the services provided by the library and how to access materials in the library.

The division has the responsibility of issuing identity card to students and university staff. It also handle the external users by issuing them with reference cards for those who want to use the library for reference only and provide membership to those who want to be members of library.

The division also has the responsibility of training library users on how to use the various services and retrieve information they need for learning, teaching and research.

On the use of computer-based-LMS the study revealed that the PSD have benefited immensely from computerisation of the library and noted that the benefits to the division were very comprehensive since the system provides many settings and options that the division utilises to provide information to users more efficiently.

With the use of the system, the PSD has created the patron management system database (PMSD) for all library users. The database provides a window that displays a detailed view of a patron's record. There are several fields within the patron's record window that allows one to enter important information for each patron. The PMSD provide a circulation tab, which displays all the current transaction for a patron by using a barcode on the identity card of the user.

4.1.4.1 The circulations control system

The circulations control provides information to users directly by loaning library materials to them. Through the issue desk the library is able to provide information to users more efficiently. The use of computer-based circulations control system has provided the use of check-in and check-out windows. The check-out window provides a quick and easy user interface for checking out items. The check-in window on the other hand is an interface designed to for quick check-in for the return of materials into library. The fact that books are issued faster has reduced the time library users gain access to library materials. This has also reduced the long queues that characterised the manual system. With the use of computer-based LMS users no longer have to wait for a long time before they are served thereby increasing the number of users accessing library materials.

The computer-based circulations system is also designed to help control inventory and charging activities, this has caught up with delinquent borrowers more readily. The availability of the inventory facility has enabled the provision of accurate information since the system presents one with the overdue dialogue box to alert one of the overdue statuses of the items. The overdue dialogue box displays the check out date, due date, return date and any fines due. It also allows one to charge the fine to the patron to a patron's record. The system allows one to easily pay fine from the renewal/pay fine window. This has made users return books on time so that other users can have access to the same information.

The circulation control is also used to clear library users at the end of semester in case of students and at the end of contract for staff. The availability of user information online makes it easy for them to be served promptly and allow them to proceed to other units.

The system also provides easy compilation of statistics of circulation of library materials borrowed and over dues.

4.1.4.2 The short loan collection

The system has an option that enabled the division to process short term borrowing whose product is the short loan collection. These are usually items that are loaned for use within the library for only few hours at a time.

Asked whether the division had put security measures the study revealed that the circulation system has an effective security measures to prevent any unauthorised user from accessing the system without a password and that passwords are given to staff responsible for circulations only.

4.1.4.3 Online public access catalogue (OPAC)

The division has also benefited from the availability of OPAC which enables users have access to more than 2,000,000 items within a split second. The OPAC has a fast search by author, title, subject or keyword enabling the user to locate an item from more than 2,000,000 items within a split second. This has reduced the time users take to retrieve information users as they can now spend less time searching for materials in the catalogue. The availability of the OPAC on the internet also means that users can access the library database outside the library and only come to retrieve and read or borrow the materials they need.

Asked whether the division has faced problems in using computer-based LMS on providing information to users, the study revealed that the division faced challenges such as poor internet connectivity that sometimes interrupted the issuing and receiving of books. When the internet is slow or down the users cannot search the catalogue, borrow or return books and the whole circulation control becomes paralysed.

The other challenge encountered is that of high computer-student ratio. The computers available in the library for use by users are very few to enable the division provide training to users on how to search for library materials using OPAC. The shortage of computers has also resulted in congestion at the few computers available to access OPAC especially in the evenings when most students use the library. The shortage of staff has also affected the training of users of how to use OPAC.

From the interviews with the four head in charge of various functions, the study revealed that there was a general view from all of them that there was need for continuous training for staff to address the difficulties encountered so far since the launch of the system. In case of acquisitions and serials heads their view was based on the underutilisation of the modules due to lack of funds, and they both stated that;

‘there was need to have a refresher training for staff in acquisition and serials modules since their modules were not frequently used due to lack of funds’.

From the interview it is evident the sections are able to carry out the work effectively and efficiently despite the shortage in staff in most sections.

4.5 RESULTS FROM OTHER LIBRARY STAFF

Apart from interviews with heads in charge of various library functions, the study also sought to find out from other library staff who are directly involved the provision of various services to library users. 20 questionnaires were distributed to this category of staff, out of the 20 questionnaires distributed 15 were completed and returned making response rate of 75 per cent.

4.5.1 Sex of respondents

Sex of the staff showed that there were females at 9(60%) while the males were 6(40%).

On positions held by respondents, the study revealed that 9(60%) of respondents were Senior Library Assistants followed by Assistant Librarians at 6(40%).

Respondents were further asked to indicate the period they used the computer-based system. The study revealed that majority 10(66.7%) had used the system for more than 10 years while 5(33.3%) indicated that they had used the system between 1- 5 years.

4.5.2 Whether using computer-based LMS has an effect on providing information to users

The respondents were asked whether using computer-based library management system had an effect on information provision. The study revealed that 5(33.3%) indicated faster in processing of library materials, 5(33.3%) indicated better in service delivery, 2(13.3%) indicated faster to search information for users, while 5(33.3%) indicated better to create and managing library databases and 3(20%) did not respond. Table 1 below shows the frequency and percentages of the responses on how library staff views the using computer-based LMS on provision of information to users.

Table 1: Whether using computer-based LMS has an effect on providing information to users (n=15)

Responses	Frequency	Percentage
Faster in processing of library materials	4	28.6
Faster in providing service	4	28.6
Faster to search information for users	2	13.3
Better to create and managing library databases	5	33.3
No answer	3	20

Asked to describe the computer-based library management system, the study revealed that 8(57.1%) described it as time saving, 5(28.6%) described it to have improved service delivery, while 2(13.3%) described it as more expensive.

4.5.3 Asked on whether they encounter problems using computer-based library management system, the study revealed that the problems encountered were many. The following were major problems library staff encounters in the use of computer-based LMS: When the system server stops connecting ; Lack of sustainability when the system collapses; Lack of flexibility to suite our environment on some modules; Sometimes the system is very slow since its it is linked to internet which is centrally controlled and once there is internet problem then work is affected; Because the database is online, there are problems with connectivity; There is need to have a faster internet provider than the current one; The network sever needs upgrading to avoid poor connectivity; and that there was need to have more computers and training for library users.

4.5.4 Respondents were further asked to give comments on the use of computer-based LMS on information provision to users. Various views were advanced some include:

It has made the work easy especially when we are ordering books; we just print the list which is already there; Electronic devices are subject to default and they can paralyse the functions of the entire department; The effect is generally positive in that work in the division is faster to handle. But there are problems such as viruses, poor networking and inefficient internet provider; It helps us as member of staff to serve our clients effectively and efficiently; Very

effective, good record keeping, easy to reports; This has brought efficiency and effectiveness in terms of information processing; Easy in maintaining lent out issues, retrieving of reports at the end of semester such as over dues, collection of defaulters and user statistics; Faster in searching for library materials; It has made it easy to track records held by the library easier; and computerisation is very essential to the operations of the library in this era of ICT.

4.6 RESULTS FROM LIBRARY USERS

The study sought to ascertain whether using computer-based LMS has an effect on the access of information by users. In the study users comprised Academic staff and Students at the University of Zambia Great East Road Campus. Table 2 below shows the summary of the distribution and responses to the questionnaires by library users.

Table 2: Questionnaire-distribution to library users (n=240)

Category	No. of questionnaires distributed	No. of questionnaires received	Percentage
Academic Staff	80	34	42.5
Students	160	115	71.9
TOTAL	240	149	62.08

4.6.1 Category one: Academic Staff

4.6.1.1 Sex of respondents

Respondents were asked to indicate their sex. The results indicated that 10(29.4%) of respondents were female and 24(70.6%) were male and while.

4.6.1. 2 School of respondents

out of 34 questionnaires returned, majority were from schools of Education, Humanities and social sciences, and Natural sciences and veterinary medicine with 6(17.6%) each, followed by school of Engineering 5(14.7%), and school of Agriculture 3(8.8%) while school of Mines had the lowest at 2(5.7%) and school of had none (0). The bar chart1 below shows the distribution of schools respondents belong.

4.6.1. 3 Level of education for academic staff

In order to establish the level of education respondents were asked to indicate their qualifications. The study revealed that majority 20 (58.8%) of the respondents had Masters Degree, while 14 (41.2%) had PhD.

Respondents were further asked to indicate the length of period they have worked for UNZA. The study revealed that majority 19 (55.9%) of academic staff had worked between 1-5 years, 5 (17.6%) worked between 11-15 years, and 6 (14.7%) indicated 6-10 years, while 4 (11.8%) indicated more than 16 years.

4.6.1.4 Use of UNZA library

The information on the use of UNZA library helps to know the utilisation of the library services available, and that if library users visit the library, it can be implied that they are benefiting from the various services the library provide.

The respondents were asked whether they use UNZA library. The study revealed that majority 30 (88.2%) respondents use UNZA library while 4 (11.8%) do not. Those who do not use UNZA library 3 (8.8%) indicated that they use the departmental library and 1 (2.9%) use own books.

4.6.1.5 Utilisation of library services

In order to establish the utilisation of the library services respondents were asked which library services they access in the library, respondents were asked how often they used library services such as Issue Desk, Short loan collection, Serials section and Special collections.

Asked how often respondents used Issue Desk, 17 (50%) indicated often, 15 (44.1%) indicated sometimes while 2 (5.9%) indicated never.

On the frequency use of Short Loan Collection, the results shows that only 3 (8.8%) used the short loan services often while 11 (32.4%) indicated sometimes while majority 20 (58.8%) indicated they never used the short loan collections.

On how often they used Serials Section, 9 (26.5%) indicated often, 17 (50%) indicated sometimes, while 8 (23.5%) indicated never. With special collections, only 5 (14.7%) indicated they used the services often, and 13 (38.2%) indicated sometimes, while 16 (47.1%) indicated never.

Table 3 below shows the summary of the percentages of responses on how Academic staff utilise various library services.

Table 3: Utilisation of library services by Academic staff (n=34)

	Issue desk	Short loan	Serials control	Special collections
Very often				
Often	17(50%)	3(8.8%)	9(26.5%)	5 (14.7%)
Sometimes	15(44.1)	11(32.4%)	17(50%)	13(38.2%)
Never	2(5.9%)	20(58.8%)	8(23.5%)	16(47.1%)

From the results shown in the table above it is apparent that academic staff use Issue Desk more 32(94.1%) while Short Loan had the highest number 20(58.8%) of respondents who have never used the service.

4.6.1.6 How respondents view the efficiency of library services

In order to establish whether using computer-bases library management system has resulted in the provision of information efficiently, respondents were asked how they view the efficiency of library services.

On how they view the efficiency of Issue Desk, the study revealed that 3(8.8%) indicated very efficient, 29(85.3%) indicated efficient, while 2(5.9%) did not answer.

Asked how they view the efficiency of services at Short Loan Collection, majority22 (64.7%) did not answer while 11(35.3%) indicated efficient.

Asked how they view the efficiency of services at Serials Section, 26(76.5%) indicated efficient, while 8(23.5%) did not answer.

Asked how they view the efficiency of services in Special Collections, 20(58.8%) indicated efficient, (5.9%) indicated inefficient, while11 (35.3%) did not answer. The table 4 below shows how respondents viewed the efficiency of various library services

Table 4: Summary of how respondents view the efficiency of library services (n=34

Responses	Issue Desk	Short Loan	Serials	Special collns
Very efficient	3(8.8%)			
Efficient	29(85.3%)	11(35.3%)	26(76.5%)	20(58.8)
Inefficient				(5.9%)
Very inefficient				
Total percentage	32(94.1%)	11(35.3%)	26(76.5%)	22(64.7%)
No answer	2(5.9%)	22(64.7%)	8(23.5)	11(35.3%)

The summary in table 8 above shows that the use of computer-based LMS has resulted in providing efficient library services, for instance, out of 34 respondents 32(94.1%) view the services at Issue Desk to be efficient with only 2(5.9%) who viewed services in special collections to be inefficient.

4.6.1.7 How academic staff access information in the library

Asked how they search for information. The study revealed that there were various ways in which library users search for information 17(50%) indicated they use a catalogue, 9(26.5%) indicated browsing from the shelves, while 8(23.5%) ask a library staff.

4.6.1.8 Type of catalogue used by academic staff

To establish the type of catalogue used respondents were asked what type of catalogue they use to search for information in the library, 17(50%) academic staff indicated Computer-based catalogue (OPAC), and 4(11.8%) indicated they use card catalogue while 13(38.2%) did not answer.

4.6.1.9 How respondents became aware of the availability of computer-based catalogue (OPAC)

Asked on how respondents became aware of the availability of computer-based library catalogue in the library, respondents gave various ways as how they knew about OPAC. The study revealed that 14(41.2%) respondents indicated from the library website, 10(32.4%) indicated from library staff, and 3(8.8%) indicated from the manual while 7(20.6%) did not

answer. The table 5 below shows various ways in which Academic staff became aware of the availability of OPAC.

Table 5: How Academic staff became aware of the availability of computer catalogue (n=34)

Responses	Frequency	Percentage
Library web page	14	41.2
Library staff	10	32.4
Manual from the library	3	8.8
No answer	7	20.6
TOTAL	34	100

4.6.1.10 How academic staff acquired skill to use OPAC

In order to establish how library users acquired skill to search for information using OPAC, the study revealed that 17(50%) indicated self instruction, and 7(20.6%) indicated shown by library staff, 5(14.7%) indicated from a colleague while 5(14.7%) indicated from the manual.

Respondents were further asked whether they would welcome training for them to acquire skills on how to use the computer-based catalogue, majority 21(61.8%) indicated they would and only 4(11.8%) indicated they would not while 9(26.5%) did not answer.

4.6.1.11 How the use of computer-based LMS by academic staff influenced access to information

Respondents were asked how using computer-based catalogue has influenced access to information. The study revealed that 13(38.2%) indicated improved access to books, 5(14.7%) indicated improved searching for books, 6(17.6%) indicated less dependency on browsing from the shelves, and 3(8.8%) indicated reduced usage of card catalogue while 7(20.6%) did not answer. The table 6 below shows the frequencies and percentages of responses on how staff views the influence using computer-based on access to information.

Table 6: How using computer-based catalogue has influenced information search (n=34)

	Frequency	Percent
Improved access to books	13	38.2
Improved searching of books	5	14.7
Less dependency on shelf browsing	6	17.6
Reduced dependency on card catalogue	3	8.8
No answer	7	20.6
Total	34	100.0

4.6.1.12 Asked whether respondents think using computer-based library management system have improved the quality of library service in an academic environment.

Different views were given by respondents on how they think the library services have improved with the use of computer-based LMS and these are:

- Yes, because using computer-based catalogue is much faster in searching for information than the card catalogue; use of computer-based catalogue can enhance activities in the University;
- It would only if there was proper and clear location of books in shelves. Sometimes books are not on the shelves;
- Yes, since it is faster and more convenient than card catalogue. However, training and access especially at Veterinary library should be improved;
- I never use computer-based catalogue but I believe it is faster, more accurate and efficient way of looking for required data. I feel it would reduce the time spent searching as well as make library services efficient;
- I don't know since I hardly ever think of using the main library. However, I certainly believe that computer-based system must be more efficient;

- Yes, this is so to those who are computer literate and can use this technology comfortably, although it is important to provide opportunity for short training on the use of this system I'm sure not many people are conversant;
- It has improved the quality of library in an academic environment, that is the way to go and deliberate efforts to train people must be instituted;
- Yes, it has but there is need to improve the number of accessible computers;
- Yes, it has though the system at UNZA is so slow. This has to do with the IT system, please buy latest computers to enhance efficiency; it has improved the quality of library services in an academic environment especially that it is time saving and more informative;
- Yes but more access points should be created instead of having students and members of staff crowding or waiting to use one computer;
- Unfortunately I don't use it, but anything to do with computers is certainly in the right direction. Using computers is fast and accurate;
- To some extent. However some materials reflected on the online catalogue are not traceable; and
- Have not used computer-based catalogue, therefore I cannot comment.

4.6. 2 CATEGORY 2: STUDENTS

The second category of library users comprised students. 200 questionnaires were distributed to students. 115 were completed and returned while 85 were not, making a response rate of 57.5 per cent.

4.6.2.1 Sex of students

On the gender of respondents, the study revealed that majority 74(64.3%) were males while 41(36.7%) were females. The table below shows the distribution of respondents by gender.

Table 7: Gender of students (n=115)

	Frequency	Percent
Female	41	35.7
Male	74	64.3
Total	115	100.0

4.6.2.2 School students belonged

Respondents were from different schools with school of Education having the highest at 51 (44.3%), Humanities and Social sciences 22(19.1%), Veterinary Medicine 13(10.4%), Agricultural Science 11(9.6%), Natural science and Mines 7(6.1%) respectively while schools of Law and Engineering had the lowest with 4(3.5%) each.

4.6.2.3 Level of education

The level of education for students was determined by the year of study. The study revealed that there were, 22(19.1%) first years, 22(19.1%) second, 11(9.6%) third, 27(23.5%) fourth, 11(9.6%) fifth, sixth3 (2.6%) and 6(5.2%) were Post graduates.

4.6.2.4 Whether respondents use UNZA library

Asked whether respondents use the University library for their information needs, the study revealed that majority 111(96.5%) of respondents indicated yes, while 4(3.5%) indicated no.

4.6.2.4 Utilisation of library services by students

In order to establish the utilisation of the library services, respondents were asked to indicate how often they used the various services in the library such as Issue Desk, Short loan collection, Serials control and Special collections.

On the frequency use Issue desk 19(16.5%) indicated very often, 41(35.7%) indicated often, 42(36.5%) indicated sometimes, and 7(6.1%) indicated never while 5(4.3%) did not answer.

Asked on the frequency use of Short loan collection 16(13.9%) respondents indicated very often, 26(22.6%) indicated often, 48(41.7%) indicated sometimes, 14(12.2%) indicated never while 11(9.6%) did not answer.

Asked on the frequency use of services at serials section, majority 58 (50.4%) of respondents indicated they had never used serials services, 3(2.6%) respondents indicated very often, 7(6.1%) indicated often, 28(24.3%) indicated sometimes, while 19(16.5%) did not answer.

Asked on the frequency use of special collection 10(8.7%) indicated very often, 13(11.3%) indicated often, 27(23.5%) indicated sometimes, 45(39.1%) indicated never while 20(17.4%) did not answer.

Table 8: How often students utilise library services (n=115)

Responses	Issue Desk	Short Loan	Serials	Special collections
Very often	19(16.5%)	16(13.9%)	3(2.6%)	10(8.7%)
Often	41(35.7%)	26(22.6%)	7(6.1%)	13(11.3%)
Sometimes	42(36.5%)	48(41.7%)	28(24.3%)	27(23.5%)
Never	7(6.1%)	14(12.2%)	58(50.4%)	45(39.1%)
No answer	5(4.3%)	11(9.6%)	19(16.5%)	20(17.4%)

The summary of results in table 8 above shows that students utilise all library services, however serials section was not used by majority 58(50.4%) of students.

4.6.2.5 How the students view the efficiency of library services

Respondents were further asked to indicate how they view the efficiency of various library services.

Asked on how they view the efficiency of Issue Desk 22(19.1%) indicated very efficient, 75(65.2%) indicated efficient, 4(3.5%) indicated inefficient, and 5(4.3%) indicated very inefficient, while 9(7.8%) did not answer.

Asked how they view the efficiency of services at Short Loan Collection, 23(20%) indicated very efficient, 65(53.9%) indicated efficient, 9(7.8%) indicated inefficient, 7(6.1%) indicated very inefficient, while 14(12.2%) did not answer.

Asked how students view the efficiency of services at Serials Section, 6(5.2%) indicated very efficient, 38(33%) indicated efficient 7(6.1%) indicated inefficient, and 14(13%) indicated very inefficient, while 49(42.6%) did not answer.

Asked on how the students view the efficiency of services in special collections, 12(10.8%) indicated very efficient, 40(34.8%) indicated efficient, 7(6.1%) indicated inefficient, and 12(10.4%) while 44(38.3%) did not answer.

Table 9: How the students view the efficiency of library services (n==115)

Responses	Issue Desk	Short loan	Serials	Special collections
Very efficient	22(19.1%)	23(20%)	6(5.2%)	12(10.4%)
Efficient	75(65.2%)	62(53.9%)	38(33%)	40(34.8%)
Inefficient	4(3.5%)	9(7.8%)	7(6.1%)	7(6.1%)
Very inefficient	5(4.34%)	7(6.1%)		12(10.4%)
No answer	9(7.8%)	14(12.2%)	49(42.6%)	44(38.3%)

4.6.2.6 How students search for information in the library

To establish how library users access information in the library students were asked how they search for information. The study revealed that 56(49.6%) use a catalogue, 33(34.8%) indicated browsing from the shelves, 8(7%) ask a friend, 23.5 per cent ask a library staff and 0.9 per cent asks the lecturer while 7.8 percent did not respond.

4.6.2.7 Type of catalogue used

To establish the type of catalogue used students were asked what type of catalogue they use to search for information in the library. The study revealed that, 56(48.7%) use computer-based catalogue (OPAC), and 29(25.2%) still use card catalogue while 30(26.1%) did not answer.

Table 10: Type of catalogue used (n=115)

	Frequency	Percent
Card catalogue	29	25.2
OPAC	56	48.7
No answer	30	26.1
Total	115	100.0

4.6.2.8 Reasons why students did not use OPAC

Students were further asked why they did not use OPAC. On the reasons why students did not use Computer-based catalogue, majority 44(38.3%) indicated that they did not receive training on how to use Computer-based catalogue, 28(24.3%) indicated they are not aware of the availability of Computer-based catalogue, 17(14.8%) indicated that the computers available are very few, 8(7%) indicated they do not know how to use a computer, while 18(15.7%) did not answer. Table 11 below shows why respondents do not use OPAC.

Table 11: Reasons why respondents do not use computer-based catalogue (n=115)

	Frequency	Percent
Do not know how to use a computer	8	7.0
Not aware of OPAC	28	24.3
Not trained to use OPAC	44	38.3
Computers available are few	17	14.8
No answer	18	15.7
Total	115	100.0

4.6.2.9 How respondents became aware of the availability of OPAC

Asked on how they became aware of the availability of computer-based library catalogue, 77(67%) indicated during library orientation in first year, 23(20%) indicated from a friend, 10(8.7%) indicated from a lecturer, while 5(4.3%) did not answer.

4.6.2.10 How students acquired skills on to use OPAC

Asked how respondents learnt how to use the OPAC, the study revealed that majority 42(36.5%) were shown by a friend, 21(18.3%) were trained by library staff, and 3(2.6%) indicated that they were shown by a lecturer while 49(42.6%) did not answer. Respondents were further asked whether they would accept training on how to use computer-based catalogue, majority 80(69.6%) of the respondents indicated they would and only 8(7%) indicated they would not, while 27(23.5) did not answer.

4.6.2.10 How using OPAC influenced access to information

Respondents were asked how using computer-based catalogue has influenced access to information. The results showed that 42(36.5%) indicated improved access to books,

33(28.7%) indicated improved searching for books, and 12(10.7%) and indicated reduced browsing form the shelves while 25(21.7%) did not answer.

Respondents were further asked to describe how they found the use of OPAC in accessing information, 54(47%) indicated it was faster, 16(13.9%) indicated it enables search using author, title and subject at the one point, 6(5.2%) indicated enables access to related information, 2(1.7%) indicated accessible on the internet, while37(32.2%) did not answer. Table 12 below shows how the use of computer-based catalogue was described by students.

Table12: How respondents describe the use of computer-based catalogue (n=115)

	Frequency	Percent
It is faster	54	47.0
Enables search using author, title and subject	16	13.9
Enables access to related information	6	5.2
Accessible on the internet	2	1.7
no answer	37	32.2
Total	115	100.0

Respondents were asked to give comments on the use of computer-based LMS on information provision at UNZA Library. Various comments were given and most common being:

- It is faster ;
- It is very efficient;
- It has improved access to information;
- It is better than card catalogue;
- It is convenient;
- It is time saving;
- Computers are few ;
- There was need for training and;
- The system is not fully developed.

CHAPTER FIVE

5.0 DISCUSSION OF FINDINGS

The application of modern technology in university libraries can no longer be ignored. The trend in the information age has been towards enhancing library activities through automation. Effective library automation is seen to bring significant improvement in the information provision and service delivery to library users.

From the findings, it is apparent that the broader objectives of migrating from manual to computer-based library management system at UNZA library have been met. The study however revealed that there were both negative and positive effects on using computer-based library management system on information provision at the University of Zambia Library.

On the positive extreme, both staff and users have benefited from computerisation of the library's various functions and operations. These include the efficiency in the methods of acquiring, processing, retrieval and dissemination of information. The library staff feels that the workload is lighter because the system has reduced the cumbersome repetitive traditional library routines especially in cataloguing and circulation.

Further, the ability of the computer-based LMS to perform the core functions of the library has enabled UNZA library provide speed and timeliness information due to its flexibility and comprehensiveness in information retrieval. This is in line with Sanni and Idiodi (2004) and Peyala (2011) in their works in which they informed that effective computerisation of library functions and processes brought significant improvement in information delivery services to the university community.

5.2 The benefits of using computer-based LMS on housekeeping functions

All housekeeping functions at UNZA library are computerised; this has benefited both the library and library staff. Each housekeeping operation has benefited from using computer-based LMS according to their tasks or functions. Below are the positive effects of using computer-based LMS on various housekeeping operations at UNZA library.

5.2.1 Acquisition

Acquisition is a function responsible for building the collection of the library. The activities in acquisition section involve receiving requests from lecturers and other library users,

making orders for requested materials, purchasing and receiving the materials, stamping and accessioning the materials and keeping statistics of materials received, on order and accession list.

With the use of computer-based acquisition, library materials are being ordered more rapidly because computerisation has removed many clerical, routines, repetitive and labour intensive activities that characterised the manual system.

The use of computer-based LMS in acquisition has enabled the section to offer several other benefits such as enabling faster pre-order duplicate checking, easy preparation of purchase orders and enables the vendor database to be updated. This is due to the ability of the system to handle various tasks such as bibliographic verification, pre-order, billing, and has resulted in efficiency. The use of computer-based acquisition system has also reduced the cost of stationery since most of the tasks are now carried on using a computer thereby removing the use of paper and cost of posting the orders. This confirmed the work of Abdul (1990) in his work on library automation in Jordan where it was found that computers were used in acquisition's record of books on order, received, billing and so on. This can also be likened to Jones (1984) in his work on the impact of technology on academic libraries where he observed that the extent of technology adoptions by academic libraries was that library materials were being ordered more rapidly because of computer-based acquisition.

The availability of information about books in print, publisher, vendors, and the cost of books online has enabled the library to easily budget for the materials to be purchased. This information is vital to the funders for them to establish how much is required. Further, the use of computer-based LMS has provided the opportunity to communicate with vendors via email. This has also reduced the time taken in transaction between the library and vendors resulting in shortening the time taken between ordering and the receipt of the materials.

1.2.2 Cataloguing

Cataloguing is an important function in the library concerned with establishing the library database (catalogue) and maintaining bibliographic control. To this effect computers have been used most extensively to enhance efficiency in cataloguing library materials by speed cataloguing and updating the catalogue. With the use of computer-based LMS, the creation of

library database has become very easy and fast because activities such as verification of items already in the collection can now be done on the same computer the cataloguer is using.

The use of computer-based library management system at UNZA library has enabled the cataloguing system to maintain an efficient and accurate library database by producing standard records through authority function. This has resulted in provision of information to users more efficiently since the process of cataloguing has become lighter with the reduction *in the cumbersome repetitive routines which were found in the traditional cataloguing. This is* related to Jones (1984) on the impact of technology in academic libraries in which he informs that the expected effect of technology on users were that materials were being processed rapidly into the collection because of rapid spread of shared cataloguing services.

Using computer-based cataloguing system has brought about better access to library materials by users through OPAC. The application of computers to cataloguing resulted in prompt access to the library materials because once the cataloguer completes working on an item and save it becomes available in the OPAC. This is in line with Cramer (1976) who observed that application of computers to cataloguing was becoming possible to for libraries to harness the benefits of automation to solve problems and that computerisation of the catalogue held out the promise of better access to the library stock.

This has been the case at UNZA library where the automation of cataloguing system has resulted in the establishment of the database used by circulation for its functions and the establishment of the online public access catalogue (OPAC) which enables users locate the library database online and this has enhanced efficiency in the provision of information to users. This confirms assertion by Adeyemi (2002) in his work on problems and challenges of automating cataloguing process at KDL, University of Ibadan, Nigeria which found that automation of cataloguing had enhanced efficiency by bringing in OPAC which were replacing card catalogues.

Library users have benefited tremendously from the establishment of OPAC because OPAC is user-friendly and can be accessed over the internet from any computer connected to the local area network (LAN) or wide area network (WAN). This means that users can have access to the library catalogue not only within the library walls and can still search the library database even when the library is closed. The use of OPAC supplied information at the right time because the record is made available immediately when created by the cataloguers

making information provision to users timely. This is in line with Mehtab and Amina (2008) in their work in which they informed that OPAC has changed the concept of access to library resources since users can have access to library materials on a computer connected to internet within and outside the library building even when the library is closed. .

The library database is also updated on a daily basis making more information added to the database for the benefit of the users.

5.2.3 Circulations control

The circulations control has the function to provide information to users directly. The use of Computer-based LMS has enhanced efficiency in activities which are directly involved in providing information to library users. The benefits of computerisation of circulation control are that it has improved information provision in that there is accuracy and control over circulation activities. This is because the system has facilitated easy renewals and reservation of items as well as the sending of notices and reminders which is now timely. The use of the barcodes on the books and user identity cards has also contributed to the efficiency in discharging and receiving books by using a barcode reader to capture the details about the book and user.

The library has also reduced the workforce at circulations control since the workload has become lighter. A large workforce is no longer required, library users benefited in terms of time, improved access to material and delivery of services. This is related to Mbewe (2002) in his work on the process and the experience of changing from manual circulation system to an automated one by the Copper belt University Library using STYLIS library management where he found that in comparison with the manual system, the improvement of library services in general was tremendous.

There has been a reduction in the use of stationery at circulations control since most of the work is done online. The use of the barcode, for instance, has replaced the use of book pockets and library cards for users. The information on the book barcode is entered by the cataloguer and is available in the library database while the information about the user is available in the patron management database. This is related to Molholt (1987) in her work on the influence of information technologies on libraries and librarianship which found that

in circulation a light pen reads identification card and the system charges the book out to them making the process of information provision faster.

The library has benefited from using computer-based circulation control through its provision of fines window. This has caught up with delinquent library users who like keeping library materials longer than the period they are supposed to be borrowed since the system provides a fine.

3.2.4 Serials control

The availability of acquisition function in the serials module has enabled the handling of subscriptions of journals more efficiently.

The computerisation has facilitated easy generation of subscription and renewal orders. It has also enabled accurate and up-to-date record of subscriptions and holdings and facilitates faster recording of receipt of journal issues. The cataloguing function has also made the cataloguing of serials materials faster. These two functions have enabled the provision of information to users efficiently.

Further, the use of computer-based LMS has enhanced access to journal database in the OPAC and this has enhanced information provision to users. This has increased the usage of journals by library users especially students who access the title and call numbers of the journals in the OPAC. This can be attributed to number of students using OPAC which even this study showed that 56% student respondents used OPAC..

3 Challenges of using computer-based LMS

Despite the use of computer-based LMS having positive effects of both library staff and users, the study however, revealed there were also challenges faced especially in processes of cataloguing and circulations of library materials.

In the cataloguing section, the challenges faced were the problems of restricted discarding corrupted authorities; obsolescence of computers given to the section; poor internet connectivity; and viruses all these affect the work output in the section. The obsolescence of computers affect the work output of cataloguing of materials as most of the problems took long to be attended to by staff from computer centre. This makes the function of library database creation and bibliographic maintenance become slow thereby slowing the process of

information reaching the users and users accessing accurate bibliographic information. This is related to Makondo (2004) in her work on IT sustainability challenges at UNZA library where the findings revealed that more than 50% of the computers in the library acquired in 1992 were not functioning and that affected the intended benefits of the users. The study further observed the high student-computer ratio not only in the library but the in the university and this had affected users' access to OPAC especially after library hours.

The serials section also indicated that the challenges encountered were many some of which are many steps taken in the process of cataloguing making the process long; the restriction to content cataloguing and lack of the provision for modification to thereby not adding value to library users. This is related to the findings by Ananobi (2010) in his work in Nigeria where he found the low use of ICT facilities for serials functions except in the areas of serials public service.

The other challenge pointed out by both library staff and users was lack of user education. Teaching of information literacy to library users has not been done to the university community. Lack of information literacy skills have been pointed out as one of the major causes of underutilisation of existing library facilities. Librarians have not been aggressive enough to teach the library users especially on how to use electronic catalogue (OPAC). Effective use of online public access catalogue (OPAC) requires the possession of skills. This has resulted in some of them not fully utilising the various services the library provide. The current user education programmes at the University of Zambia mainly consist of library orientations in the form of guided tours. This relates to Akakandelwa (2000) in his work on assessment of user education in academic libraries at UNZA library in which it was found user programmes at UNZA library were inadequate in content, timing and approach and that there was no written policy with regard to library user education.

Lack of user education affected the use of library services especially the OPAC by users where only 50% of academic staff and 48.7% of students indicated they used the OPAC to search for information in the library. There is a sad development where library users 11.8 % and 252% of academic staff and students respectively still use card catalogue which has not been updated since 1995 when the library migrated from use of card catalogue to OPAC. This means that some users do not access the current library materials which are available in the library due to lack of user education. There was also an overwhelming response on whether

they would welcome training in the use of OPAC with 80% students and 61.8% academic staff indicating they would welcome training.

Lack of user education also has an effect on library staff that have to endure shelving back piles of books pulled down by users who do not know how to search the catalogue resulting in searching direct from the shelves. This also affected university management who employ students on work study to shelve books so that the library can have its collection more accessible to users..

Poor internet connectivity was also cited as a challenge in the processing, retrieval and circulation of materials. The poor connectivity was reported to have frequently disrupted the processing of books in cataloguing and searching for information in the OPAC by users and the circulation of materials. This is relates to Miyanda (2011) in her work on factors affecting Utilisation of Electronic Information Resources and Services by Medical Students at the University of Zambia in which it was observed that poor internet connectivity such as internet interruption, power failure and insufficient bandwidth were some of the contributing factors on the low usage of e-resources by medical students at UNZA.

The other challenge that library users faced was that of few computers used for OPAC. The four computers made available for OPAC in the library were reported to be overcrowded especially in the evening when most students use the library. This was a concern which one academic staff made a suggestion that,

“library management must at least provide a separate computer to be used by academic staff when they want to search the catalogue when they are already in the library so that we are not inconvenienced to either go back to the office or go direct to the shelve when we are doing research in the library”.

This was also observed by some students who indicated that sometimes the overcrowding was as a result of those who were learning from others on how to use OPAC and this usually happened in the evening when library staff only provide services in the Short Loan Section leaving students to depend on fellow students to learn this important skill in the academic environment.

Shortage of manpower for operations and maintenance of computers was another challenge the library staff faced since most of the problems were centrally handled by computer centre staff resulting in response time being slow thereby affecting the work out.

6.0 CONCLUSION

From the findings of the study, it is possible to conclude that UNZA library and users have benefited immensely from using computer-based LMS. The research has clearly indicated that there are benefits to use computer-based LMS on the provision of information to library users because through its various house-keeping functions the library has the capacity to produce specific outcome effectively. This can be done with minimum amount or quantity of waste, expense, or unnecessary effort.

From the study various challenges were also identified. These include lack of user education and publicity of library services, poor internet connectivity, and high student-computer ratio, shortage of manpower for operations and maintenance of computers, obsolescence of computers.

The study also brought out a number of factors respondents felt would increase the usage of the library services especially the OPAC. These include factors like increased number of computers, improved user education, improvement on the maintenance of computer. This therefore, means that the library management has a duty to respond and act to these factors.

7.0 RECOMMENDATIONS

The following recommendations were made:

- 7.1 The library through its public service (PSD) should publicise the services library such as OPAC through seminars and training of users who do not know how to use library services
- 7.2 Library management should formulate a user education policy whose emphasis should be on training library users who do not know how to use library services.
- 7.3 There is also need by University management to increase the number of computer laboratories in schools to enable students and lecturers access the library database anywhere in the university.

- 7.4 The University management should work on the introduction of the wireless internet connectivity and increase on the bandwidth around the campus so that students can have access to the internet in their hostels so as to reduce the congestion experienced at the three computers used for OPAC access in the library.
- 7.5 There is need to employ or train qualified staff in the library so as to improve on the problems of hardware and software which experienced by the library

REFERENCES

Abdul, R. V. (1990), Library automation in Jordan. **International Library Review**, 22 (1) 19-29.

Adedigba, Y. A., [et al]. (1995), Education and training in library automation in Africa: IITA's contributions. **Journal of Library, Archives and Information Science**, 5 (1) 55-64.

Adeyemi, A .O. (2010), "ICT Facilities: Ergonomic Effects on Academic Library Staff," **Library Philosophy and Practice (Practice (ejournal). Paper 343)**. Retrieved from <http://digitalcommons.unl.edu/libphilprac/343> [on 03/11/2010]

Adeyemi, B.M. (2002), Problems and challenges of automating cataloguing process at Kenneth Dike Library, University of Ibadan, Nigeria. **African Journal of Library, Archives and Information Science**, 12 (2) 213-222.

Adedigba, Y.A and Ezomo, E.O. (2003), The management of system migration in an African setting. **Journal of Library, Archives and Information Science**, 13 (1) 33-44.

Agha, S.J. (1986), Library automation in Nigeria: achievements and constraints on progress. **Electronic library and information system**, 20 (4) 409-414 Retrieved from <http://www.emeraldinsight.com/10.1108/eb046951> [on 03/08/2009].

Akakandelwa, A. (2000), **Assessment of user education in academic libraries: the case of the University of Zambia**. Unpublished Master's Thesis, University of Botswana, Gaborone.

Anunobi, C.V. (2010), The use of ICT facilities for serials functions in Southern Nigerian Federal University Libraries. **Library philosophy and practice**.

Ansari, M. A. and Alam (2008), Awareness and use of OPACs. **The Electronic Library**. Retrieved from www.emeraldinsight.com/0264-0473.htm [on 22/08/2009].

Antonius, R. (2003), **Interpreting quantitative data with SPSS**. London: SAGE.

Avram, H.D. (1984), Overview-The impact of technology on libraries. **IFLA Journal**, 10(1) 22-27.

- Ayub, M., Ghazanfar, M.N. (1994), **Computer and Automation Primer**, Pak Book Empire, Lahore.
- Bush, V. (1945), **As we may think**, *Atlantic monthly*. January, 01-108.
- Chisenga, J. (1995), The status of information technology in Zambian libraries. In **Africa Journal of Library, Archives and Information Science**, 5 (1) 19-24.
- Chishti, S.H. (1996), Safeguarding information in cyber revolution, **Pakistan Library Association Journal**, Vol. 17 pp.24-31
- Clayton, M and Batt, C. (1992), **Managing library automation**, 2nd ed. England: Ashgate.
- Cramer, S.A. (1976), The computerised catalogue in a University Library, **Libri**, 26 (1)35-54.
- Doust, Robin W. (1988), Computerisation in the third world library. **Wits Journal of Librarianship and Information Science**. 5 69-82.
- Dhawan, K. S. (1997), **Online cataloguing systems**. New Delhi: Commonwealth Publishers.
- Fisher, S. and Rowley, J. (1994), Management information and library management systems: an overview. **The Electronic Library**, 12 (2) 109-117
- Jones, C. (1984), The impact of Technology on users in academic and research libraries. In **IFLA Journal**. 10 (1) 49-56.
- Kashweka, K. (2000), **Business information provision: the case of TINET in Zambia**. Unpublished Master's Thesis, University of Botswana, Gaborone.
- Lancaster, F. (1978), **Toward Paperless Information Systems**, Academic Press, New York.
- Mahmood, K. (1998), Information technology: a challenge for libraries. **Information development**, 14(2) 84-86.
- Mahmood, K. (1999), The development of computerised library services in Pakistan: A review of the literature. **Asian Libraries**, 2(8) 307-328. Retrieved from (<http://www.emeraldinsight.com/Insight/ViewContentServlet?contentType=Article&Filename=Published/EmeraldFullTextArticle/Articles/1730080901.html>) [on 22/8/2009].

Kombo, D.K. and Tromp, D. L.A. (2006), **Proposal and thesis writing: an introduction**. Nairobi: Paulines publications Africa.

Lungu, B.C. (2002), Towards computerizing the Copperbelt University Library: dreams, frustrations, opportunities, options, and achievements. In **Into the information age: computerization of the Copperbelt University Library**, edited by Lundu, M.C. and Lungu, C.B.M. INASP &SCANUL-ECS: Oxford.

Makondo, N.S.F. (2002), **An assessment of the sustainability of information technology at the university of Zambia library**. Unpublished Master’s Thesis, The University of Botswana, Gaborone.

Mbewe, G. (2002), Computerising operations in the loans system. **Into the information age: computerisation of the Copperbelt University Library**, edited by Lundu, M.C. and Lungu, C.B.M. INASP &SCANUL-ECS: Oxford.

McLean, D.D. (1983), Automation in the libraries in Sao Paulo. In **International Library Review**, 15, 147-153.

Mitchell, V. (2003), Implementating the first library management system at Merthyr Tydfil public Libraries: an overview and impact on staff. In **Journal: Program: electronic library and information systems**, 37(2) 1-8.

Miyakawa, T. (1987), Response to Pat Molholt paper on “A view from the chip: an economist’s view. In **IFLA journal** 13 (1), 14-22.

Miyanda, E.M.C. (2010), **Factors affecting Utilisation of Electronic Information Resources and Services by Medical Students at the University of Zambia**. Zambia: University of Zambia. Unpublished Master’s Thesis, University of Zambia, Lusaka.

Molholt, P. (1987), A view from the chip: The influence of information technology on libraries and librarianship. In **IFLA Journal**, 13 (1) 13-22.

Munshi, M N. (2003), **Library Automation in Bangladesh: The Dhaka University Library Experiences** Retrieved from www.univdhaka.edu/.../faculty/memberdetail.php?...LIS – Bangladesh. [On 05/4/2009]

- Musoke, M. N. (1997), Strategies for addressing the University library user's changing needs and practices in Sub-Saharan Africa. **Pre-IFLA satellite conference paper**. Retrieved from <http://www.ifla.org.IV/ifla73/satelite1Programm-en.pdf> on [31/3/2009].
- Mutula, S. M. (2001), Financing public Universities in Eastern and Southern Africa: implications for information services. **The Boston Line: managing Library finances**. 14(2) 116-132.
- Mwacalimba, H. (1999), **The University of Zambia Library: past, present and future. ICDE Librarians' roundtable (Hong Kong, October 11-12, 1999)**. Retrieved from (www.ouhk.edu.hk/10th/roundtable/Zambia.pdt) [on 26/01/2009]
- Mwamba, A. (2002), The computerisation process: design and implementation. In **Into the information age: computerisation of the Copperbelt University Library**, edited by Lundu, M.C. and Lungu, C.B.M. INASP & SCANUL-ECS: Oxford.
- Nfila, R. B., Dintwe, M. and Rao, K.N. (2005), Experience of systems migration at the University of Botswana Library: a case study. In **Program: electronic library and information systems**.39 (3) 248-256.
- Nok, G. (2006), Challenges of computerising a University Library in Nigeria: the case of Kashim Ibrahim library, Ahmadubello University, Zaira. **Library philosophy and practice** (8) 2 1-10.
- Nkanu, W. O. and Okon, H. I, (2010), "Digital Divide: Bridging the Gap through ICT in Nigerian Libraries" **Library Philosophy and Practice (e-journal)**. Paper 492. Available on [<http://digitalcommons.unl.edu/libphilprac/492>]
- Okiy, R.B. (2005), Strengthening information provision in Nigerian university libraries through information communication technologies. **The electronic library**, 23 (3), pp 311-318.
- Oketunji, I. (2000), Academic and research libraries agenda for transforming its libraries use in New Millennium. In **Compendium of papers presented at the annual national conference and AGM, Oweri**, (June 2000), 17-21.
- Olatunde, A. R. (1997), Computerisation efforts in Botswana libraries: a state of art review. **Journal of Library, Archives and Information Science**, 7 (2) 125-135.

Peyala, V. (2011), The impact of using information technology in central University Libraries in India. **Program: electronic library and Information Systems**. 45(3) 308-322.

Riaz, M. (1991), **Library Automation: an Introductory Text**, EBSCO Subscription Services, Islamabad.

Salisbury, R. (1999), Implementation of the Unicorn library management system at Reading University library. **Programme: Electronic library and information systems**, 33(2) 129-140. Retrieved from www.emeraldinsight.com/10.1108/EUM00000000006915 [31/3/2009].

Sanni, G. A. and Idiodi, E. A. (2004), Library computerisation at the University of Benin, Nigeria. **Journal of Library, Archives and Information Science**, 14 (1) 65-76.

Smyth, R. (2004), **Knowledge interest and the management of educational change**. Unpublished Doctoral Thesis, University of New England, Armidale.

The University of Zambia, (2008), **Annual report**. Lusaka: The University of Zambia.

The University of Zambia, (2007), **Annual Report**. Lusaka: The University of Zambia.

The University of Zambia. (2005), **Annual Report**. Lusaka: The University of Zambia.

The University of Zambia. (2001), **Strategic plan 2002-2006**. Lusaka: The University of Zambia.

Uwaifo, S. O. (2008), Nigerian library staff and their perceptions of health risks posed by using computer-based systems in university libraries. **Program: electronic library and information systems**. 42 (1) 68-75.

Verner, B. A. (1974), Institutional political and fiscal factors in the development of library automation, 1967-71. **Journal of library automation**. 7 (1) 5-23.

Appendix 1: Interview guide for Heads in charge of housekeeping operations

Section A

1. What are the functions of your section in relation to information provision to library users?
2. What is the current number of staff in your section?
3. What qualification does your staff posses?
4. Does the staff use the computer-based library management system in carrying out its functions?
5. How long has the staff been using computer-based library management system?
6. Did the staff receive training on how to use computer-based library management system?

Section B

7. Has the use of computer-based cataloguing system has an effect on information provision to users?
8. Does your section face difficulties using computer-based library system in the provision of information to library users?
9. Your final remarks

Appendix 2: Questionnaire for library staff

Dear respondent,

Attached is a questionnaire which I would be most grateful if you would kindly answer. It will give me vital information I want regarding the effect of using computer-based library management systems in University libraries: the case of the University of Zambia Library.

Please answer the simple questions. All information will be treated as confidential.

Thank you

Section A: Personal information

- 1. What is you gender?
 - (a) Male []
 - (b) Female []
- 2. Indicate the division or branch you operate from.....
- 3. Please indicate your position
 - (a) Librarian []
 - (b) Assistant librarian []
 - (c) Senior Library Assistant []
 - (d) Library Assistant []
- 4. How long have you been using computer-based library management System?
 - (a) 1-5 years []
 - (b) 6-10years []
 - (c) More than 10 years []

Sections B: Use of computer-based LMS

- 5. Which house-keeping functions do you mostly use
 - (a) Acquisition []
 - (b) Cataloguing []
 - (c) Circulation []
 - (d) Other (please specify.....)
- 6. Have you received training to use the house-keeping functions you mostly use?
 - (a) Yes []
 - (b) No []
- 7. If your answer in question 6 above is yes, how did you receive the training?
 - (a) As a group []
 - (b) As an individual []

8. Has the training given you the skills needed in using computer-based library management system?
- (a) Yes []
- (b) No []
9. If your answer in question 6 above is No, how did you acquire skills to use the computer-based library management system?.....
10. How do you rate your skill in using computer-based library management system?
- (a) Very competent []
- (b) Competent []
- (c)Not competent []
11. Do you teach or encourage other library staff and library users on how to use the computer-based library management system?
- (a) Yes []
- (b) No []

Section C: Influence of using computer-based on information provision

12. In what ways has the use of computer-based library management system affected your work (more than one option may chosen)
- (a) Faster in processing of library materials []
- (b) Faster in delivering library service to users []
- (c) Better and quick to search for library materials []
- (d) Better for creating and managing in-house databases []
- (e) Other.....

12. How would you describe the use of computer-based library management system? (More than one answer may be chosen)

- a) Time saving [] or Time consuming []
- b) Improved service [] or delayed service []
- c) More expensive [] or Less expensive []

13. Do you encounter problems when using the computer-based library management system?

- (a) Yes []
- (b) No []

13. If your answer in question 11 above is Yes, what problems do you encounter in using computer-based library management system?.....
.....

15. How do you solve the problems you encounter?.....
.....
.....

16.All library subsystems within the library can benefit immensely from computerisation, what is the effect of computerisation on the house-keeping function in your division.....
.....

17.Your last comment.....
.....

Thank you for your time

Appendix 3: Questionnaire for academic staff

Dear respondent,

Attached is a questionnaire which I would be most grateful if you would kindly answer. It will give me vital information I want regarding the effect of using computer-based library management systems in University libraries: the case of the University of Zambia Library.

Please answer the simple questions. All information will be treated as confidential.

Thank you

Section A

Personal information

- 1. Gender.....
- 2. School.....
- 3. Qualifications.....
- 4. How long have you worked for the University of Zambia.....

Section B: Use of the Library

Please tick (√) where applicable

- 5. Do you use the University of Zambia library to search for information you need for teaching and research?
 - a) Yes []
 - b) No []
- 6. If your answer is No, please tick the major reason(s) why you don't use the University of Zambia library
 - a) I use the departmental library []
 - b) I use my own books []
 - c) I don't know how to find books in the library []
 - d) My course do not require library use []
 - e) I do not have enough time to use the library []
 - f) Other.....

Section C: Utilisation of library services

- 7. How do you search for the information in the library?
 - a) Use a catalogue []
 - b) b) Browse from the shelves []
 - c) Ask a library staff []

d) Ask a colleague []

10. What type of catalogue do you use to access information in the library?

a) Card catalogue []

b) computer- based catalogue []

11. If your answer in question 11 above is computer-based catalogue, how did you learn how to use computer-based catalogue?

a) Self instruction []

b) b) Assistance from colleagues []

b) Training by library staff []

d) Literature from manuals []

12. How has the use of computer-based catalogue influenced your library search?

a) Improved access []

b) Improved searching []

c) Less dependency on shelf browsing []

d) Reduced dependency on manual catalogue []

13. Would you welcome training in using computer-based catalogue?

a) Yes []

b) No []

14. On the whole do you think using computer-based catalogue would/has improved the quality of library service in an academic environment.....
.....

Thank you for your time and for completing this questionnaire.

Appendix 4: Questionnaire for students

Dear respondent,

Attached is a questionnaire which I would be most grateful if you would kindly answer. It will give me vital information I want regarding the effect of using computer-based library management systems in University libraries: the case of the University of Zambia Library.

Please answer the simple questions. All information will be treated as confidential.

Thank you

Section A

Personal information

- 1. Gender.....
- 2. School.....
- 3. Year of study.....

Section B: Use of the Library

Please tick (✓) where applicable

- 4. Do you use the University of Zambia library to search for information you need for teaching and research?
 - b) Yes []
 - b) No []
- 5. If your answer is No, please tick the major reason(s) why you don't use the University of Zambia library
 - a) I use the departmental library []
 - b) I use my own books []
 - c) I don't know how to find books in the library []
 - d) My course does not require library use []
 - e) I do not have enough time to use the library []
 - f) Other.....

Section C: Utilisation of library services

- 6. How do you search for the information in the library?
 - c) Use a catalogue []
 - d) b) Browse from the shelves []
 - c) Ask a library staff []

d) Ask a colleague []

7. What type of catalogue do you use to access information in the library?

b) Card catalogue []

b) computer- based catalogue []

8. If your answer in question 11 above is computer-based catalogue, how did you learn how to use computer-based catalogue?

c) Self instruction []

d) b) Assistance from colleagues []

b) Training by library staff []

d) Literature from manuals []

9. How has the use of computer-based catalogue influenced your library search?

a) Improved access []

b) Improved searching []

c) Less dependency on shelf browsing []

d) Reduced dependency on manual catalogue []

10. Would you welcome training in using computer-based catalogue?

a) Yes []

b) No []

11. On the whole do you think using computer-based catalogue would/has improved the
quality of library service in an academic
environment.....
.....
.....
.....

Thank you for your time and for completing this questionnaire.