

**A COMPARATIVE STUDY OF THE UTILIZATION OF INFORMATION
COMMUNICATION TECHNOLOGY IN THE PROVISION OF INFORMATION
AT MOI UNIVERSITY LIBRARY AND UNITED STATES INTERNATIONAL
UNIVERSITY LIBRARY KENYA**

BY

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FOR THE AWARD OF MASTER OF SCIENCE DEGREE IN LIBRARY AND
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MANAGEMENT AND INFORMATION STUDIES, SCHOOL OF
INFORMATION SCIENCES**

MOI UNIVERSITY

ELDORET

2018

DECLARATION

DECLARATION BY THE CANDIDATE:

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DEDICATION

I dedicate this work to my husband Benson and Children Hansen, Ryan, Colleen and Ian for their patience and support during my study.

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I'm thankful to God for giving me life and the chance and energy to carry out this study.

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ABSTRACT

Purpose – The purpose of this study was to examine the adoption and utilization of information communication technology (ICT) use in information provision to library users in two universities in Kenya. The objectives of the study were to: examine the extent of ICT utilization in the provision of information at the two institutions, determine the institutional factors that influence the adoption and utilization of ICT in the provision of information at Universities, compare the utilization of ICT in the provision of information at the two institutions, establish the challenges, suggest ways of improvement.

Design/methodology/approach – Data-gathering tools used included questionnaire, and interview with selected university library users and key informants. Data processing and analysis was done using descriptive and analytical methods. Questionnaires for respondents and interviews for informants were used. The key informants included the ICT Personnel, university top management, library managers. A mixed method approach was used, whereby both qualitative and quantitative data were obtained. A sample size of 92 from MTL and 80 from USIU-A resource center. Purposive sampling was used in selecting the informants and simple random sampling to select the respondents.

Findings – The extent of ICT utilization in Margaret thatcher library (MTL) (36.4%, 4) whereas in United States International University Africa (USIU-A) resource center (100%, 7) libraries. Staff training: MTL (82%, 9), while in USIU-A resource center (100%, 7). Funding: MTL (27.2%, 3) while in USIU-A resource center (100%, 7). ICT policy: both universities had a draft ICT Policy. Organizational support: MTL (72.7%, 8), while in USIU-A resource center 7(100%, 7). Infrastructure: MTL (54.5%, 6) whereas in USIU-A resource center (100%).

Conclusions -the study concludes that utilization of ICT in the private university USIU-A was more enhanced in comparison to the public university library MTL. Institutions should allocate adequate budgets for the public university libraries in order to enhance on the library service delivery.

Recommendations - the study recommends that universities should allocate adequate financial resources towards ICT, in order to enhance utilization. The study recommends training and re- training of staff, formulation of ICT policy; upgrading of ICT resources and incorporation of information literacy skills in the university Curriculum.

Originality/value – This is a comprehensive comparative study between a public and private university on adoption and utilization ICT in the provision of information services to library users in the Kenyan context.

Keywords: Information Communication technology, Library users, University libraries, Kenya

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LIST OF ABBREVIATIONS

ALA	-	American Library Association
CD-ROM	-	Compact Disk-Read Only Memory
CUE	-	Commissioner for University Education
DVD	-	Digital Versatile Disc
RFID	-	Radio frequency identification
ICT	-	Information and Communication Technology
IFRA	-	Institute of French in Africa
IL	-	Information literacy
MTL	-	Margaret Thatcher library
OPAC	-	Online Public Access Catalogue
PC	-	Personal computers
PERI	-	Program for the Enhancement of Research publications
USIU-A	-	United States International University- Africa

DEFINITION OF OPERATIONAL TERMS

Academic libraries refers to libraries of tertiary institutions that serve the teaching and research needs of students and staff.

Information refers to raw material for the mind which uses it to develop skills, knowledge and eventually wisdom. Information is data that has been collected and processed into meaningful form or data that has been interpreted and understood by the recipient of the message.

Information Technology (IT) refers to the design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware." IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and securely retrieve information.

Information and Communication Technology (ICT) refers to a combination of interconnected hardware and software with peripheral equipment that are programmed for convenience information transfer (Qutab, Bhatti, & Ullah, 2014).

Internet Refers to a worldwide computer network linking countless or thousands of computer networks through a mixture of private and public data and telephone lines.

Library refers to a place, building, room or rooms set apart for the keeping and use of a collection of books.

OPAC refers to the Online Public or patron access catalogue which enables patrons to search the library's holdings from the computer.

Training refers to the systematic acquisition of skills, knowledge and attitudes that lead to an acceptable level of human performance on a specific activity in a given.

Utilization refers to the extent to which ICT is put to use in library work activities.

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter will look at the background of the study, statement of the problem, purpose of the study, the study objectives, research questions, significance of the study, the scope of the study, limitations of the study, definitions of significant terms and the chapter summary.

1.1 Background to the Study

Adoption and use of ICT in Institutions of Higher Education (IHE) libraries in the 21st century is critical to the attainment of their core objectives. Application of ICT in Indian college libraries has not reached a very high level owing to a number of factors including lack of budget, lack of manpower, lack of skilled staff and lack of training (Kumar & Biradar, 2010). According to Okon , Esin , & Edem (2005) very few university libraries were fully computerized and cites inadequate funds and the poor state of electricity in Nigeria as the main barriers.

The size of libraries or their collection may not be the yardstick but rather accessibility to the major thrust of the library automation. For any library to derive maximum benefit in this information age, it has to be online. Technology has proven to be the major driver of knowledge, research and innovation, and information and communication technology has become the most impacting variables of the present information society.

Academic libraries play an important role within a university, to support its vision, mission, and objectives of learning, teaching, research and community services. The extent, to which the university is able to carry out its laudable objectives, portrays how the university library is supportive in provision of the essential information resources (Okoye, 2005). University libraries in countries with developed educational, library systems and infrastructure are using ICT for both library operations and services. This is aimed at ensuring quick and easy access of the large numbers of library users to relevant accurate and current information from both remote and immediate databases to facilitate the core business of learning, teaching, research and community extension services in the universities. The Canadian Association of Research Library statistics (2010-2011) highlights a decline in the use and acquisition of physical books and corresponding increase in electronic resource (CARL, 2013). This in essence puts a premium on the use of ICT resources in accessing information in libraries.

Academic libraries in Africa do not enjoy the same information delivery methods like those in developed countries apart from the Southern Africa (Chisenga and Rorissa, 2005). ICT infrastructure development in Nigeria faces challenges which include improving students' physical access, application and utilization of ICT in library operations apart from inadequate computers (Kamba, 2011). Equally, libraries in the east African countries such as Uganda face the same challenges (Magara, 2002). As alluded by Ghuloum (2011) financial factors, technological, human factors may be a barrier in ensuring utilization of ICT. Lack of integration of the ICT technology in the routine operations of most academic libraries is an aspect least understood given the availability of internet access in Kenyan libraries (Odero-Musakali and Mutula, 2007). Inappropriate

resources and lack of integration of ICT in libraries results in limited utilization. However, as alluded by Gould and Gomez (2010) if users are not provided with what they need then users are likely to ignore these services. The pace of ICT application in libraries in the developing countries remains low. Challenges pertaining to ICT utilization in the libraries ought to be addressed in order for IHE libraries to achieve their goals and objectives (Fidelia Mbowheing WHONG, 2014). This points to existence of great disparity in the adoption and use of ICT in academic libraries in Kenya hence the need for this study.

Several authors (Hellen, 2007 and Makori, 2009) have indicated that academic libraries in Kenya are currently operating in a new technological environment and that they need to adapt to it. Mutula (2007) stated that the future of universities greatly hinges on their ability to embrace and leverage the potentials of these emerging technologies at all levels of their business activities and strategies. Academic libraries have no choice but to utilize ICT in their functions as Omoniwa (2001) theorized that in the twenty-first century, globalization of information and the adoption of information technology will be the hallmark of great libraries. If libraries are to function effectively in the modern-day, the manual processes or methods will have to give way to information and communication technologies (ICTs) and a computer driven environment (Orolunsola, 2009). ICT has had a far reaching impact on library and information institutions and services worldwide (Abdelrahman, 2009). A study by Haneefa (2007) indicated that libraries and Information Centers have been employing ICT and electronic information resources and services to satisfy the diverse information needs of their users. Intense efforts have been made by

various libraries in employing ICT in their various operations with information retrieval systems.

Despite the fact that a number of Research studies have been carried out on Information Communication Technology in academic libraries in the recent years (Odongo, 2011; Ndakalu, 2014; Makori, Odini and Ojiambo 2013; Namanya, 2014; Kamau, 2018; Nyambeki, 2016; Macharia, 2014), the subject on utilization of ICT in the provision of information services to library users has not been addressed. Most Scholars have carried out their research on utilization of ICT in libraries but not specifically in connection with utilization of ICT in provision of information to library users. To address this gap, the study aims to answer the empirical question on utilization of ICT in the provision of information services in Public and Private Universities in Kenya and bring out the benefits and strategies for improvement. Through ICT, library users can access information resources available on computer networks and online services across the globe.

1.2 Background to the Study

1.2.1 Moi University

Moi University is a public university located in the North Rift of Kenya, in Uasin Gishu County, Kesses division, 34 kilometers from Eldoret Town. Moi University was founded on 8th June, 1984 when it received presidential Assent. Moi University is a state corporation established under the Moi university Act on 30th may, 1984, and under CAP 210A of the laws Kenya, pursuant of part II 3 (2), The university is also a body corporate

with perpetual succession and capable of taking, purchasing or otherwise acquiring, holding, charging and despoising of immovable property.

The first batch of 83 students was admitted in 1984 through transfer from the department of Forestry of the University of Nairobi and since then the University has experienced phenomenal growth from this initial one faculty. It was envisaged that the first development phase of the University will involve the establishment of the Faculties of Technology; Agriculture; Science; Veterinary Medicine; Forest Resources and Wildlife Management; Social, Cultural & Development Studies; Information Sciences; School of Environment Studies; with a total enrolment of 5,000 students; 500 academic and 1,500 Non- academic staff (Moi university calendar (1988-90)).

1.2.2 Vision and Mission of Moi University

The vision of Moi University is to be a university of choice in nurturing Innovation and talent in science, technology and development. While the mission is to preserve, create and disseminate knowledge, conserve and develop scientific, technological and cultural heritage through quality teaching and research, to create conducive work and learning environment: and to work with stakeholders for the betterment of society.

1.2.3 Moi University Academic Programmes

Moi University offers several academic programmes through its numerous schools and these comprise of: School of Arts and Social Sciences, School of Information Sciences, School of Biological and physical Sciences, School of Engineering, School of Education, School of agriculture and School of Business and Economics.

1.2.4 Margaret Thatcher Library

According to Margaret Thatcher library guide (1984- 89), the library was established in 1984 along with the university. It started its services in a small wooden building at a country hotel where students and lecturers were temporarily accommodated. In January 1985, the library was moved to the then new campus at Kesses and located in a three-bed roomed residential house. The library as it continued to grow and expanded, moved three more times within the campus before its final destination at the Margaret Thatcher Library (MTL) building. The university library was established according to the then existing policy, to have one main library building to serve the needs of all University members. After 1990, the period of exponential expansion of academic programmes, branch libraries were soon established to cater for the needs of those geographically located a way from the main campus. At the inception of the university in 1985, the idea of constructing a modern library building was proposed and as such the search for a donor started.

The aim of the Margaret Thatcher library according to the library guide (2009) is to:

- i. Continuously expand capacity to facilitate the University's core business of teaching, learning, research and extension.
- ii. Acquire and manage relevant information materials and to provide information services to the university community.
- iii. Facilitate communication, dissemination and presentation of knowledge.
- iv. Train users on information literacy skills in order to facilitate full exploitation of information resources and services;
- v. Provide adequate and conducive environment for users.

1.2.5 Library Vision and Mission

Margaret Thatcher library's vision is "to be user centered, focused and competitive University library service" with a mission to satisfy all the time information needs and expectations of each individual user, through the provision and exploitation of information resources and services.

1.2.5.1 Library Collection

As outlined in the Margaret Thatcher library guide (2009), several services are provided to its users and they are as follows:

The Open shelf Collection is the main collection of books. Materials from this section may be borrowed for normal loan period as indicated in the library guide on borrowing privileges. Reference Collection aims at ensuring rapid circulation of items on high demand, especially texts needed by undergraduate. It consists of books, past exam papers and other materials that are recommended by teaching staff for learning and research purposes. Special collection is an enclosed access research area. Materials in this section are categorized under the following sections.

Margaret Thatcher library, information Bureau section houses information on Moi University since its inception to date as well as the University briefs, Newsletters among others. The national collection section has information on Kenya, by Kenyans and/ or any other author about Kenya, such as government publications, thesis and dissertations, novels, bound newspapers and any materials on people, land and climate of Kenya. It is open to academic staff, post-graduate students and any other researchers. Undergraduates are not allowed inside this section but can be served at the counter. The United Nations

section contains materials published by United Nations and other related organizations. Margaret Thatcher library is a depository of UN publications. It is a closed access section where readers are served at the counter after presenting their requests and library cards. It is a reference section to users. The World Bank section contains materials published by the World Bank. Access to these materials is similar to the UN Collection. Refugee Studies Collection contains materials relating to refugees. This collection was originally acquired through donation to the Center for Refugee Studies at Moi University. It is being built through donations and purchases. Access to this section is closed access. The Rare Books are pictorial books such books that are deemed to have certain unique features. The Kenyan cultural heritage Centre section forms unique materials collection with an aim of sensitizing users on the value of culture, demonstrates an attempt to preserve heritage and above all provide a point of reference for anthropologists and other researchers on culture, historical and communication dimensions. The section contains items with captions indicating the name, use and origin of the item. Information Resources Management (IRM) collections were donations by IRM on information Technology to the library, and are served to readers at the counter of special Collections.

1.2.5.2 Library Services

According to Margaret Thatcher library guide (2009) the library offers several information services to its users as follows:

The library offers Reference information services; staff at the desk handles a variety of enquiries, ranging from general information and / or quick reference enquiries to advising and assisting users on literature searches for project work, term paper, essays and

research topics. Assistance is also provided on the use of CD-ROM databases, OPAC and other electronic sources. At the Periodical section all current and loose periodicals are kept in a cage on the second floor. Some of the titles can be accessed via OPAC. These periodicals may be borrowed for use within the library and returned within two hours. New books and other items available for lending are displayed near the staircase on the first floor. New arrivals for Special Collection department are displayed on a table as you enter the section. Materials not available in the library can be obtained through Inter-library loans services. Requests are put in written and handed over to the reference librarian.

Photocopying services are offered at Kshs. 2.50 per copy. Users are usually reminded that some materials are protected by copyright Act, which makes deliberate infringement, such as unauthorized copying, a criminal offence. In order to carry out Information retrieval service, Computer terminals are available for accessing the OPC and other network databases. Dedicated CD-ROM terminals are also available for use. More services including printing services, binding and repairing of books, research projects, thesis and dissertations can be done in the Bindery section. Printing of cards, booklets and receipt books are done at a reasonable cost. The library has a number of CD-ROM databases. The discs are read on the computers at the reference Desk. Audio-Visual materials such as Videos and audiocassettes, slides, microforms and other materials are housed on the ground floor near the issue desk for use only within the library. Users are required to make prior arrangements for use. Photographic services are also available at a fee.

The Technical services section department deals with the procurement and processing of all library materials. Once the exercise is complete materials are displayed on current awareness section for a few days and finally are distributed to the right shelves for lending. Children library services are offered to children of the University staff upon payment of membership fee; Book loans, video shows, storytelling, taking books and games service are provided.

1.3 United States International University

The United States International University is a private university located in the city of Nairobi, off Nairobi – Thika Super Highway. The USIU had its inception in 1952 through the vision of Dr. William Rust, who believed that individuals and nations cannot develop or flourish in isolation. Quality education is a pathway to global understanding and cooperation. USIU-A in Nairobi was founded in 1969 when the late President Jomo Kenyatta granted it a presidential charter. (USIU-A, 2009).

The mission of the university is achieved through selected high quality undergraduate and graduate academic programs. The university offers Bachelors, Masters and PHD degree programmes in various disciplines. The student population has grown from five in 1970, to 3000. (United States International University brochure, 2009).

1.3.1 Vision and Mission of USIU-A

Vision

To be a premier institution of academic excellence with a global perspective

Mission

Promote the discovery and application of knowledge, the acquisition of skills and the development of intellect and character in a manner which prepares students to contribute effectively and ethically as citizens of a changing and increasingly technological world.

1.3.2 USIU Academic Programmes

The USIU-A education programmes are offered through two Schools, namely: School of business and School of Arts and Science.

1.3.3 The United States International University-A resource center

The United States International University Library and Information Center is an ultra-modern facility which offers in one central location all the resources necessary to support teaching, learning and research, making it the intellectual hub of the university. The library provides a wide array of print, non-print and electronic resources. The Library operates and functions within the overall mission of the University of promoting research, teaching and application of knowledge in a multi-diversity and rapidly developing technological environment. For research purposes the library user's access more than 210, 666 volumes on site as well as electronic resources. USIU-A resource center has a seating capacity of 1200, can accommodate over 300,000 volumes of books and presents a vision for the 21st century through the integration of books and information technology as well as inviting spaces that encourage collaborative learning. The library operates within the vision of making USIU- A is a premier institution of academic excellence with a global perspective in East Africa.

The Aim of United States International University- A resource center according to the library (2008) is to:

- i. Support teaching and research needs of the University
- ii. Build a dynamic collection capable of meeting the needs of the present and the future.
- iii. Provide full bibliographic information of materials held by the library.
- iv. The provision of literally materials not in the area of immediate concern, but also in the areas of growing importance.
- v. Disseminate knowledge and information through current awareness services, reference and information services.

1.3.4 Library Vision and Mission

The library's vision is "to provide leadership in creating an intelligent library in East Africa" with a mission of operating within a multicultural and rapidly developing environment, the library and its staff are committed to being active and creative partners in the teaching, research and other knowledge application activities of the university through service to the community by selecting, organizing, presenting and preserving information resources for present and future scholarly communities.

1.3.5 Library Collection

The information center encourages use of its collections, and assistance is provided at the various points for ease of access to digital resources using online research tools. These collections are nationally recognized for their strengths in focusing on the programs

offered by the university. The fully automated facility provides a range of Services to its users as follows:

The Africana collection promotes works by African authors as well as works about Africa. This Collection provides readership and research content for those patrons who have an appreciation for collection. American studies collection promotes a thorough understanding of the United States of America. The collection covers the areas of architecture, art, business, cultural studies, drama, economic, education, geography, gender studies, history, international relations, and politics, journalism, labor studies, law, linguistics, literature, music, philosophy, poetry, psychology, religion, science and sociology. The collection is open to the academic and research community in the East and Central Africa region. Course texts collection is a service that meet student's core reading needs in specific area of course study by subject faculty, who presents them to the acquisitions librarian for purchase as core textbooks. The resources are loaned to students and academic staff for an entire semester.

The United Nations collection includes documentations of and about the United Nations (UN) and its role by the global body in all aspects of humanity. This collection is intended to equip the International Relations program, environmental studies and others and give a broader appreciation of the role of the United Nations in the international arena. The service is open access and the books are used within the library.

The short loan collection is a closed section in the library at which the users request for materials from the staff on duty. The collections placed in this section are recommended by academic staff and librarians. In most cases a librarian may recommend a book to this

section after observing the circulation trends of the item in the library. Copies of library materials on high demand such as periodical articles, journals, newspapers and magazines are put in this section. Besides staff Papers, graduate student projects and press cuttings materials in this section are loaned for a limited period of time ranging from 30 minutes and 2 hours. The library has a variety of different types of audio visual collections which are used in the library or borrowed for a limited period of time. These materials may be viewed in the audio-visual booths located on first floor. The library has multimedia stations for electronic access to audio, video, CD and DVD collections. Six of these carrels are reserved for doctoral students. An open lounge at the exhibition area near the entrance including two beautiful courtyards; provide casual settings for individuals or groups to study. A multimedia instruction lab provides information literacy skills instruction. The library further promotes collaborative learning through the provision of small large study rooms. These are intended for research and other scholarly activities. The reference collection includes; encyclopedias, dictionaries, bibliographies, handbooks, yearbooks and other reference books are shelved on the ground floor, overlooking the check in/ checkout counter and the materials are used within the library.

The library has subscribed to Web-based databases such as EBSCO host, Keesings Online, Psycarticles, Jstor, Gale among others. The web-based databases are used for locating articles in e-journals, magazines and newspapers. These e-resources are accessible from the various workstations in the e-Resource Center on the second floor and off campus via V.P.N (Virtual Private Network). The United States International University – A resource center hosts an institutional repository that supports open access to information. The repository which has been hyperlinked for direct access through our

library portal and university website is available at erepo.usiu.ac.ke. The repository hosts a range of resources including journal articles by faculty and researchers; thesis and dissertations; Podcasts by journalism class; conference proceedings and newsletters to case study reports and publications.

1.3.6 Library Services

The United States International University-A resource center offers several information services to its users as follows:

The On-line Public Access Catalogue (OPAC) is a facility used to locate library information resources including books, AV materials and journal titles. OPAC searches provide information on what is in stock in the USIU library. The OPACs accept any key words, subject headings, author names and titles. Library PIN number is used for managing a user's account online in renewing items checked out, reserving items, reading online newspapers among others.

Reservation and recall services of library materials that are on loan, can be done at the check in and out counter. As soon as an item is returned, the awaiting user is notified. Users are to keep constant checks at the check in and out counter. Items placed on reserve and hold are held for only three days, after which they may be returned to the shelves or given to the next person on the waiting list. Items required by another reader may be recalled and must be returned within 7 days. Bookmyne, is a mobile app by SirsiDynix, and is incorporated in the library to help users with smartphones browse the resources from remote locations. Some features accessible through Bookmyne include renewal of overdue books, searching of OPAC, changing User credentials and access to e-resources

links through their smart phones, including the full text daily nation subscribed to by the library. Materials not available in the library can be obtained through an inter-library loan service from other local libraries. Requests for materials are usually handed over to the senior librarian, User services. A charge may be made to meet photocopying expenses, if any. Users who wish to use another library may request for a letter of introduction from the senior librarian, User services.

The library hosts a chat service on the OPAC (library.usiu.ac.ke), where a user can get assistance in real time, through chatting with a librarian through Ask a librarian service. This service is also available through email by sending an email to askalibrarian@usiu.ac.ke. The e-mail link is also available on the USIU- resource center web page. Users who need assistance can book for library instructional classes to learn how to use library resources, the classes are held in library instructional room located on the first floor. The library liaison office is found on the first floor, within the short loan section of the library. The librarian in charge of liaison services provides a link between the library and user community specifically faculty and the postgraduate students to ensure library and information needs are understood and met. Information services assistance with general inquiries and more detailed subject and bibliographical work are obtained at the reference and instructional services librarian's office.

Current awareness service is provided and through this service, subject classified lists of new books and journals are sent out to the university community through e-mail monthly. Photocopying and printing services are provided and the student multi-purpose identity card is used on the card-operated photocopier/printer. A cash photocopying service is

also provided and the cash payments are made at the finance office. Users in need of photocopying services are strictly cautioned to observe the copyright laws. Recommending Materials for purchase service is made through the acquisition librarian or through “recommend a book” on the USIU website.

1.4 Statement of the Problem

Information and Communication Technologies (ICT) enhance service provision to library clientele. Libraries use ICT to perform functions like cataloguing and classification, serials management, collection management, budgeting, circulation management, referencing, indexing and abstracting in order to improve information services to library users. However, it has been observed that MTL and USIU-A still struggle with manual library operation method. Consequently, library users show dissatisfaction and complain of poor information services. Information users are demanding for timely access to information and speedy retrieval regardless of its location yet libraries are not able to provide such services. Library services are not efficient and access to information is not fast due to slow bandwidth. Afolabi (2007) points out that the death of current and up-to-date information for research in university libraries is attributed to poor levels of developing ICT resources. LaRue (2012) firmly believes that the library’s most powerful asset is its professional staff, according to him, librarians have the power to change lives and build community but to do this, they have to get out of the four walls and demonstrate that they are a powerful tool. Besides this the library staff and users attitude towards ICT might not be positive. The continued manual information service delivery may lead to time wastage to library users in gaining access to quick information services and this has affected student research output and completion of assignments.

The situation could also be that the librarians have not accepted the change and introduction of these technologies in the libraries. Academic libraries are not being utilized fully by users due to inappropriate resources, low bandwidth and few ICT integration resources, lack of ICT policy, poor funding, lack of information searching and retrieval skills by staff and library users. Services offered are not what users need and it is not a surprise that users will ignore these services, but with the integration of ICT would enhance potential users to turn their attention to libraries (Gould and Gomez, 2010).

University libraries offer training to library users through orientation programs for freshmen but it's not sufficient to acquire a skill. The programme cannot equip users with enough knowledge to access the few ICT resources and services available in the library. It is imperative that university libraries should re-focus their attention and concentrate on user needs and use of ICT in provision of services to users, as this will improve research carried out in universities.

It is in the light of this that the present study investigated on utilization of ICT in the provision of information to library users in MTL and USIU-A. These study is a comparative study which will uncover the notion that public universities are given diminutive attention by the government in comparison to private universities in the country. There is wide spread impression that private universities are well funded and have the required facilities to provide better services to their users in the library. The study therefore investigated the utilization of ICT in the provision of information services at Margaret Thatcher library and United States International University –A resource center, to compare and propose strategies for improvement.

1.5 Aim of the Study

The aim of the study was to investigate the utilization of ICT in the provision of information services at Margaret Thatcher library and USIU –A resource center libraries in Kenya and bring out the benefits and strategies for improvement.

1.6 Objectives of the Study

The objectives of this study were to:

1. Examine the extent of ICT utilization in the provision of information at the two institutions.
2. Determine the institutional factors that influence the adoption and utilization of ICT in the provision of information at universities.
3. Establish the benefits of ICT use in the provision of services in the two Organizations
4. Establish the challenges encountered in the utilization of ICT at the two case study organizations.
5. Suggest ways of improving the utilization of ICT to users at the two case study organizations.

1.7 Research Questions

The study was guided by the following research questions:

1. To what extent has ICT been utilized in the provision of information services?
2. Which institutional factors do influence adoption of ICT and its utilization at the two universities?

3. What are the benefits of ICT use in provision of services at the two Organizations?
4. Which challenges do the library users encounter in ICT utilization?
5. Which measures can be used to improve the utilization of ICT at the two institutions?

1.8 Significance of the Study

University libraries for quite some time have been providing information to library users using ICT. The importance of this research work on utilization of ICT in the provision of information to library users in MTL and USIU-A is underscored by the current emphasis on quality and efficient service delivery. The literature on ICT indicate that availability and utilization of relevant ICT enhance service provision to library users. This study is not any other literature on ICT in libraries but it is intended rather to create an understanding of its value in ICT utilization and provision of information services to users effectively and efficiently at MTL and USIU-A resource center libraries

This empirical study therefore, makes relevant contribution to the study on the subject area. It is expected to provide in-depth knowledge on the state of ICT utilization in the provision of information services at university libraries to policy makers and planners in the government, as well as the universities top management in terms of planning, evaluating, budgeting and allocation of ICT resources to the library. The findings of the study will be very useful to library information providers at institutions of higher learning to align their services in an innovative manner to fully utilize ICT in information provision services to users.

This study focused on two cases studies. It is hoped therefore, that this study will benefit library staff and users. The study has provided an opportunity for staff and users to give their views, on the utilization of ICT in information provision and the results will make them part of the solutions to challenges encountered. The study has generated statistical data and theoretical knowledge that can be generalized to other institutions of higher learning in Kenya, and possibly across Africa.

1.9 Assumptions of the Study

1. Utilization of ICT in the provision of information services to library users is not efficient, could it be because of poor funding, infrastructure, inadequate computer literacy skills, among students and staff that has contributed to the inability by those responsible for provision of information to offer efficient and effective services to the users.
2. University libraries at MTL and USIU-A resource center have invested in ICT facilities and resources, but library users and staff have not made maximum utilization and access to information as well as its provision to the users due to some challenges.

1.10 Scope and Delimitations of the Study

The geographic scope of the study was Nairobi and Eldoret owing to the location of the study institutions USIU in Nairobi and Moi University in Eldoret. The study investigated on utilization of ICT in the provision of information services in University academic libraries in the two institutions in Kenya. The study concentrated on library users and key

stakeholders in the information provision service in the two case study institutions and data was collected in 2009.

1.11 Limitations of the Study

The limitations in this type of study lies in the decision making in terms of who should be included in the study sample or not, given that universities are centers of learning hence virtually everybody on campus is expected to use library services. This limitation was overcome by concentrating on active users as provided by the university libraries.

1.12 Chapter Summary

This chapter has provided rationale for conducting this study and this can be seen in the introduction, background to the study, statement of the problem, aim and objectives, research questions, assumptions, significance, scope and limitations of the study. It is clear that information is fundamental, and universities require a wide range of sources of information both in print and electronic format for their day to day activities, in teaching and learning, research, decision making and community extension services. It has to be noted that transmission of information through ICT tools is faster, economical, effective and efficient; distance is no longer a barrier in the 21st century in the libraries.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the literature related to the purpose of the study. It is organized according to the objectives developed in the previous chapter and discusses the theoretical framework upon which the study is based.

2.2 Theoretical Frameworks

A number of theoretical models have been proposed to enable the understanding of the utilization of ICT in the provision of information to library users. The two models used were the theory by Leavitt (1965) and Technology Acceptance Model (1996).

2.2.1 Theory by Leavitt

The theory by Leavitt (1965) states that any production system requires both a technological organisation (equipment, processes, methods) and a work organisation (relating to those who carry out the necessary tasks to each other, such as the social system). The theory indicates that an organisation is not just a technical or social system but it is the structuring of human activities round various technologies (tasks, people, structure and technology). Information is the lubricant within and between the various sub-units of the system. It enables the organisation to keep and within its environment that relevant and beneficial product to the environment (society).

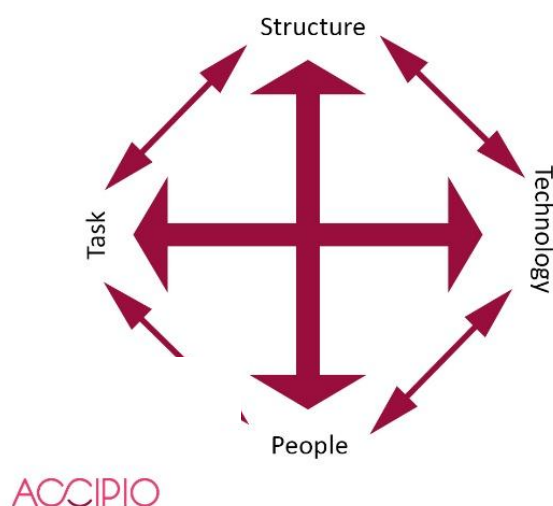


Figure 2.1: Conceptual Framework Diagram

Technologies are considered to be tools that help organisations or institutions to get work done, and mechanisms for transforming input to output through the use of information. All the variables are interdependent through the interface of information. The model suggests that there is a relationship between the use of technology and the people who will perform the task. Here technology is an enabler (independent variable) or a tool and people are the actors (independent variable) while task and extent of information use are dependent variables.

Leavitt in 1965, developed a model framework for understanding the connection between the key factors in an organization, and for building an integrated change strategy. Understanding the tool Leavitt's Diamond is based on the principle that an organization has four major components that are all interdependent: Tasks, People Structure and Technology. Any type of change or redesign in one component will affect the other three. Utilization of ICT requires staff with skills and if they lack the skills then there is need

for training and re- training, this may affect the organizational structure, because people might demand higher pay and better positions. Further the use of ICT will affect the tasks that are performed by librarians.

Tasks: Help staff in identifying their work unit's and main tasks, including both routine and key assignments to be completed.

People: People within the work unit are given key consideration in any ICT use initiative, because skill sets and staff attitudes greatly affects successful use of technology in an organization. Staff skills and training is very key for ICT use. At the same time organisational culture has to be visible in order to use ICT in information provision in library services. Staff attitudes, beliefs, behaviors and user attitudes in an organisation ought to be managed for successful adoption and use of ICT use.

Structure: Determine how people are grouped within the work unit. The organizational structure is very important. Universities have a set systems of work flow and here is where you find that the top management are the decision makers. Work flow and communication matters a lot in organizations for purposes of ICT implementation and use

Technology: The technology in an academic library is important. The library require key equipment's such as computers, resources, software's, hardware and processes that enable communication and work flow in information provision to library users. Implementation of ICT in academic libraries cannot be possible in isolation as it impacts throughout an organization, both expected and unexpected. Organizations are inter-

connected structures, where disregarding one part can impact negatively on others. The idea of Leavitt's Diamond can help build the integrated strategy of ICT use in the library and the whole organization. It provides an easy framework for understanding the interdependency between four key variables: tasks, people, structure, and technology.

2.2.2 Relevance of the Model to the Study

Leavitt's diamond model affirms and creates insight on how the variables (adoption, utilization and service delivery) in the present study are related and interact for organisational effectiveness in ICT use in provision of information to library users. The model enables the researcher to envision the phenomena of information rich and information poor in academic libraries and the possible implications for effective service provision and finally, organisational effectiveness. Academic libraries are socio-technical systems. They, therefore, operate with principles of System Theory. They are by and large flagrantly open systems in that their input of energies and the conversion of output into further energy input consist of transactions between them and their environments.

2.3 Technology Acceptance Model

Technology Acceptance Model (TAM) propounded by Davis in 1989, is very useful in information Science in explaining how ICT can be utilized in information provision to library users (Figure 2.2). The Technology Acceptance Model (TAM) is an information systems theory that models how library users adopt the use of technology in accessing library services. Some of the factors identified in the model include; behavioural intentions, attitude, perceived usefulness of the system, perceived ease of use of the system, individual intention and organization support condition. According to Venkatesh

& Davis, (1996) external Variables that affect the utilization of ICT include system characteristics such as the management support, training, user involvement in design, and the nature of implementation process. Davis (1993) suggests that the external factors directly influence the perceived usefulness and perceived ease of use and in turn mediating behavioural intention to use.

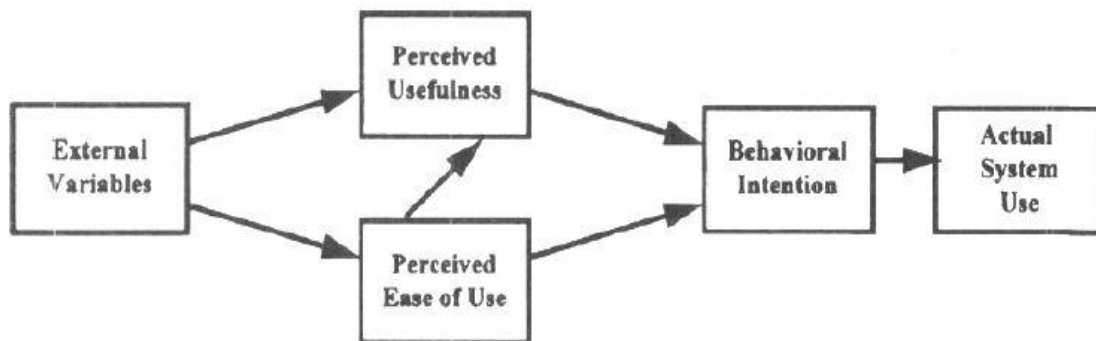


Figure 2.2: Technology Acceptance Model (TAM) (Venkatesh and Davis, 1996)

The attitude of a user toward a system is the major determinant of system acceptance. In this regard two major beliefs are considered to have an effect: perceived usefulness and perceived ease of use having a direct influence on perceived usefulness.

Implication to libraries.

According to Davis (1989) Perceived usefulness (PU) element is defined as relevant to the study because library users believe that using a computer system connected them to local database or Internet, Phones and other electronic devices to search for information electronically enhance their research and academic activities than the traditional ways. Library users are in a position to read and search for information to complete their assignment, projects and research work faster with the use of technology.

Perceived ease-of-use (PEOU) is another element in the theory that is relevant to the study. The ability of library users to accept and use electronic machine devices will ease their usefulness of ICT in provision of information to library users. The researcher adopted this theory because of its relationship to the problem under investigation.

Adeyinka, et al. (2008) stated that students' ability to find and retrieve information effectively is a transferable skill useful for their future life as well as enabling the positive and successful use of the ICT resources. Use of ICT serves as a motivating factor to library users as it provides them with an opportunity to diffuse, acquire or download, process and disseminate information on a subject of interest. ICT services offer library users greater opportunities that are quite different from their forerunners (Ray & Day, 2003). The Leavitt's model and Technology Acceptance Model are relevant to this study as reflected in the dimensions of the models which have been incorporated in the study.

2.4 Extent of ICT Utilization in Libraries

Information Communication Technology plays a critical role in driving the economic, social and political development of Kenya as espoused in Vision 2030. A number of studies have been carried out on information communication Technology in libraries (Makori, Odingi & Ojiambo, (2013); Kamau, (2018), Mwanzia (2016); Obiro (2016);Namenya (2014); Nwalo (2000, 2001); Atinmo *et al.* (2000); Omololayo (2002); Adedeji (2002); Kasalu (2012); Kariuki (2009); Ashioya (2014); Odongo (2011). Utilization of ICT in libraries will make access, retrieval and dissemination of information both practicable and operational. This in turn provides quality services to library users and at the same time builds a strong and effective information system.

Academic libraries in the present age are using information and communication technologies for book and serial acquisitions, money transition, classification and cataloguing, reference service, user orientation service, circulation service, inter library loan, document delivery service, electronic contents, e-mail and chat assistance, web 2.0 interactive sharing, bibliographic service and photocopies services.

These opportunities not only enable libraries to provide quick information to users but also benefiting remote libraries. (Gulati, 2004; Ramzan and Singh, 2009; Adeleke and Olorunsola, 2010) named the internet as the greatest wonder of the century. Fitzgerald and Savage (2004) discussed the influence of the World Wide Web on the logistics of service delivery in libraries. The availability of e-mail and internet facilities in academic libraries offers a wide range of access to information globally without geographical barrier and timely (Ani, 2005). Okiy (2005) found that acquisition of ICT facilities is demanded by users and is the way to enable the university libraries of developing countries to provide the services expected in present electronic age. Mahmood and Khan (2007) observed that in recent years, work for the library and information profession is characterized by fast-paced change and new skills requirements. ICT applications in library operations require professional's motivation of continuing education and acquisition of new skills in training and retraining on the part of the practicing librarians. University librarians themselves need to avail the facilities of the computer training centers to update their ICT knowledge (Adeleke and Olorunsola, 2010).

Library users are placing new demands on their libraries. Several authors such as Hellen, (2007) and Makori, (2009) indicated that academic libraries are currently operating in a new technological environment and that they need to adapt to it. The ICT as used in academic libraries attempts to deliver numerous applications such as wide-area network applications, local area networks, online information services (the Internet), online databases, library databases, CD-ROMs, online access catalogues, retrieval networks, digital online archives, mainframe computers, microcomputer labs, and other digital content services (Ghuloum and Ahmed, 2011).

The use of ICT in libraries enhances users' satisfaction. It provides numerous benefits to library users. Some of the benefits include, provide speedy and easy access to information, remote access to users, access to unlimited information from different sources, information flexibility to be used by any individual according to his /her requirements and increased flexibility, provides round access to users, facilitates the reformatting and combining of data from different sources. Academic libraries have no choice but utilize ICT in their functions as Omoniwa (2001) imagined that in the twenty-first century, globalization of information and the adoption of information technology will be the hallmark of great libraries. Ikhemuemhe (2005), points out that if librarians are to continue to make substantial contributions as information disseminators, they will have to understand and exploit ICT infrastructure and emerging technologies in delivering services to their patrons.

Oketunji (2000) remarked that ICT is used in the libraries to automate technical services such as cataloguing information, classification process. This is to bring about efficient reference and information services. It is usually used to network operations, such as cataloguing, circulation activities and authority list. It is also used to control project. If the applications are properly annexed, ICT helps the growths and development of libraries in different directions.

2.4.1 Acquisition

Library acquisition is the method of doing selection, putting an order, and receiving materials for library by purchase, exchange, or as gift (ALA, 2018). The acquisition process starts with the staff in charge of acquisition checking the online print catalogues of the suppliers. The available suppliers should be prequalified by the procurement department. This process which is sometime referred to as electronic acquisition requires a library to have appropriate ICT infrastructure especially a reliable internet. The goal of electronic acquisition is to select information materials and achieve a maximum preference because of the constraint that the acquisition for each information materials is controlled by a predefined budget (Wu, Hu, and Ping-Rong Wang. 2017).

The first step in the acquisition process is make organizations of incoming requests this can be either be from academic staff or students in order to carry out Verifications (Evans and Saponaro, 2012). They go further to indicate that two steps in verification is verification(checking bibliographic details of the item to ensure if they have been entered correctly) itself and searching(to ensure that the materials ordered are not duplicates of the collections already in existence). Evans and Saponaro, (2012) argues that ICT will

play a major role in verification and searching by use of integrated library system and the internet this will therefore make these processes easy and faster.

Kasalu and Ojiambo (2012) states that ICT usage in libraries especially in developed countries, have embraced the use of electronic generated orders and store data electronically, therefore reducing the volume of paper work associated with ordering activities. After the orders are electronically send to the suppliers the last step of acquisition is receiving the orders.

2.4.2 Cataloguing and Classification

Cataloguing and classification is simply a way of arranging and organizing library information resources in such a way that the access and retrieval of the resources will not be difficult for library users (Tella and Issa, 2012). With the emergence of ICT librarians are now able to catalogue and classify print materials online. (Oketunji, 2006), traces the origin of computerization in cataloguing to the 1960s when the Library of Congress introduced computers to its operations. Tella & Issa (2012) states that computerized cataloguing and classification has generally made processing of library information collections more accurate, interesting and faster. Cataloguing thus involves three major steps namely: allocating access points, subject headings and classification numbers. The system computerized systems allows downloading of the codes or rules for usage while cataloguing, the common codes used all over the world is Anglo-American Cataloguing Rules 2 (AACR2).

The first cataloguing step which is descriptive is always done by allocating access points to the document. This entails the description of the essential parts of the information material e.g. the person or body responsible for the work, title, publisher, place of publication, edition and series note. The second step in cataloguing is assigning a subject to the document. The third step is to allocate the information material its own identity which are called call numbers and are generated from the system being used.

2.4.3 The OPAC (Online Public Access Catalogue)

An Online Public Access Catalogue (OPAC) is the gate to the library's collection as it allows patrons to find out about what information materials are available in either print or electronic format. The existing system of OPACs provides the functions of database navigation and search engine. (Yue & Zhirnin, 2010) An OPAC provides the users the benefits of online access to the library's catalogue. It allows them to search and retrieve records depending on the underlying library management system, it also offers other several services like online reservation, borrower status checking and keeping record on searched information materials.

All OPACs, however, allow users to search their respective libraries' collections though their search and retrieval facilities may differ. Common information retrieval facilities. Searching by author, title, call number, ISBN, etc. These are basically string or phrase search options, and consequently the user has to provide either the exact key or the first few letters/words of the search key. The user may be able to combine search terms using Boolean or other operators. Searching by keywords. The user can enter one or more keywords and these can be combined using Boolean and proximity operators. Other

functions, such as truncation or limiting search options, may also be used. Some OPACs use Boolean and proximity operators implicitly.

2.4.4 E-Resources (Journals & Books)

This is an initiative aimed at improving access to online resources such as eBooks and Journals spearheaded in the world because of the way information is dynamic and ease of accessibility and Kenya has not been left behind. . KLISC acts as a negotiator on behalf of institutions of higher learning in Kenya, negotiating with commercial publishers and information aggregators, KLISC has played a key role in reducing the cost of e resource (Mwanzia, 2016). Chan, (2005) observes that INASP has been instrumental in designing programs that assist local journals with improving their editorial and scientific quality. Majority of Public and Private Universities in Kenya have benefitted from the INASP Programme. It is evident that electronic journals are used by the scholarly community, and libraries are part of the development of scholarly communication.

Shuling (2007) Points out that electronic information has gradually become a major resource in every university library. The emergence of electronic information resources, simply referred to as electronic resources, has tremendously transformed information handling and management in academic environments and in University libraries in particular. The electronic resources can be accessed in two ways, this ways are majorly influenced by the location of the person who wants to use the resources, there is on-campus access, the person using the electronic resources is using the campus network be it LAN or wireless and off-campus access also called remote access , where the person accessing the electronic resources does not use the institution which subscribed to the

resources, often one is required to log in with a user name and password issued by the institution.

2.4.5 Use of Portals

Libraries are rapidly expanding the web-based delivery of content and related access services in order to meet the changing needs and expectations of their users. The library has made great advances in their ability to provide web-based access to a wide variety of information access services that were formally only available within the walls of the library. The idea of setting up of portals emanated from the challenge of providing users with a single point of access to the resources. Khurshid, et al. (2009) outline that owing to the enormous growth of web documents, locating of web files by conventional means was quite difficult. To solve this problem, search engines were created, but they too were found not that efficient in retrieving the desired documents from the huge amount of web resources. This led to the introduction of web portal for categorization of web documents into preconfigured groups.

Web based access to services has evolved as a thin veneer over library technical infrastructures that were designed to support traditional library services such as: The common task of finding an article provides a useful example of the special knowledge of library organization and practices that is required to navigate a library website, many users are overwhelmed when faced with deciding which information resource will best suit their current needs and may select a resource for less than optimal reason, many times majority of users are deterred by barriers in their selection and to support the changing user demands within the web-based service, technical infrastructures must be

made available to users in a manner that supports their task. The library portal is one approach to organizing information resources and services in a way that supports the user needs. Portals offer the potential to solve many problems that have arisen for information providers due to the proliferation of electronic resources.

Portals act as cross- resource searching tool, which should be able to search any single web –based resource or a combination of resources, databases and academic web sites and return identical results to those returned by the native interface (Groenewegen &Huggard, 2003). The use of portals can help solve the challenges faced by library users as well as assist in saving the user’s time in searching for information in the ICT error and if customized a library portal can also enable for single log in to several resources.

2.4.6 Marketing

The concept of marketing covers not only the buying and selling for financial gain but also the achievement of organizational objectives successfully. Marketing has a wider and deeper sense which proliferates the organizations successive achievements, modern marketing is applied not only to profit making organization but also to the non-profit sector and social services or organizations like libraries. Marketing in the library services sector intends the performances of planning, organizing, dissemination and controlling of information services on a proactive and user oriented way that ensures the user satisfaction while a achieving the objectives of the parent organization. Marketing involves finding out what the users want, then setting out to meet those needs. Although librarians have in one way engaged in assessing the user needs, there is need to embrace the total market function involving market research and analysis, service planning and

promotion. The marketing process can be made easier by the use of web. Increase in usage of social media by library users has offered a new challenge for libraries to keep their image alive into the minds of community that work in virtual environment. Statistics have shown the tremendous use of social media sites by the users all around the world (Khan & Bhatti, 2012). Social media is integral to market library resources and services. It offers more than just traditional ways of marketing library services. It allows user to create, connect, converse, contribute, vote and share information. Social media is helpful in accessing information needs of online users and helps libraries to get closer to the users. Different applications of social media are helpful for marketing library services among online community. With the help of Facebook, libraries can advertise their different upcoming events. Libraries can also market their different programs conferences workshops by uploading their videos on the YouTube. They can also share and upload the pictures of different library events and services by using Flickr. Libraries can use Facebook to share the information about their new arrivals and editions of books.

2.4.7 Institutional Repository

There is increasing awareness that Universities and research institutions lose valuable digital and print material due to difficulties in accessing them and lack of good preservation practices. As a remedy to the situation, the Open Access and Open Archives Movement has been advocating the establishment of Institutional Repositories (IR). Globally, information service providers in public, private and special libraries have embarked on a lifelong process of digitizing their information resources. Existing literature reveals constant efforts made by University libraries to create and develop institutional repositories (Tyler et al., 2007).

In Africa, the University of Pretoria in South Africa has created and developed a successful IR. On 18-20th March, 2009, more than 33 information professionals from public, private, and special organizations attended a workshop on Digital Institutional Repositories organized by the Jomo Kenyatta Memorial Library, at the University of Nairobi. The workshop “Digital Institutional Repository” was organized by Jomo Kenyatta Memorial Library in conjunction with International Network for the Availability of Scientific Publications (INASP) and brought together information professionals from public, private, and special libraries. As librarians become committed stewards of their universities’ digital resources, they are organizing, preserving, providing access to, and creating rights management systems as part of their daily responsibilities (Walters, 2006).

At the close of the seminar, the participants unanimously agreed to champion the creation and development of IRs in their institutions. Makori, (2009), points out that Information professional must constantly engage in an ongoing process of creating, developing, monitoring, evaluating, assessing, and revising the available information products and services of their libraries. Some University libraries in Kenya have set up their own institutional repositories and this included The University of Nairobi, Kenyatta University, USIU, Moi University and Strathmore University among others. The resources that are accessed through the institutional repositories are: Theses/Dissertation, Project Works of postgraduate students of the University, Refereed research articles and contributions, Grey literature, electronic books, Conference papers /proceedings, examination past papers, Open access journals and Inaugural lecture speeches.

The setting up of (IR) is the collective intellectual output of an institution recorded in a form that can be preserved and exploited (Yeates, 2003) It is a facility for collecting, preserving and disseminating the intellectual output of an institution. Implicit in the concept of an Institutional Repository, is the commitment to long-term preservation and storage. A repository serves as a permanent, stable home for scholarly works. Digital repositories offer many practical benefits to institutions as identified by Swan (n.d) and SPARC outlines that IR: Opens a growing body of evidence shows that as a result of being openly accessible, publications are cited more frequently, promoting the rating of the University, makes your work easily available and accessible by institutional community members and others, gives universal access in that while an article published in a journal may be available to only a few hundred subscribers, the same article when also posted in a repository is available to all greatly enhancing the public value of research, Repositories lead to easier information discovery, by opening their content to service providers such as Google, Google Scholar and OCLC, repositories allow web users to search every item they hold, they open doors to new computational research techniques and pathways, such as text mining, creation of text data linkages and identifying and visualizing relationships that are not otherwise observed, by depositing works in depository they will have persistent access to URLs (a reference URL) that will never change Unlike in personal web sites, works in repositories are available to whoever needs them, when ever needed, Repositories collect more than just journal publications; they also collect other types of materials conference proceedings ,images, and sometime as research data there by enabling you to integrate and provide access to wide range of materials, Putting works in a digital repository ensures students

everywhere can read and learn from them, creating an important new layer of information that is easily accessible, institutional repositories complement other types of repositories leading to new information landscape. This enables unprecedented usability and analysis, content that is openly accessible, offers tremendous opportunities for advanced searching and new discoveries and works placed in repositories are freely available to anyone within the institution. Thus, placing one's work in a repository greatly increases its potential for exposure and impact.

2.4.8 Security

RFID is an automatic identification technology that put "tags" on objects (documents, people, animals, vehicles, containers and books among others.) This process helps in identification, tracking and the items can be managed automatically utilizing radio frequency equipment and supporting computer systems (Brown, 2007). RFID has become one of the most important application today. The widespread use of RFID by Wal-Mart (the world's largest retailer) and the United States Department of Defense has made other people, companies and groups aware of the benefits of using RFID.

Librarians are and have always been known as early adopters of technology (Kotecha, 2008) and the adoption of RFID technology by libraries promises a solution to inventory of thousands of items in the collections within a short period. The RFID system allows library users to check out and in automatically at any time of the day. Besides speeding up checkouts, keeping collections in better order and alleviating repetitive strain injuries among librarians. The system has the potential to provide a better control on theft, non-

returns and misfiling of a library's assets (Singh, Brar & Fong, 2006). RFID has become one of the most important application today.

A large number of libraries in developed countries have adopted this technology. A number of libraries in the country that have implemented security systems are using the barcode technology. About two libraries, namely Institute of French Research in Africa (IFRA) and United States International University (USIU) have embraced the Radio Frequency Identification (RFID). RFID has enhanced features such as inventory and self-check, in addition to its capability to read several items simultaneously.

2.4.9 Inter-Library Loan

As opposed to the traditional interlibrary lending (ILL) system, which relies on postal services to deliver print-based documents to users, ICT-based interlibrary lending systems use electronic networks to deliver copies of journal articles and other documents in digital format (mainly in portable Format (PDF) to users' desktops.

Chisenga (2006) opines that in order to facilitate resource sharing, many libraries have been using ILL. The traditional inter-library loan operations are quite time consuming and labor intensive. With the advent of new technology, the electronic documents and various inter-library management tools such as software like Ariel and Avis have facilitated the libraries to share their resources effectively and efficiently."

Ariel software opens the window on internet document transmission. The Ariel workstation has been developed by Research Libraries Group. In US, several university libraries were heavily involved in testing it. Ariel lets users send and receive crisp clear

copies of document over the internet with speed and ease of fax. Developed at the University of Waterloo and refined with the cooperation of interlibrary loan practitioners in libraries across Canada and USA. Avis is PC based software designed to manage all aspect of inter-library loan process. The inter-library loan office can network multiple Avis workstation on local area network. It offers the following benefits:

- Single comprehensive solution for the management of all ILL activities
- Effective management of the paper work and record keeping acquired in borrowing and lending an item
- Status tracking of request at all stages of the ILL process
- Integration of bibliographic and location information from CD-ROM catalogue and online union catalogue
- Transparent electronic transmission of requests and messages through the Internet.

Thus with the help of these software inter-library loan over the internet has become of great help in the inter-library lending and borrowing. Retrieval has become easier and transaction much quicker as the request can be sent through e-mails.

2.4.10 User Instruction

Training of users in information literacy is very key in helping people to recognize the value of information and use it to make informed choices in their personal, professional and academic lives. An information literate student can effectively; assesses, evaluates organize and synthesize any information. It is the ability to know when there is a need for information, to identify information for that need, and to be able to locate, evaluate and

effectively use that information are not new abilities that have emerged as a result of the Information Age. In fact, these abilities have always been important to success and the quality of life. The only thing that has changed is the amount and variety of information that is now available.

Information literacy has developed to address the requirements generated by the phenomena such as information overload caused by the rapid developments in digital technologies, by the needs of the information society for competent information consumers, and to meet the requirements of the knowledge economy for a responsive and informed work force" (Andretta, 2005).

The American Library Association (2000) stressed that information literacy is required in the information age that is characterized by technological advancement. Information users are now encumbered with several information which they are to make selection from. It stressed that information users must possess the ability to ascertain the authenticity and usability of the information they find. Information literacy is required to navigate the rapidly growing information which encompasses an increasing number of information suppliers as well as the amount supplied, and includes bodies of professional literature, popular media, libraries, the Internet, and more. This abundant information is of little help to those who do not possess the skills to search and utilize information appropriately. Information literacy skills are necessary for students who want to effectively utilize the available electronic resources as they provide necessary base for learning other skills which are required to explore electronic resources.

Determining the credibility of information in the present age where information is produced in a large volume is imperative to making appropriate use of information. Due to the increase in the volume of information, information users require the search skills to effectively explore the available information. To make effective use of the increasing resources, there is a need for information users to overcome information anxiety and as well explore the available information to enable them interpret and utilizes information for problem-solving.

In an information society all people should have the right to information which can enhance their lives. Out of the super-abundance of available information, people need to be able to obtain specific information to meet a wide range of personal and business needs. These needs are largely driven either by the desire for personal growth and advancement or by the rapidly changing social, political, and economic environments of society.

Librarians can coordinate the evaluation and selection of intellectual resources for programs and services. Other than organizing and maintaining library collections, librarians can also provide advice and user training to students and academic staff who seek information. Lecturers can use course materials and face-to-face discussions to establish the context for learning. They can also inspire students to explore the unknown, offer guidance on how best to fulfill information needs, and monitor student progress. Administrators can facilitate opportunities for collaboration and staff development among academics and librarians. Staff development opportunities can be geared towards acquiring information literacy skills that will be later transferred to the students.

Information literacy is increasingly important in the contemporary environment of rapid technological change and growing information resources. Because of the escalating complexity of this environment, individuals are faced with diverse, abundant information choices in their academic studies, in the workplace, and in their personal lives (ALA, 2005; IFLA, 2004). Information is available through libraries, media, and the Internet. Increasingly, information comes to individuals in unfiltered formats, raising questions about its authenticity, validity, and reliability. In addition, information is available through multiple media, including graphical, and textual.

These pose new challenges for individuals to evaluate and understand information. Reitz (2004) notes that skills in finding the information one needs, including an understanding of how libraries are organized, familiarity with the resources they provide (including information formats and automated search tools), and knowledge of community used research techniques. The concept also includes the skills required to critically evaluate information content and employ it effectively, as well as an understanding of the technological infrastructure on which information transmission is based, including its social, political and cultural context and impact. Information literacy skills plays a pivotal role in today's electronic environment by ensuring that society as a whole reaches a stage whereby each information literate individual is able to: Independently identify his or her information need, search and locate information to cater for the need, evaluate the information and effectively and efficiently use the information in an ethical manner.

Information literacy is experienced in terms of knowledge of sources of information and an ability to access these independently or via an intermediary. It is knowledge of information sources which makes it possible to retrieve the information which is contained within them. The sources may be in a variety of media, including electronic. The sources may also be people. Different orientations to the problem of information retrieval give rise to three subcategories:

- Knowing information sources and their structure
- Knowing information sources and using them independently
- Knowing information sources and using them flexibly, either independently or via an intermediary

Libraries are using ICT, especially the web, to implement online based library literacy programs targeting their users. Among others, these programs include online or CD-ROM based tutorials on searching online resources and virtual tours of library collections, and these are mainly accessed on Intranets, extranets or Internet. Use of ICT enables libraries to avoid problems associated with the use of lecture-based approaches or library orientation programs. Problems such as dealing with large numbers of students or having a shortage of staff to deliver the programs or too little time to deliver so much information to students. In addition, ICT offer students an opportunity to follow the programs at their own pace in their own time.

Nyamboga (2004) opines that Information literacy forms the basis for lifelong learning and enables learners to master content and their investigations to become more self-directed, thus assuming greater control over their own learning. This leads information

literate individuals to address: Assess the extent of information needed; Access the desired information effectively and efficiently; Use information effectively; Evaluate information and its resources critically and incorporate selected information into their knowledge base.

Kavulya (2004) observes that in order to facilitate efficient use of available information to library users, the library personnel need to train customers at various levels of skill development to empower them for self – sufficiency in accessing and exploitation of both print and electronic resources and integrate the various information sources in the production of knowledge. The case for information literacy programmes is even stronger for undergraduates who enter the University with limited experience and information skills. Kavulya (2004) further argues that this is best done through teaching the identification, structure, intellectual access and physical access to information, information sources and information systems through the design of instructional materials in various approaches such as group instruction, reference service library, orientation and library instruction.

The academic library has to provide information literacy services to introduce known and unknown information sources to users by discharging its prime function of service oriented knowledge center. Nyamboga (2004) further points out that library administrator and executives will need to set up specific cross training programmes for librarians and staff working in diverse academic library settings. Regular training programmes will help staff to improve their skills for daily operations and services (books, journals and electronics media including web based resources) therefore; staff should possess some

indispensable competencies such as: Be alert, innovative and creative; Willing to learn and adapt to environment; Identify specific areas in which technology can advance the institution in fulfilling its academic mission; Enable users to interact with knowledge resources; Sound communication skills and Provide quality services.

Kumar (2009) opines that in the present electronic environment, academic librarians are required to work independently or as a team to deliver service-oriented and user-centered application, instructions, programmes, projects and services. In addition to general qualification and requirements, a commitment to excellent user-centered services, effective oral and written communications, as well as team collaborator must also possess additional capabilities, experience, knowledge and skills such as: Expertise in the use of innovative emerging technologies to design and develop web-based applications, programmes and services; assist users to locate, access, store and transform electronic information resources, services and instructions across multiple applications, databases, networks, platforms and systems through an academic library's information commons; Having knowledge of designing, developing, launching and maintaining of digital content management and assess, evaluate, recommend and test various methodologies, policies, and standards for utilizing computer software in the process of creating and preserving digital collections and resources; assess, understand, think and adopt changes fit to the requirements rather than become blind follower of versatile technological developments.

Standards and guidelines (2014) identifies the library as one of the key facilitators of information literacy and competency, and provides Standards and guidelines for the program. The guidelines for librarians include the following:

- The Librarians, in partnership with the faculty, shall provide information and instruction to all users through a well –structured information literacy competency programme.
- The programme shall be integrated in all the academic programmes of the university under common units at both undergraduate and post graduate levels.
- The librarians shall develop and implement the curriculum to meet the emerging information literacy needs of the students and faculty
- The curriculum shall be reviewed every five years to ensure integration of new trends.
- Information literacy and competency programmes shall be taught by librarians and
- The librarians shall prepare an information literacy Policy

The use of the web to deliver library literacy programs is not wide spread. The common and popular method of delivering user education programs is by means of lectures and library tours (orientation programs). However, some university libraries are using ICT based methods/means to deliver their information literacy programs. Otherwise, online user education helps library users to get to know the library and its information services better. Online user instruction requires that the user has got to know that it is a requirement that the user can take an advantage of it. But if the users think it is just

voluntary then they will fail to take advantage of it. Linking of user instruction to particular course tends to make it both more attractive and more likely to be remembered and employed than when it is given solely as a general aid to library activities. When students of user instruction, receive grades for their work it creates an incentive for paying attention and doing the work. Grade free classes seem less important, however valuable the knowledge they impart.

2.4.11 Virtual Libraries

According to Ya'u (2003) the virtual library has addressed the scarcity of teaching and research materials in libraries. According to Russell (2000) the virtual library would improve the quality of teaching and research through the provision of current e-books, journals and other library resources. It will also enhance scholarship, research and lifelong learning through the establishment of access to shared global virtual collections. Some academic libraries have harnessed the benefits of ICT to provide services to its users through virtual libraries, even though in Kenya the Africa Virtual Library (AVU) at Kenyatta University was funded by the World Bank to provide opportunities in developing countries to take advantage of new technologies in teaching and learning. Its instructional contents are provided by major universities in Africa, North America and Europe to over 22 partner institutions in about 16 countries. All student contacts with their instructors are through the Internet. Most of the teaching materials are also online.

The virtual library provides access to tools such as databases, electronic journals, alerting services, online reference tools and quality- selected web resources that improve the quality of library services as well as quality of teaching and research output at institutions

of higher learning. These resources will need to be managed by librarians and information professionals who understand information needs and users. Traditional library services such as reference work, dissemination, library instruction and access to information resources are facilitated by a virtual library without confinement to a particular institution or geographical area. This resents new opportunities for drawing much broader boundaries' in defining a library's organization and scope of responsibility. Virtual libraries provide value added solutions to institutions of higher learning and facilitates for on-line access to enormous current volumes of academic information.

2.5 Factors Influencing Adoption and Utilization of ICT in Organizations

A profound integration of new technologies into education as central means to teaching and learning processes will inevitably require from librarians, lecturers and student's changes in attitude. Practices of the lecturers, librarians and trainers are being confronted with challenges that range from the acquisition of skills and literacy in the usage of ICT to the delivery of the necessary tools that will lead students to become knowledge creators and users. Bates (2001) asserts: "that this strategy will necessarily be closely related to other strategies undertaken by Universities. Green (2000) "identified infrastructure as a critical catalyst for the adoption of ICT, in teaching and learning process. Establishment of technical infrastructure is usually the first strategy that most institutions adopt". Also national vision, supported by strategies and coherent actions is the most important factor in the integration of ICT in education.

Successful implementation of ICT requires strong support from government at national and local level by relevant institutions and education authorities. According to Sharma (2003) “political strength of each nation affects the introduction of any new technology. He also explained that cost is an issue that defines and drives the adoption and growth of ICT especially in developing countries. Support mechanism in relation to ICT, it is needed to realize trainings and to promote gradual integration. When we talk about institutions related to education, understood in the context of a country, are those related to policy making and implementing institutions according to its hierarchical level, starting from the government, relevant departments related to University, including research, and especially the library department .For the public education system at University to adopt new technologies related to ICT, they to demand support by government funds and then from other sources, local, own or donor funds. However, the cost of hardware has fallen as compared at the beginning, naturally these are significant costs for a state budget that requires planning and flowing from legislative to executive and fortunately political parties for these problems have consensus. This is usually done step by step and it is infrastructure that takes those funds and then updating them is required, which for reasons, not well understood by all decision makers, and carried out with difficulty. The process of training is also complex and has its own difficulties in relation to human capital, included along with hidden “resistance” and related costs that are often comparable. Use of ICT in education has its base on development of related infrastructure as a precondition of necessity; infrastructure creates conditions for connection to the internet.

Bates (2001) argues that people who work for the technological infrastructure are more important than the infrastructure itself. Two key factors related to the adoption of amendments, dealing with the nature of change and the perception of change in itself. The organizational culture is perceived by individuals based on what they see or hear within the organization. Though individuals may have different backgrounds or work experiences at different levels in the organization, but they tend to describe the organization culture in the similar terms. An organization's culture usually reflects the vision and mission of the organization's founders. The organizations may have strong or weak culture, strong culture shares values which are intensely held and widely shared and have a greater influence on employees whereas a weak culture does not. Therefore, introduction of any new technology in an organization may need different adoption strategies. The personality of the organization is represented by its culture. Shared values, norms and organizational practices do shape the culture that assist organizations to adopt the changes.

There is also a substantial literature documenting the impact of culture on adoption of technology. Slowinkowski, et al. (1997) notes that the effect of cultural factors, specifically 'traditions', 'religion' and 'fatality' have greater impact on adoption of technology and must be considered with great care in adoption process. Another study proposes that two cultural values are of specific relevance for the adoption of new technology on learning orientation, and openness to the adaptation of new technologies. Technological environment is not necessarily open for adoption of technological change but the learning orientation plays a critical role in the assimilation of new technology Culture impacts both how systems are designed and how they are received. Hill et.al.

(2002) in their study of “Transfer of IT to the Arab world” found that successful transfer and adoption of IT into organizational/business workplaces in culturally and socially diverse countries require an understanding of micro-level beliefs, norms, and actions within the framework of national and international macrostructures. Culture is an independent variable that impacts IT and is reflected in formal and informal organizations. Culture gives people the sense of order they have to their everyday lives. Cultural beliefs and values of different cultures differ markedly in term of how they construct a meaning for technology. Hill et al. (2002) are of the opinion that culture does not necessarily need to be viewed as a barrier that always obstructs technology. Robey and Badreau (2000) report that that culture influence the outcome and the type of many managerial practices. They worked on a conceptual framework for understanding cultural constraints on technology transfer. Their model incorporates national cultural (Societal culture in their words) as a key moderating variable in studding IT transfer. According to them basic assumptions, norms and values influences a lot on ICT success and ICT has the power to eliminate temporal and geographical barriers.

People of different cultures communicate and collaborate in different ways. Americans, Japanese, Germans and French, all have different cultural styles. The management must see first what culture the organization is operating in and then adopt any technology according to that culture. But Odedra (1996) looked at it from a different angle and he say that IT doesn't take ‘culture’ as obstacle in its adoption, rather it facilities culture and minimizes effect of cultural barrier because it allows for quick and vivid transmission of information between people and organizational subunits. He further adds that the motivational effects of culture that are supportive of efficiency and innovation can be

enhanced with ICT. Communicative IT such as email, voicemail and Intranets can help promote the cultural norms and make available supportive messages and statements to employees. This can also motivate the employees, resulting in increased efficiency and innovation.

Sherer (2004) is of the opinion that culture values not only have impact on ICT adoption but it has impact on ICT investment management process as well. Middleton (2000) in his research identified cultural factors as the most important determinant of ICT adoption in the organization. Another researcher Fleron (1997) argues that implementation of a new technology does not end with installation of the machinery and explanation of how to use it. As most of the technology is designed and produced in developed society with their cultural values in mind, it could be expected that there would be some social and cultural gap with less technologically developed societies. He suggests that transferring education, organization, administration, employment strategy, and research could reduce this gap. It is normally expected that the new technology would be accepted by the receiving society. Therefore, the set of values introduced by and indispensable for the use of the new technology must not be contradictory to the values accepted for the receiving society.

Culture is one of the major factors that influence organizational structure and management practices but it never creates barrier in the adoption of any innovation. Culture is a critical aspect of success for firms. If the culture is supportive, the work environment tends to be more enjoyable, which boosts morale leading to increased level of team work, information sharing, and openness to new ideas and plans. Organizational

culture orientation programs to mold employee's behavior can make culture more supportive in the way of implementation of any new technology and as such individuals play a key role in technology adoption process. A technology project can only be successful if its users accept it.

Lack of user acceptance to technology has long been an impediment to the success of new technologies. Therefore, its understanding has been a high priority item for researchers and practitioner alike (Chau & Hu, 2002; Venkatesh, et al., 2000). It can also be noted that user participation involves the individuals taking active roles in the activity and the participation may be direct or indirect, formal or informal, performed alone or in a group, but covering varying scopes of activities during systems development and implementation. User participation facilitates organizational learning by bringing together all dispersed knowledge from the various units within the organization to one spot where employees can access information, learn from one another and benefit from new knowledge developed by other units. This all provides an opportunity for mutual learning and inter unit cooperation. It stimulates the creation of new knowledge and, at the same time, contributes to organizational abilities to innovate.

The goal of every organizational based information systems is to improve job performance and this performance efficiency is achieved when IT is accepted and used by the concern employees in an organization, also corporate culture has to be examined before undertaking an initiative for deploying technology in any organization. Sometimes individuals working in an organization feel threatened by any project that pushes them

back or forces them to change their working styles and patterns, such individuals may create problems in usage of that technology in future.

Mayer (2001) is of the view that technological replacement is not the ultimate challenge that manager's face, rather motivating the humans is a bigger hurdle. Individuals working in the company if cooperative can bring success or otherwise may do reverse of it. He also identified that among all employees, comparably younger workers are more strongly influenced by attitude towards using the technology and open to the new technology. In contrast, older worker are more strongly influenced by objectivity and perceived behavioral control. Mayer argues that this issue is very important and the organizations must consider it seriously. Scarcity of skilled employees and experienced managers many times limits the introduction of complex and rapidly evolving technology and shortages of highly skilled people somewhat limit effective implementation of information systems in business and industry as well as in organizations. This calls for proper training of employees to sharpen skill to new technology.

Mayer (2001) in a study conducted for United Nations' project also concludes that it is becoming increasingly transparent that human skill shortage and changing skill requirements are the principal initial barriers to the introduction of new technologies like IT, in both the developed and developing countries. The majority of establishments he has surveyed in France, Germany, and U.K have rated 'lack of expertise' as the most important problem when introducing IT into products and processes. Many other studies also reveal that some managers are reluctant to use advance technology because they often view advanced technology as an expense rather than a strategic investment.

Estrin et al. (2003) says that the fear of technology adoption can be a never-ending process-one that causes expenses to spiral out of control, so they start resisting its use as they feel that they cannot afford advanced technologies. He adds that in an organization, owners, managers and employees have multiple responsibilities and performs multiple tasks, they are under tremendous pressure to be productive. So they feel that they don't have time to experiment with new systems or to "wait" for a system to pay for it. Therefore, they avoid adopting new technologies and prefer to work with the old systems. Many authors agree on the nature of the information environment which calls for new technology skills and competencies on the part of information professionals (Omekwu, et al., 2006).

Bawden (2005) points out that apart from the traditional skills of information organizations, library and information science (LIS) professionals are expected to be firmly grounded in ICT-related competencies such as computing skills, Web design, Internet searching and evaluation of digital information. Information professionals need to possess the requisite knowledge, skills, and competencies to be equal partners in their organizations. Omekwu, et al. (2006), opines that information professionals must be ready to move with the challenges of digital technology, globalized information access, networked resources, a changing economy, new learning and research systems and the demands of the user communities for information that adds value to their work. Information professionals in academic libraries in Kenya shall master the use of ICT systems and other competencies, if they are motivated, encouraged, and given additional training and this can easily be achieved and implemented if Information Science Schools upgrade their courses, besides attending conferences, seminars, and workshops.

Effective application and adoption of ICT in an organization requires competent staff and willing users, and this involves a substantial process of learning and knowledge sharing. A stable environment for learning and knowledge sharing is essential for cultivating the necessary pool of talent and also to instilling cooperation among users. The fullest user involvement in technology adoption decision is a success. Technology adoption by force may result in individual's non-cooperation and eventually failure to adopt it. So, there is a dire need to involve all employees in technology adoption decisions by offering them all types of rewards. There is also a need to have competent and suitable personnel to work on different projects. The organizations should also accommodate employees by all means, to make them relax and introduce any new technology gradually by involving them all ways.

Social change works both ways: it become the reason for technological change and also play a role of a great barrier in any technology adoption decision. As this is an era of great technological changes, so every day companies come across with new product and services. Yet the habits, taste, customs, values and culture of any country or an organization do not allow them to go for the change, so organizations have to think otherwise, to defer or totally reject few new technology adoption decisions.

Many researchers have emphasized on the importance of social factors in deployment of technology. There are three factors to be considered to see social involvement in technology advances i.e. 1) social need-to feel strong desire of something, 2) social resources-the capital, material, and skilled personnel vital for innovation and adoption of new thing, 3) sympathetic social ethos-an environment in which the dominant groups are

prepared to consider innovation seriously and are receptive to new idea. Aanadarajan et.al. (2000) have conducted a research in banking industry and identified social factor as the basic factor affecting ICT usage.

Amstrong (1999) also narrates that technologies such as IT, have probably the most important social impact that is its impact on the labor market. There is no agreement about whether the number of jobs increases or decreases when IT is adopted, but there is a great deal of pessimism about it. He further says that it is clear that the characteristic of the workplace and the required qualification and skills are changing so new jobs require more qualified and skill personnel's. These results in job re-training of older employees and those who reject change will disappear or can be replaced by someone more talented. In this regard employees are required to continuously update their skills and knowledge.

Brainin, et al. (2004) are of the views that mechanistic organizations are bureaucratic, and rigid to adopt change. Therefore, the behaviors of organizations towards adoption of technology vary with their structure type. Organic structure is most appropriate for new technology as it is flexible and maximizes adaptability Ayeni (2004) says that technology acquisition raises a number of political questions. The first relates to the dependence of the receiving nations on the supplying nation and this technological dependence could become a political one, as such it is the responsibility of a government to select carefully the country from where technology acquisition is made so that no political problems could arise in future. The second question relates to the possible transfer of political power from political elites to the technical specialists. This problem is more prominent in computer-based technologies because these technologies are directly related with

retrieval and processing of data and information. The people at the management level are mainly from non-technical backgrounds, as a result of which there is always a tension between these two groups. The third question concerns the selection of countries to which certain technology could be transferred.

The success of IT implementation and use in institutions depends greatly on the extent of users' acceptance and their satisfaction. User is the kingpin of the library and should be kept well informed about new technological developments so that they can understand, accept and make more effective use of IT based new services. Informed users can appreciate and may even encourage the library and its parent organization to adopt and utilize ICT. Fancovicov (2008) notes that older individuals are subjected to common myths and they are unwilling to learn new things. Consequently, a study conducted in Britain, Italy, Germany and Norway indicates that, age distinguishes the behavior especially in respect of new technology (Kivunike et al., 2013).

The economic aspects of technology acquisition are important. Funds for initial investment and return on investment. In low and middle income countries, the funds available are often not sufficient to buy expensive technology. These countries mostly rely on the technology donated to them and later problems are encountered when the project is over. Lack of awareness of available technologies and its uses, capabilities, and return on investment are greater barrier to technology adoption.

2.6 Benefits of ICT Utilization

The impacts of ICT have been felt by libraries in every aspect and activity in the form of the library collection development strategies, services to users and consortia. ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. It has revolutionized and reshaped the way libraries access, retrieve, store, manipulate and disseminate information to users. The academic library has been from its inception an integral part of institutions of higher learning and has been affected by changes in ICT and this rate of changes is still accelerating. The introduction of various information technology trends has led to reorganization, change in work patterns, and demand for new skills, job retraining and reclassification positions. Technological advancement of the past twenty-five years, such as the electronic database, online services, CD-ROMs and introduction of internet has radically transformed access to information. Rana (2009) points out that ICT holds the key to the success of modernizing information services. Applications of ICT are numerous but mainly it is used in converting the existing paper-print records in the entire process of storage, retrieval and dissemination. Odongo, (2011) carried out a study on ICT adoption in Kenyan academic libraries and found out that users strongly agreed that ICTs are useful in many ways; ease of accessibility of information (83%) and provision of current information (83%) are the major benefits of ICT utilization, that ICTs are of great benefit in provision of linkages with various sources of information and ease of communication with library users and linkage with other libraries.

Academic libraries are using modern ICT to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents, and digital libraries: and initiate ICT based capacity building programmes for library users. The emerging of ICT) has brought unprecedented changes and transformation to academic libraries and information services, OPACs, users services, reference services, bibliographic services, current awareness services, document delivery, interlibrary loan. Audiovisual services and customer relations can be provided more efficiently and effectively using ICT, as they offer convenient time, place, cost effectiveness, faster and most-up-to-date dissemination and end users involvement in the library and information services process.

The impact of ICT characterized on information services by changes in format, contents and method of production and contents and method of production and delivery of information products. The emergence of internet as the largest repository of information and knowledge, changed role of library and information science professionals from intermediary to facilitator, new tools for dissemination of information and shift from physical to virtual services environment and extinction of some conventional information services and emergence of new and innovational web based.

Benefits of ICT enables a library user to connect, collaborate and compete. A strong ICT strategy is pivotal for competitive survival in day today businesses, living environments and will continue to be an integral resource for libraries, business, government and society at large. It combines information, knowledge, processes, and technology to

provide a foundation for driving efficiencies and fueling innovation in all sectors. It is the key that has helped organizations of all sizes in to connect, collaborate and compete more effectively. This can be seen in developed countries as well as the developing countries like Kenya.

Good ICT infrastructure strategy in an organization can lead to:

- Improved business performance, productivity and profitability through improved system performance, availability and security;
- Reduced administrative and back-office operational costs through the convergence of voice, data and video over IP;
- Enable and improve the quality, quantity and access to services from any location by allowing remote access, monitoring and management of systems and applications;
- Customer satisfaction because of accuracy of information, speedy retrieval of information, increased ability to manipulate data and reliability of information output;
- Enhanced collaboration and networking among employees, customers and partners by removing the barriers to real-time communication and effective information sharing;
- Ensure enterprise security and compliance more efficiently at less cost;
- Provide opportunities for businesses to outsource non-core activities so they can focus on their core competencies and reduce in-house technical support requirements;
- Free up valuable funding resources that can be used to address other issues;

- Improve work/life balance for employees;
- Cross geographical and time zone boundaries to meet the demands of a global economy; and
- Meet expectations of the new generation of employees in adapting to their communication habits. Adedeji (2002) highlights the advantages of using IT in libraries.

2.7 Challenges in Utilization of ICT in Information Services

Technology is good but comes with change and challenges. This calls for a better trained staff who can handle those changes. Despite the increasing campaign for staff training on the use of ICT in work places, there are indications that the use of computers can be limited due to computer anxiety. Also in most cases organizations never involve their workers in the initial stages of technology implementation.

Factors manipulating the full operation of ICT in university libraries are being observed in many developing countries, they include, inadequate ICT infrastructural facilities, low bandwidth, Internet downtime, inconsistent power supply, ignorance on the part of university management and the government, absence of a national information policy, lack of library ICT policies, high rates of technology especially soft wares, irrelevant collections in existence without any weeding out, shortage of competent manpower for information technology operation and maintenance, increased economic pressure and budget cuts are forcing fee based services by libraries to counting the technological (Okiy, 2005; Odero-Musakali & Mutula, 2007; Adeleke & Olorunsola, 2010; Kumar & Biradar, 2010). Though new technologies have added value to library services by

presenting new modes of collecting, storing, retrieving and providing information, they have also brought new challenges and aggravated some of the challenges that faced libraries before (Emmanuel and Sife, 2008). Ferbam and Ogunjobi (2009) reveals that ICT facilities are not available due to inadequate funding, poor infrastructure, management problem and lack of qualified manpower.

Otike (2004) hypothesized that one of the major challenges that libraries and the library profession will face in the new millennium is how to cope with electronic and paperless literature. However, academic libraries in Kenya need to integrate technological solutions into mainstream information products and services. Odero-Musakali and Mutula (2007) states that the future of universities greatly hinges on their ability to embrace and leverage the potentials of these emerging technologies at all levels of their business activities and strategies.

Ghuloum and Ahmed (2011) have indicated that several factors such as financial factors, technological factors, human factors and cultural Factors may be a barrier in ensuring application of ICT. These factors include, lack of sufficient funds, lack of qualified library professionals, lack of motivation and need among library staff to adopt ICT in their daily operations. Authors also highlighted the barriers that libraries face; are lack of adequate library staff, lack of ICT Training programs, and low priority of libraries within their organization. Siddike et al. (2011) identified some of the barriers existing in the libraries namely lack of support by high authorities, poor computer literate among library professionals, uninterruptible internet connection, poor skilled manpower, lack of ICT related knowledge and ICT Training.

2.7.1 Financing and Sustainability of ICT Infrastructure

Libraries require sufficient funds to acquire modern ICT facilities such as computers, Servers, scanners, photocopiers, software as well as paying for online and offline services Such as e-journals and digital libraries. Most of these ICT facilities and services are very expensive and can be purchased from developed countries. On the contrary, experience reveal that most university libraries in Africa and other developing countries get very little funds from their parent institutions and the government for support of their activities (Mutula and Wamukoya, 2007). This situation is attributed to among other factors, such as, poor Perception of library services by top leaders and other stakeholders in the parent institutions. In addition, the little funds received fall far way below the standard costs of ICT facilities and services. Odini (1998) notes that libraries and information services have a low priority in Kenya and whenever financial problems occur, these Institutions are always the first to suffer.

Academic libraries just like other departments in institutions of higher learning require sufficient funds in order to acquire modern ICT facilities such as computers, servers, scanners, photocopiers, software as well as buy or subscribe to online or offline resources Such as e-journals, e-books and digital books among other resources. Amutabi (2012) pointed out that with the decreasing financial donor support the situation is unlikely to improve much.

Kamba (2011) adds that libraries which became fully automated in the 1990s but could not afford to migrate, find their current software very limiting and unless one could afford to migrate onto new and updated systems, the early start could be a disadvantage.

He adds that the fully automated libraries are those that either started late with donor assistance or have secured funds to migrate to up-to-date systems.

2.7.2 Technological Factors

African countries have experienced low bandwidth as the main problem that affects the accessibility of information in time. Bandwidth refers to the amount of information that can be carried in a given time period over a wired or wireless communication link, expressed as bits per second (Emmanuel and Sife, 2008). The higher the bandwidth, the more data can be transferred in bits per second. Whenever there are few data transferred in bits per second (low bandwidth), users get frustrated as it takes long to retrieve information from the Internet. Inadequate technological infrastructure to support the integration of ICTs in the library functions has been cited by several authors as one of the major challenge that academic libraries face. Kamba (2011) noted that ICT is not very well spread and utilized in African institutions of higher learning, mainly because of poor communication network, limited access to ICT hardware and software. This refers to issues as poor or lack of ICT policy, low Internet connectivity, inadequate supply of electricity, inadequate number of PCs, etc. A study by Rosenberg (2005) showed that 85 percent of the libraries provide less than one computer for every 100 students and 36 percent provide less than one computer for every 500 students. Despite the poor students computer ratio, Kamba (2011) added that there is a serious neglect of ICT resources acquired over a period of years, which need upgrading or are out of usage and this increases the complexity of managing the ICT resources.

The organization culture, library leadership and trained library personnel play a pivotal role in determining the role and status of academic libraries. Several authors (Emmanuel and Sife, 2008; Odero-Musakali and Mutula, 2007) have identified that lack of trained Personnel and negative attitude of university management on ICT as major factors that impede effective adoption and in provision of services in university libraries. Emanuel and Sife (2008) adds that many libraries have inadequate qualified ICT personnel with most traditional library staff having low ICT skills and sometimes have technology phobia. Without adequate supply of appropriately trained and skilled personnel, the ability to provide quality information services may be inhibited. Mutula (2004) posits that there are basically three major challenges related to the ICT infrastructure in libraries and these are: Constant change in the ICT industry, Lack of technical ICT background among library administrators and Lack of adequate ICT facilities.

2.7.3 Cultural Factors

Socio-cultural aspects such as cultural values, regional priorities, institutional relations, political dynamics, and educational background influence the perception of probable user groups, and therefore have an impact on the adoption and use of the technology (Hagenaars, 2007). Amutabi (2009) stated that the lack of computer culture in public universities impedes rapid transmission of the new technologies. He adds that many university officials started their careers in the age of typewriter, before the wide-scale introduction of computer technology at universities and find it very hard to fathom many things in ICT.

Gould and Gomez (2010) in their study, found out that in most countries, libraries are still being regarded as a place to study or store books thus many users doubt whether it is a 'cool' place to go, and whether it responds to their needs, such as providing current information services, but slowly the notion is changing with the generation y who wants to operate only with technologies. Besides there is still need for library management and library professionals to be proactive in changing the perception in order to encourage more users to utilize library ICT resources and services. There need for library management and library personnel to change this notion in order to encourage more users to visit the library and utilize ICT resources. Finally, Allison (2007) suggests that there is need to continue with information literacy programmes, because he found out that users are not aware of the information resources available in libraries or they do not know how to access them.

2.7.4 Human Factors

The organization culture, library leadership and trained library personnel play a fundamental role in determining the role and status of academic libraries. Several authors (Emmanuel and Sife, 2008; Odero-Musakali and Mutula, 2007) identified lack of trained personnel and negative attitude of university management on ICT as major factors that impede effective adoption of ICT in university libraries. Odingo (1999) adds that public universities lack an ICT model that could guide them in embracing IT. Academic libraries in Africa do not enjoy the same information delivery methods like those in developed countries except those in Southern Africa. Chisenga and Rorissa (2001) points out the great disparity in the adoption and use of ICT in academic libraries. As cited by Wendo, Dickens (2016) states that academic libraries in Kenya suffer poor funding, poor

communication system and lack of ICT qualified librarians. The case is not different in Uganda. Magara (2002) pointed out that power unreliability, management attitude and poor ICT skill of the librarians. Chisenga and Rorissa (2005) points out those institutions of higher learning in Africa do not enjoy the same information delivery methods like those in developed countries except those in Southern Africa as there is great disparity in the adoption and use of ICTs in academic libraries.

In Kenya, the Commission for University Education (CUE) that regulates the establishment of institution of higher learning, requires that academic libraries provide a collection of information resources for all academic programs to include current and relevant collection of textbooks including e-books; journals, reference and bibliographic sources. The resources should be in print, non-print and electronic formats (Commission for University Education, 2007). Few Kenyan University Libraries have invested heavily in ICT for teaching, learning, research and general administration at the University. According to Rosenberg (2006), some academic libraries in Africa have embraced the e-books phenomena owing to the adoption of the necessary technology infrastructure and have made them available to users.

Where the new technology has been implemented in the universities, a lot is left to be desired. Other problems that can be associated with inadequate use and implementation of technology in the universities are political patronage, rapid technological development, large student numbers, limited budgets, organizational mismanagement, and lack of proactive organizational culture. Mutula (2001) further says that Computer hardware at the universities is outdated and this has limited the number and type of software

applications they can implement. In addition, the existing computer hardware in many of the public universities has been sourced from different vendors or donors, and is therefore often incompatible. This hampers sharing resources through networking.

2.7.5 Lack of ICT Technical Background among Library Administrators

The organization culture, library leadership and trained library personnel play a pivotal role in determining the role and status of academic libraries. Several authors (Sife, 2008; Minishi-Majanja, 2007; Odero-Musakali & Mutula, 2007) identified that lack of trained personnel and negative attitude of university management on IT as a major factor that impede effective adoption of ICT in university libraries. Besides the volatile nature of the ICT industry, librarians need to be more involved in monitoring technological change and be more proactive in adopting appropriate information technologies to improve library and information services. However, this is difficult for most library administrators because they do not have an ICT background, which is necessary if they are to have a clear understanding of the developments taking place in the industry. Kamba, (2011) admits the existence of crunch trained and experienced technical personnel who manage, control, and maintain available ICT resources in academic libraries. Emanuel and Sife (2008) add that many libraries have inadequate qualified ICT personnel with most traditional librarians having low ICT skills and sometimes have technology phobia.

Owusu (2002) paints a good picture of how frustrating it can be to a library user or staff, he says the transmission rate is very low to the extent that most users become frustrated and some leave; he further says in some cases staff of the section closes down the section and at the internet cyber it takes 15 to 30 minutes to move from a domain name address;

and sometimes it takes 15 minutes to open or send an short message service. Lack of trained personnel and negative attitude of university management on IT are important factors that also militate against effective adoption of ICT in university libraries (Ani, 2005). Without adequate supply of appropriately trained and skilled personnel, the ability to provide quality information services may be inhibited.

2.7.6 Lack of Adequate ICT Facilities

Inadequate ICT facilities to support library functions, has been cited by several authors as one of the major challenges that University libraries face. Chisenga (2006) observes that challenges associated with the ICT technical infrastructure in most academic libraries is the lack of adequate ICT facilities. Lack of funding means that most academic libraries are not able to acquire adequate ICT facilities to enable them provide efficient and effective ICT-based information resources and library services to their clients. Most libraries cannot get adequate bandwidth to enable them to provide fast access to online based information services. In some academic libraries Internet connection is so slow that sometimes it is impossible to download documents from the Internet. Internet connectivity in most university libraries has been quite erratic and unreliable. Kamba (2011) noted that ICT is not very well spread and utilized in African institutions of higher learning, mainly because of poor communication network, limited access to ICT hardware and software. This refers to issues as poor or lack of ICT policy, low internet connectivity, inadequate supply of electricity, inadequate number of PCs, (Minishi-Majanja, 2007).

Walters, (2013) points out that some libraries in Africa have relied heavily on grants and donations which has made it difficult to acquire information materials in academic libraries. Also some libraries are dependent on the institutions for funding which has been limited by lack of diversifying their sources of fund. Financial resources is a critical element that enables a library to fulfill its mandate of collecting, preserving and ensuring the information materials are accessible to users.

In addition to inadequate bandwidth, some academic libraries even though they have computers, these are not networked making it impossible to provide access to networked information services. In some other libraries, there are no enough computers for use by library users to access the OPAC or other online library services and resources. A study by Rosenberg (2005) showed that 85 per cent of the libraries provide less than one computer for every 100 students and 36 per cent provide less than one computer for every 500 students. Despite the poor student's computer ratio, Kamba (2011) added that there is a serious neglect of ICT resources acquired over a period of years, which need upgrading or are out of usage and this increases the complexity of managing the ICT resources. Minishi-Majanja (2005) indicated that the telecommunication services are the root cause of these problems in terms of, low bandwidth, technical faults and other network configuration problem. Frequent power outage has also been identified by several authors (Siddike et al, 2011; Ani et al., 2005; Magara, 2002) as an impediment towards ICT adoption and utilization.

2.8 Conceptual Framework

The conceptual framework shows how the various key concepts of this study are interrelated. Therefore, the dependent variable is utilization of ICT in provision of information services to library users, while the independent variables are the funding, institutional factors, training, culture and ICT trained staff among others. If funds for resources is provided and staff are well skilled in ICT they will enhance utilization of ICT in the provision of information services in academic libraries. This is achieved through reducing the challenges which hamper the use of these services. Such obstacles include, lack of ICT skills, user's attitude, technophobia and inadequate ICT facilities among others. The library users can reduce the challenges of utilization through acquiring ICT skills or being inquisitive. Library staff would be expected to be proactive, hence inform the Library users and encourage them to use the available ICT information services and resources. When the services are well utilized, the benefits will ensue to the institution, library users and the library staff. The ultimate situation does not habitually transpire in the academic library due to numerous problems that thwart the utilization of ICT in Provision information services. The conceptual framework diagram explains the relationship between the key concepts.

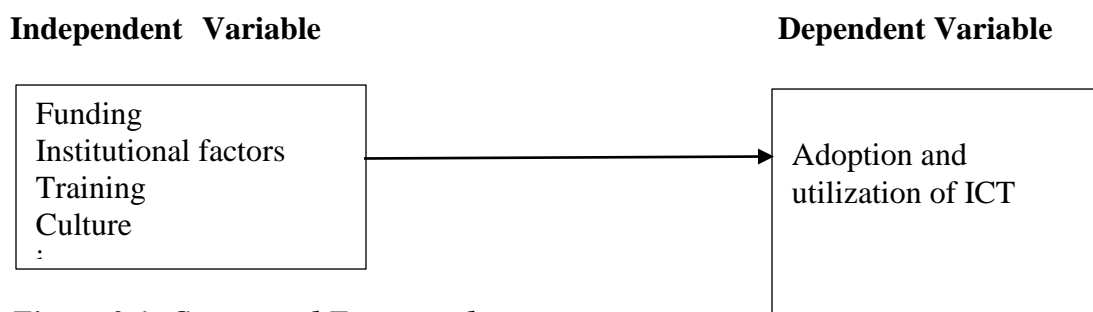


Figure 3.1: Conceptual Framework
Source: Researcher (2010)

The dotted arrow in the diagram above indicates that utilization of ICT resources in service provision is constrained hence reduced by user's attitude and technophobia. The arrow between the independent and dependent variables indicate that for ICT utilization in the provision of library information services to take place it depends upon other variables.

2.9 Chapter Summary

This chapter presented a summary of the literature review obtained from latest sources at the time of the research. Due to technological advances some of the facts could be superseded by now. The literature and sources provided are quite relevant in addressing problems and also providing best suggestions to university libraries in the country. key issues focused on models applicable which explains how variables are inter linked in order to make a system successful, of ICT application in libraries, factors influencing use of ICT, benefits of ICT, challenges and research gap, Numerous studies (Odongo, 2006; Ani et.al, 2005; Odero-Musakali and Mutula, 2007; Adekele and Olorunsona, 2009; Mutula 2004; Makori, 2009; Moropa 2010) carried out studies on academic libraries in relation to ICT both in Kenya, Nigeria, South Africa as well as other African countries. Given that ICT change every day and no research in Kenya has been done on comparison in academic libraries, this study focus on a comparative study of ICT utilization in information provision to library users. Challenges faced in utilizing ICT services. From the literature and work by several scholars it is clear that ICT can impact positively if harnessed by all those involved in its implementation.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the research methodology for the study that was discussed under the following sub-headings: research design, study population, Sample size, study area, sampling techniques, data collection methods, pilot study, validity and reliability, data analysis, and ethical issues.

3.2 Research Design

Cooper (2014) defines research design as a blue-print for collection, measurement and analysis of data, a blueprint that includes experiments, interviews, observations, and analysis of records, simulation, or some combination of these. Mixed methods research is an approach to inquiry that combines or associates both qualitative and quantitative forms. It involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study.

This study used both quantitative and qualitative method. The quantitative data was adopted due to its usefulness in studies to test the relationship between independent and dependent variables in population and comparisons. While the qualitative method was to investigate the opinion of library users on efficiency of library services given by ICT, their experiences in utilizing ICT services to access the available information resources in the library, thus giving meaning to real life experiences that user's face in retrieving information in the library.

3.3 Study Population in USIU

The study population for case A (Moi University) library was 16,000 obtained from the admissions section. Study population in case B (USIU-A) was 5000 obtained from students admission data base. The target population for the study was based on the active library users constituting 611 for Margaret thatcher library while in USIU-A resource center was 530. The sample size was then derived from the target population of the two university library users.

3.4 Sample Size

The sample size for the study is presented in Table 3.1.

Table 3.1: Comparison of Sample Size at MTL and USIU-A Resource Center

Category	Respondents and informants	Number at MTL	Number at USIU-A resource center
1	Top management	1	1
2	ICT director	1	1
3	Library managers	3	1
4	Library section heads	6	4
5	Library users	92	80
	Total	103	87

A sample size of 92 respondents from MTL and 80 from USIU-A resource center was selected through simple random sampling. The study could not be conducted on the whole university population because not all of them use the library. Category 1-4 comprise informants from the two case study institutions, who were purposely selected

due to their nature of work as they were entrusted with the day today issues, key players in management, dealt with policy formulation and implementers.

The reason for choosing library users from the two institutional libraries for this study was that they are the main consumers of ICT services offered at the university library. The justification for selecting the informants was that not all university administrators deal/or focus on information provision involving ICT issues and its application in the organizations.

3.5 Study Area

This study was carried out in selected University libraries in Kenya, The researcher needed a typical public and private university libraries for the study. Margaret Thatcher library and USIU-A resource center were deemed the best University libraries to focus on and for the purpose of comparison. This was to assist in addressing the nature of the problem the researcher intended to investigate; utilization of ICT in the provision of information services to library users at the two institutional case studies.

3.6 Sampling Techniques

The sample size of the primary stakeholders was determined using the coefficient of variation formula (Nassiuma, 2000), as follows:

$$n = \frac{NC^2}{C^2 + (N-1)e^2}$$

Where: - n = sample size- 92
 N = population - 611
 e = tolerance level - 0.24
 C = coefficient of variation – 25%

The coefficient of variation is a more stable measure of variation as compared to other measures of variation. A coefficient of variation of less than 30% is usually appropriate. The coefficient of variation applied in this study was 25%, of the population. Library users included: students, teaching and non- teaching staff, visiting lecturers. Simple random Sampling was applied in selecting library users in this study.

The sample size for MTL was 92 library users while for USIU-A resource center 80 library users. The informants were purposely selected from the library and University Management. A sample size of 11 informants from MTL and 7 from USIU-A resource center was deemed suitable for the study. This sample size was assumed suitable as those involved in policy and decision making focusing on ICT utilization in provision of information to library users had been included.

3.7 Data Collection Methods

Two methods were used to collect data: face to face interview and questionnaires. Since the study involved two case studies which required detailed investigation to be conducted, face to – face interview, consisting semi- structured and structured questions, was deemed to be the best method for collecting the needed data.

3.7.1 Interviews Schedules

Mugenda (1999) points out that, interviews are recommended by research experts, especially in Africa, because communities traditionally communicated information by word of mouth rather than in written form. The argument is that the approach emphasizes oral communication and gives respondents a chance to state their problems the way they perceive them and participate in seeking solutions to these problems. The researcher can

elicit more in- depth response or fill in information if a participant does not understand a question. Busha and Harter (1980) advises that interviews are most successful when conducted in an informal and relaxed manner.

The researcher conducted face –to-face interviews with the informants who included; library staff and top university management, as the researcher took interview notes. Odini (1999) assures that the use of a face to face interview yields a high percentage of returns as everyone in the list can be reached.

Prior to interviews the researcher made appointments with the informants, which was duly noted in a diary. This gave the informants ample time to prepare psychologically and set aside time for the exercise. The interviewees were reminded three days in advance to avoid rescheduling of the date unless in cases of emergence. The researcher then carried out interviewing process by first informing the respondents on the aim, objectives and the significance of the study.

The main advantage of face to face interviews, was the presence of the researcher, which made it easier for the informants to either simplify, answer or ask for clarification for some of the items on the interview questions. The disadvantage of interview is that it is often difficult to gain access to elites because they are usually busy people operating under demanding time constraints; they are also often difficult to contact initially. The interviewer may have to rely on introductions for assistance in making appointments with elite individuals.

3.7.2 Questionnaires

A questionnaire is a carefully designed instrument for collecting data from respondents. It is a convenient tool especially where the sample size is large (Kothari 2003). A questionnaire is an efficient research tool because the researcher is likely to obtain personal ideas from the respondent. The respondent is set free to read the questions, complete the questionnaire and return it at an agreed time. This study therefore used questionnaires because they are convenient, less costly and free from bias of the interviewer (Kothari, 2003).

Great care was taken in framing the questions so as to convey the exact meaning, be easily understood and make the respondents willing to supply the information without hesitation, bias or distortion of facts. The questions were in a well ordered serial manner to help obtain well organized and flowing information. The questionnaire constituted both closed and open ended questions. The questionnaires were divided into two main sections, one dealing with general information and the second part dealing with factors that influence the utilization of ICT in the provision of information to library users.

According to Mugenda and Mugenda (2013) closed-ended items have an advantage and can easily be administered, analyzed and also economical in terms of time. The researcher used both closed ended and open ended questions. The open ended questions can unearth unanticipated findings and answers from the respondents.

3.7.3 Procedure for Collection

The researcher sought an introduction letters from the Head, Department of library and information studies, which was taken to the Kenya National Council of Science and technology, alongside the proposal to seek for a research permit authorizing the research to carry out the research. Once clearance was obtained then researcher visited the Chief librarian at Margaret Thatcher library and USIU-A resource center to inform them of the purpose of the study and to seek for their permission. The schedules were then piloted to a small group.

3.8 Pilot Study

Gay, et al. (2009) suggests that for pilot test, the researcher chooses a few individuals who are similar to the intended respondents. In a pilot study the researcher tries out research tools on respondents from a different area with similar characteristics to those of the area under study. The purpose of piloting is to assess the effectiveness of research instruments. It is also indented to determine whether the items in the questionnaire have been framed in the least ambiguous way.

Piloting of tools is very important because, it is only after a researcher has some completed questionnaire and information obtained using the instruments in the study that one can be sure that the research needs are going to be met. In order to a certain reliability of the instruments, the researcher piloted the instruments by distributing eight questionnaires to respondents in Masinde Muliro University of Science and Technology library. This exercise was repeated using the same respondents after an interval of one

week. In doing this, the researcher was following the test – retest reliability approach for determining reliability as Tuckman (1978) comments;

“ one way to measure reliability is to give the same people the same test on more than one occasion and then compare each person’s performance on both testing”

Thus the researcher compared the results obtained from the first testing and the second one done after an interval of one week. In so doing the researcher wanted to establish the extent to which the instruments were measuring stable and enduring characteristics of the test taken.

3.9 Validity and Reliability of Data Collection Instruments

3.9.1 Validity

Kothari (2003) defines context validity as the extent to which a measuring instrument provides adequate coverage of the topic under study. If the instruments contains a representative sample of the universe, the content validity is good. Its determination is primarily judgmental and intuitive. Validity can also be determined by using a panel of experts (supervisors) who shall judge how well the measuring instruments meet the standards. Best and Kahn (1989) opines that a panel of experts may rate the instrument in terms of how effectively it samples significant aspects of its purpose providing estimates of validity.

3.9.2 Reliability

A measuring instrument is said to be reliable if it provides consistent results (Kothari, 2003). In order to a certain reliability the researcher carried out a pilot study on eighty questionnaires which were distributed. This exercise was repeated using the same

respondents after an interval of one week. And in so doing the researcher was following the test –retest reliability approach for determining reliability (Tuckman, 1978).

Reliability in qualitative research data is to record everything that occurred in the study research environment. The researcher provided accurate and comprehensive information. The respondent's original quotations were kept for increasing the reliability. The researcher recorded in written all data from the interviews as presented by the informants. The data was recorded in a note book and used to get the information that was analyzed and presented in this study. This increased the reliability of the information provided on the research results in this study.

3.10 Data Analysis

The qualitative data was analyzed and presented thematically. While the qualitative data was analyzed using comparative and descriptive statistics. The descriptive statistics based on measurements such as frequencies and percentages. The data obtained from the questionnaires were checked, grouped, edited and coded. The measurements were generated using statistical package for social sciences (SPSS) version 17. The results were presented in tables, charts and pie charts.

3.11 Ethical issues

The respondents were informed about the aim of the study so that they could freely give the information to enhance completeness of the study. All data was treated in ways that protected the confidentiality and anonymity of all respondents involved in the study. The researcher observed the fair use of other people's work by acknowledging the source. Permission for all necessary approvals were requested and granted by Margaret Thatcher

library, United States International University-A resource center and Kenya National Council of Science and technology. The researcher intends to disseminate the findings of this study through publishing.

3.12 Chapter Summary

This chapter has described the Methods used in the Study. The research design which is key to the research was also discussed here. It has also covered the study population, study area, sampling technique, sample size, data collection methods, pilot study, validity and reliability, data analysis. The tools used in the study were found to be appropriate in enabling extensive and intensive data collection on each of the two case study institutions, which enabled relationships among variables under study investigated to be obtained. The chapter has also discussed ethical issues.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This Chapter presents analyses and interprets data collected from 18 interviewees and 161 respondents from two case study institutions - Margaret Thatcher library (MTL) and United States International University-Africa (USIU-A) resource center. The chapter also covers, response rate, respondent categories, extent of ICT utilization, institutional factors that influence ICT adoption and Utilization, beneficial effects of diffusing ICT, challenges and measures for improvement and chapter summary.

The researcher in order to streamline the understanding of issues examined, data was presented systematically in accordance with specific research objectives of the study relating to utilization of ICT in the provision of information to library users. The presentations answered the research questions of the study.

4.2 Margaret Thatcher library General Information

The general information is organized in the following areas: response rate, and respondent categories.

4.2.1 Response Rate

The response rate is the total number of respondents who took part in the study and its percentage. This study had a sample size of 92 respondents from MTL. The response rate from Margaret Thatcher library users reveals that a large number (94.6%, 87) of the respondents participated in the study.

4.2.2 Respondent Categories

Table 4.1 presents the key informant categories from Moi University, Margaret Thatcher library who participated in the study.

Table 4.1: Category of Respondent

	Respondents and informants	Number at MTL
1	Top management	1
2	ICT director	1
3	Library managers	3
4	Library section heads	6
5	Library users	92
	Total	103

4.2.3 Extent of ICT Utilization

The first objective of this study was to examine the extent of ICT utilization in the provision of information.

Table 4.2: ICT in University Library

Response	Frequency	Percent
No	7	63.6
Yes	4	36.4
Total	11	100%

Results on the extent of ICT utilization from majority of the respondents revealed that use of ICT in service provision was poor (40.2%, 35); most (37.0%, 32) indicated very poor and a few (17.2%, 15) indicated average.

The question to the informants, on if their functions dealt with policies was designed to help the researcher gain an insight into activities the informants are involved in. All Informant's revealed that their main functions primarily dealt with policy making therefore meaning they could help enhance ICT usage in information services. Most (36.4%, 4) informants indicated that there was ICT utilization in the provision of library information services in MTL. Those informants who said that ICT has been used also indicated that ICT use was visible in the bibliographic section, circulation, and they also pointed out that CD – ROMS were available and being used as library resources. The informants also revealed that internet was available in MTL. It was revealed by the informants that the university through the ICT directorate was laying networks on increasing the number of terminals in library and also planning on sending staff for training. While majority (63.6%, 17) of the informants argued that the library lacked computers, ICT policy, user profiles, user analysis and that the webpages were outdate and the library system was not web based.

These results suggest that the issue on ICT use in library has not been adequately addressed and has not picked up as expected because of inadequate funding from the government and the university management. Some of the short comings that contributed to low use of ICT have since been addressed. MTL has subsequently purchased a library Management System known as ABC which is web based.

4.2.4 Institutional Factors that Influence ICT Adoption and Utilization

The Second objective of this study is to determine institutional factors that influence the adoption and utilization of ICT in the provision of information services. Effective

adoption and utilization of ICT in MTL may be exaggerated, either absolutely or undesirably by several factors. The major factors are: Resource allocation, formulation of ICT Policy, organizational Support, staff support for ICT, and ICT skills.

4.2.5 Resource Allocation

Table 4.3 Resources

Including; staff, funds and physical resources	Frequency	Percentage
The library has generous budget allocation	1	9.1
The university library has good infrastructure	3	27.2
Good hardware and software	2	18.2
Trained staff	9	82.0
Manuals and guides are available	7	64.0

Results from the informants are presented in Table 4.3. Majority (64.0%, 7) of the informants noted that manuals were available; Majority who are (82.0%, 9) indicated that they had training; Most (27.2%, 3) indicated that there is infrastructure and a few (9.1%, 1) revealed that there is a budget. The informants who said resource allocation was not good also indicated that, several ICT components which are quite paramount in service provision were lacking. The informants gave their opinions on resource allocation, that;

“there was no Braille materials for the physically challenged, that funds are just in written but not available in reality, that computers terminals in the library are few in comparison to student population, that access to e- journals is poor and that most of them are locked and that the intercom was not working for the past one year”

Utilization of ICT is quite an expensive affair, and without the university management commitment, in regard to provision of adequate resources, it's certainly impossible to utilize ICT in provision of library services. The results imply that the issue of ICT has remained a big challenge to MTL due to limited funding and the ever increasing number of students had worsened the situation.

4.2.6 ICT Policy

Kenya has a National ICT Policy that disseminated in January 2006, aims at “improving the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICT services. Responses from majority of the informants revealed that the university ICT policy was still in draft form. Meaning that the MTL did not have an ICT policy and this could be the basis of poor ICT utilization and adoption.

4.2.7 Organizational Support

The results on the respondent's views on organizational support are presented in Table 4.4.

Table 4.4: Support for ICT

Adequacy in support in ICT	Frequency	Percentage
Inadequate support	8	72.7
Funding	3	27.2
Staff training	9	82.0
Infrastructure	6	54.5
adequate facilities	5	45.4

The majority (90.8%, 79) of the respondents indicated that university management had not given support to MTL in terms of funding and ICT resources; Most (9.2%, 8) revealed that support was given. Support in terms of funding is paramount in ICT use and provision of library services.

A large number (72.7%, 8) of the informants indicated that institutional support was not adequate. Majority (54.5%, 6) indicated that there was infrastructure; Most (45.4%, 5) indicated that there was adequate facilities; A large number (82.0%, 9) of staff had training. The informants who said there was management support also had the views that;

“management provides funds for financing of hardware and networks, provides enabling infrastructure and linkages outside Kenya, that the management had established the ICT directorate and supports policy documents”

The informants who indicated that there was no support also gave their opinions that;

“the library lacked a web based software, that funding for maintenance of equipment was not there and that computer money paid by students was diverted to other areas of priority”

A good number of informants suggested that although the university management believed that it is essential to improve and support ICT utilization in library services, it was unfortunate that they lacked a strong support network that could tie the issue of ICT utilization. One informant (6/5/2009) simply said;

“Infrastructure is seriously lacking” but added that plans were underway for improvement and the university was laying the net networks for connection.

On proposals regarding if the funding was adequate, one informant on (6/5/2009) said,

“It’s very poor because the University has so much depended on donations and ICT is not on the priority list of the University. He added that nothing much has been done towards ICT in the University and especially in the library”.

The management in this regard should be able to know the current obstacles and look for a lasting future of the library in liason with the ICT director. Results suggest that university management has tried to put together the available resources in support of ICT developments but they are constrained to get everything moving in the university.

4.2.8 Staff support of ICT

SD=strongly disagree (1), D=Disagree (2), NS=not sure (3), A=agree (4), SA=strongly agree (5)

Table 4.5 Support for ICT

Indicate your level of agreement/disagreement on Utilization of ICT	D	N/S	A
Circulation	0	1(9.1)	10(90.9)
Cataloguing and Classification	1(9.1)	1(9.1)	8(72.7)
Reference work	0	1(9.1)	9(81.8)
OPAC	0	1(9.1)	10(90.9)
Acquisition	4(36.4)	1(9.1)	6(54.5)
Instructional classes	7(64.0)	2(18.0)	2(18.0)

The results indicate that ICT is utilized, some informants agreed, some disagreed while others were not sure. Circulation: Majority (90.9%, 10) of the informants agreed, while a few (9.1%, 1) were not sure. Cataloguing and classification: Majority (72.7%, 8) agreed

while a few (9.1%, 1) disagreed and some were not sure. Reference work: Majority (81.8%, 9) agreed while a few (9.1%, 1) were not sure. OPAC: Majority (90.9%, 10) agreed while a few (9.1%, 1) were not sure. Acquisition: Majority (54.5%, 6) agreed, most (36.4%, 4) disagreed and a few (9.1%, 1) were not sure. Instructional classes: Few (18.0%, 2) agreed, majority (64.0%, 7) disagreed and few (18.0%, 2) were not sure.

Majority of informants and library users support use of ICT in library services because of its impact on the tasks. The informants who said that they support also revealed that;

“they assist users at the OPAC in searching skills, internet searches and on the circulation des, that it should go a long side with staff training and motivation. They added that the older librarians appreciate use of ICT but they do not use, that in one incident a password for one officer was changed but the officer never realized”

This results points out that informants support use of ICT in library functions and would like to see the systems working in every section of the library.

4.2.9 ICT Skills

Table 4.6: ICT Skills

Response	Frequency	Percentage
Excellent	1	9.1
Very good	7	63.6
Good	1	9.1
Fair	-	-
No skills	2	18.2

Results from respondents on ICT skills indicate that majority (70.1%, 61), of respondent's had very good skills in accessing e-resources and the OPAC; most (30.0%, 26) lacked the necessary skills in information retrieval and access to e- resources. Further, analyses regarding whether e-Journals were useful information resource in the library, majority (86.2%, 75) pointed out that e-Journals are useful and few (11.4%, 10) said they are not useful.

Results from informants on ICT training and skills are presented in Table 4.6. Majority (63.6%, 7) indicated that they had very good ICT skills; one informant had excellent skills (9.1%, 1) and few (18.2%, 2) no ICT skills. Adequately qualified staff is an essential requirement for the smooth functioning of any library.

Managing the e-resources without adequate skilled manpower is a challenging task for librarians. Training of the staff is an ongoing process in every organization. If library staff are not well versed with the available e-resources, they may not be in a position to assist the users in using the resources properly. Training of library staff is necessary and cannot be ignored. A well planned user education programme is important to achieve maximum utilization of the library collection regardless of its format. Library users should be aware of the existence of e-resources in the library. The results imply that majority of the informants and respondents have ICT skills to enable them utilize e-resources, but there is need to train those who do not have the skills.

4.2.10 Beneficial Effects of Diffusing ICT

The third objective of this study was to find out the benefits of ICT use in provision of information services at the two case study organizational libraries.

Table 4.7: Benefits of ICT Utilization Responses N=11

Benefits ICT	Responses	Percent
Easy communication	10	91.0
Enhanced processing of information	7	64.0
Easy circulation services	9	82.0
Faster access and information retrieval	8	73.0
Accurate record keeping and updating	11	100
Information Sharing	8	73.0
Faster & efficient services	9	82.0
Registration & clearance of students	3	27.3

The questionnaires administered to library users yielded more information on the beneficial effects of diffusing ICT in library operations. Most (31.0%, 27) of the respondents revealed that it leads to up to date information. Few (19.5%, 17) said it is a helpful tool in giving user satisfaction while accessing information. Some (18.4%, 16) further revealed that ICT leads to better and quick access to current information. Few (16.1%, 14) indicated that ICT enhances easy circulation. The study tried to find out from respondents the possible effects of diffusing ICT in library operations in the provision of information to users. The purpose was to find out if the benefits could be a determinant to effective utilization of ICT in information provision to library users.

Response from the informants indicates that ICT has numerous benefits. Majority (91.0%, 10) said that ICT leads to easy communication and accurate record keeping; a large number (100%, 11) revealed that ICT give accurate record keeping and updating;

more (82.0%, 9) said it leads to easy circulation services and efficient services. Besides less staff are required; bigger storage requiring less space; Current information; staff will be free from routine tasks giving them enough time for more demanding jobs; user satisfaction (if properly trained); promotes sharing of resources; fast access to information; improved research output online; a cleaner working environment (paperless); motivates library staff; interlinking, resource sharing and Self-service of library users.

The result indicates that diffusing ICT in library services is quite beneficial because it facilitates effective and efficient services to library users.

4.2.11 Challenges in ICT Utilization

The fourth objective was to establish the challenges encountered in the utilization of ICT at the two case study organizational libraries.

Table 4.8: Challenges Experienced in Providing Information to Library Users N=11

Problems Experienced in ICT Usage	Response	Percent
Poor wide area network	4	36.4
Limited computers	11	100
Frequent power outages	8	73.0
Lack of I/R skills among the users	7	64.0
Negative attitude by staff and users towards use of ICT	6	54.5
High rate of theft and Mutilation of books	2	18.2
Limited financial resources	9	82.0
Shortage of ICT skills	2	18.2

The fourth objective is to establish the challenges encountered in utilization of ICT in the two case study organizations. Majority (70.1%, 61) of the respondents said they were adequately skilled in use of ICT to access information. The respondents cited reasons why they encounter problems in using ICT resources. Most (31.0%, 27) of the respondents indicated that library staff tried so much but resources were generally lacking; Few (20.6%, 8) of the respondents indicate that most library staff lacked marketing skills and public relation skills; few (16.0%, 14) lacked the spirit of dedication and some practiced tribalism in dealing with the users; few (10.3%, 9) further revealed that library staff are not efficient in information management; few (19.5%, 17) respondents revealed that the library lacks current books; some (18.3%, 16) respondents said there are few computer terminals; few (17.2%, 15) respondents said that some sections are unavailable over weekends and most of the good books are missing on the shelves and (13.7%,12) said internet failure was a problem as well as low band width.

Approaches used in solving ICT usage related problems, indicate that lack of access to computers was one of the main problems owing to scarcity, hence turned to books, some (28.7%, 25) of the respondents indicated that when not able to access the computers because of scarcity they turn to books; few (21.8%, 19) library users in need of support turned to library staff for help; others (16.0%, 14) simply give up on encountering ICT related problems ; few (12.6%, 11) go to the internet café off campus. Majority (90.8%, 79) who are the majority respondents indicated that they were never satisfied with the solutions provided; while few (9.1%, 8) were satisfied; library user's relationship with staff contributed to solution. Majority (57.4%, 50), of the respondents indicated that they

had good relationship with library staff, while most (41.3%, 36) revealed that their relationship with library staff is bad.

The results on problems experienced in provision of information to library users are shown in Table 4.8. Majority (100%, 11) of the informants indicated that computers are very few; majority (73.0%, 8) said there was frequent power outages; majority (64.0%, 7) of the informants lacked the necessary skills in information retrieval; the informants also indicated that some library staff lacked the necessary skills, the high rate of theft and mutilation of books and shortage of ICT skills (18.2%, 2); most (36.4%, 14) of the respondents revealed that poor area network was a hindrance to information access; Majority (54.5%, 6) revealed that some staff and users had a negative attitude towards use of ICT. One informant on (8//5/2009) stated that;

“some senior staff have computers but they never switch them on for a whole week”

Meaning the issue of ICT skills to some level is low as well as customer care techniques ought to be addressed at the university library.

4.2.12 Measures for Improvement

The fifth objective was to suggest ways of improving the utilization of ICT to users at the two case study organizations. The informants and respondents were asked to make suggestions on ways of improving Utilization of ICT in the library. Analyses of the suggestions revealed that majority of the respondents agreed that there was need to improve certain areas in order to have efficient and effective service delivery. This suggestions included; the need to increase networked computer terminals, design the

building to reflect use of ICT, need to develop proper ICT policies, need to incorporate ICT in the university curriculum, that in order to improve skills development among the users and staff, computer skills to library users should be improved.

The informants suggested that there was need for closer working relationship between ICT directorate and the university library. Librarians should use ICT in marketing of library services. It was also suggested that librarians should have proper knowledge of vendors and have a positive attitude. Suggestions on proper record keeping is necessary for uploading the university history. One informant on (6/5/2009) stated that,

“that the history of the university could be put on the internet, but right now we depend on people’s memories which might be distorted or might not be right”.

ICT could be used to store a lot of information such as recordkeeping for the university, Policies could be put online. One informant on (6/5/2009) stated that:

“Policies are made but forgotten so easily because the documents cannot be found, most policies just get dust on the shelves and are completely forgotten by those who need to implement them”

There was need for library automation in order to carry out proper networking, resource sharing and access to current information. They voiced their opinions that;

“that people should stop complaining about ICT and change their attitude”

CASE STUDY TWO - USIU-A RESOURCE CENTRE

4.3 USIU-A Resource Centre General Information

The general information is organized in the following areas: response rate, and respondent categories.

4.3.1 Response Rate

The response rate is the total number of respondents who took part in the study and its percentage. This study had a sample size of 80 respondents from USIU-A resource center. The response rate from USIU-A resource center reveals that majority (92.5%, 74) of the respondents participated in the study.

4.3.2 Respondent Categories

Table 4.9 covers the categories of respondents and informants who participated in the study.

Table 4.9: Category of Respondent

Category	Respondents and informants	Number
1	Top management	1
2	ICT director	1
3	Library managers	1
4	Library section heads	4
5	Library users	80
	Total	87

4.3.3 Extent of ICT Utilization

The first objective of this study was to examine the extent to which ICT has been utilized in the provision of information services.

Table 4:10: ICT in University Library

Response	Frequency	Percent
No	-	-
Yes	7	100
Total	7	100%

The questionnaire administered to the respondents shed light on the extent of utilization of ICT in the provision of services. Majority (93.2%, 69) said utilization of ICT in provision of information services to users is very good while few (6.8%, 5) indicated that it is good.

Results from informants on of ICT utilization in the provision of services at USIU-A resource center, the majority (100%, 7) indicated that it was very good. The question sought to establish if the respondents fully understood the level of ICT usage in the university library. All the respondents noted that ICT usage was very good. All the informants agreed and confirmed that the university management had done excellent work in terms of ICT utilization in the library; it was evidenced on ground as enumerated below:

- Good number of OPACs in the library which are web based;
- Multimedia Center for research;
- Good bandwidth of 100MB in the library;
- ICT is being used in teaching, notes, assignments, handouts, group work presentations
- Web content teaching (WEBCT)
- Lectures are encouraged to use power point
- Electronic resources
- Instructional skills are given using ICT.

Questions on the current status and use of ICT in the university library to the informants aimed at establishing if the university management had given priority to ICT use. Results

from the informants indicate that utilization of ICT in the provision of services in USIU-A resource center is very good /excellent.

The informants were asked if their functions dealt with policies. The question was designed to help the researcher gain an insight into activities the respondents were involved in, which related to the utilization of ICT in the provision of information services to library users, as well as their comments on the utilization of ICT in information provision to library users. The informant's main functions primarily dealt with policy making so as to facilitate the effective provision of information services to library users through utilization of ICT. All the respondents indicated that they dealt with policy issues. Meaning they could help enhance ICT usage in the institution. These results imply that the level of ICT usage in the USIU-A resource center library has adequately been addressed in the provision of information to library users.

4.3.4 Factors Influencing ICT Adoption and Utilization

The Second objective of this study was to determine institutional factors that influence the adoption and utilization of ICT in the provision of information services. Effective adoption and utilization of ICT at USIU-A resource center may be exaggerated, either absolutely or undesirably by several factors. The major factors are: implementation of major ICT investments, resource allocation, ICT Policy, organizational support for ICT, staff support for ICT, staff and user ICT skills and ICT infrastructure.

4.3.5 Resource Allocation

The results from informants at USIU-A resource center are presented in Table 4.11.

Table 4.11: Resources

Resources	Frequency	Percentage
The library has generous budget allocation	7	100
The University library has good infrastructure	7	100
Good hardware and software	6	86.0
Trained staff	7	100
Manuals and guides are available	6	86.0
Total	33	100%

The majority (100%, 7) indicated that the library has a generous budget allocation, trained staff and good infrastructure; majority (86.0%, 6) said there is good hardware and software, manuals and guides in the library. Adoption and Utilization of ICT is quite an expensive affair, and without the commitment of the university management, especially with regard to provision of adequate resources, it's certainly impossible. Questions were raised concerning the level of resources, this including staff, funds and physical resources committed to ICT related activities, especially in the provision of information services. Responses were analyzed from the informants as below: Most informants noted that they had excellent resources for the provision of information services to library users. One informant on (24/6/2009) stated that;

“the recommended number for sub Saharan Africa for computers is 1-10 ratio, yet USIU-A resource center has a ratio of 1-2, he added that computers will never be enough as such students have been encouraged to buy their own laptops”

The informants revealed that computer maintenance is done on contract by the UBS warranty center. They noted that USIU-A resource center has budget for purchases and that they longer purchase clones but branded computers. Meaning the university management value ICT resources and the associated benefits in provision of information to library users.

4.3.6 Formulation of ICT Policy

The informants revealed that the university did not have an approved ICT policy, it was still in draft form. This results imply that lack an ICT policy has a negative impact on the overall ICT use in the Institution. But the informants were quick to point out that ICT has been given due priority by the university management on its agenda.

4.3.7 Organizational Support

The results on organizational support to ICT is presented in Table 4.12.

Table 4.12: Support for ICT

Adequacy in support in ICT	Frequency	Percentage
Inadequate support	-	-
Funding	7	100
Staff training	7	100
Infrastructure	7	100
adequate facilities	6	86.0

The issue on organizational support to ICT matters revealed the following: Majority (100%, 74) of the respondents said that the university management had given full support to the library in terms of funding and resources allocation. The informants revealed the following in regard to the issue of ICT support: Majority (100%, 7) indicated that the university management had given funding towards ICT development in the library, majority of library staff are trained and the infrastructure is available. Majority (86.0%, 6) indicated that the institution had provided adequate facilities to the resource center.

Funding and resource allocation is quite paramount in ICT utilization in library services and its provision. The aim of asking a question on institutional support was to determine how support impacted on ICT utilization in the resource center. The perceptions received from the informants are presented and this can be observed in the well-equipped and modern university resource center: good infrastructure, multimedia center for research, Wireless technology, Latest pc's servers, good bandwidth 100 MB, good support from university IT department, good budget for maintenance for hardware and software in library upgrading of software technology, Staff training, good library management system in the library, OPAC which is web based, the informants revealed that the resource center has barcode equipment's through the management's green light. The informants pointed out that university management was networking with USAID MICROSOFT and KENET is soon moving to the university resource center. All this will positively impact on research, teaching and learning, networks for library users as well as the university community as a whole.

This finding reveal that USIU-A university management has taken the initiative of addressing the ICT issues in the resource center and to give full support. At the same time it can be noted that the university management has seen the bright future in utilization of ICT and not the expenses. These further imply that the resource center is one of the priority areas on the agenda of the university management.

4.3.8 Staff Support of ICT

SD=strongly disagree (1), D=Disagree (2), NS=not sure (3), A=agree (4), SA=strongly agree (5).

Table 4.13: Support for ICT – USIU-A Resource Center

Indicate your level of agreement/disagreement on	D	N/S	A
Utilization of ICT			
Circulation	0	0	7(100)
Cataloguing and Classification	0	0	7(100)
Reference work	0	0	7(100)
OPAC	0	0	7(100)
Acquisition	0	1(14.0)	6(86.0%)
Instructional classes	0	0	7(100)

Results from informant's on staff support for ICT use are provided as follows: Majority (100% 7) of the informants agreed that ICT has been and is being utilized at the circulation, reference work, OPAC, instructional classes, cataloguing and classification. Majority (86.0%, 6) indicated that ICT being used in acquisition and few (14.0%, 1) were not sure.

The informants pointed out that staff supported the use of ICT as they had no option because most of the library functions were networked. Wimmer (2010) says that employees have a role to play in ICT use and without the collaboration of the government, legislation, top management support and staff the whole process can be futile. Results indicate that most matters of ICT use have been taken into consideration at USIU-A resource center.

4.3.9 Rating of ICT Skills

The results on the rating of ICT skill are presented in Table 4.14.

Table 4.14: Level of ICT Skills

Response	Frequency	Percentage
Excellent	1	14.0
Very good	6	86.0
Good	-	-
Fair	-	-
No skills	-	-
Total	7	100%

Results from the respondents are presented as follows: Majority (93.2%, 69) are adequately skilled. Few (7.0%, 5) were not skilled. Majority (100%, 74) indicated that journals are useful information sources and that the library gives instructional skills which are well organized. Training of users in instructional skills assist in access and utilization of electronic resources and its adoption. Results from respondents on use of ICT in user education were quite impressive.

Results on ICT skills for the informants are presented in Table 4.14 above. MA large number (86.0%, 6) had very good ICT skills and few (14.0%, 1) had excellent skills. Results from the informants and respondents indicate that they had ICT training. The results indicate that the institution had taken the issue of training of library users and staff in ICT use seriously as one of its top priorities.

4.3.10 Beneficial Effects of Diffusing ICT

The third objective of this study was to find out the benefits of ICT use in provision of information services at the two case study organizational libraries.

Table 4.15: Benefits of ICT Utilization Responses N=7

Benefits of ICT	Responses	Percent
Easy communication	7	100
Enhanced processing of information	7	100
Easy circulation services	6	86.0
Faster access and information retrieval	7	100
Accurate record keeping and updating	7	100
information Sharing	7	100
Faster & efficient services	7	100
Registration & clearance of students	7	100

The beneficial effects of diffusing ICT in library operations could led to greater benefits for the university as shown in Table 4.15. Response from the informants indicates that ICT has numerous benefits. Majority (100%, 7) states that it leads to enhanced processing of information, easy communication, faster access and information retrieval, accurate record keeping and updating, information sharing, faster & efficient services and in

registration and clearance of students. Majority (86.0%, 6) of the informants said it helps in fast and easy circulation services.

Besides the above the informants pointed out that ICT has more benefits as follows: adequate terminals reducing the waiting time, servers that are very fast, good speed leading to high response, multimedia center with 24 computers leading to access to online databases as such research activities are not disrupted, connectivity enables you to search in many databases internationally as such a user is able to do a lot of comparison of information from different sources leading to quality research, help desk online services, self-service in self-check out and renewal of items saving time of the users.

One informant on (19/6/2009) pointed out that;

“ICT can lead to added benefits such as innovativeness and creativity, Flexibility using Z39.50 in linking with others”

Faster and effective services (reduction of queuing), reduced work load for library staff, reduced theft of books, helps in the collection of information from the OPAC which gives statistics, good for planning and purchases of more resources and use of the world wide web databases to access a variety of electronic resources. connectivity in the class (online classes), camera system on computer to check for books therefore reducing user's movement in the library, electronic books (Reading online videos), virtual library and depository of thesis and dissertations online, quality services for library users, checking in and out without involving staff, users are empowered (self-confidence), staff will have more time to organize user education / instructional classes, staff will be able to do a lot of research leading to improved services, FRID system –security to library materials,

many access points with wireless technology (in places such as student centers, cafeteria, and library among others, academics will be able to do their research in a shorter time. These responses indicate that if ICT is fully introduced in all aspects of the library then the future of information service provision is quite bright and as such access to current information will be a matter of seconds. The result indicates that diffusing ICT in library services is quite beneficial in facilitating effective and efficient services to library users.

4.3.11 Challenges in ICT Utilization

The fourth objective was to establish the challenges encountered in the utilization of ICT at the two case study organizational libraries.

Table 4.16: Challenges Experienced in Providing Information to Library Users. N=7

Challenges experienced in ICT Usage	Response	Percentage
Poor wide area network	2	28.6
Limited computers	2	28.6
Frequent power outages	4	57.1
Lack of I/R skills among the users	2	28.6
Negative attitude by staff and users towards use of ICT	1	14.2
High rate of theft and Mutilation of books	0	0
Limited financial resources	0	0
Shortage of ICT skills	0	0

Results from the respondents indicate that they experience several challenges in using and accessing information resources from the library. Okiy (2005) points out poor and inadequate telecommunication facilities; poor level of computer literacy, even within the academic community; poor level of computer facilities; poor level of awareness of Internet facilities among policy makers, government officials and minimum involvement

of academic institutions in network building in Africa as challenges militating against the utilization of ICT.

Low level of ICT skills; lack of functional ICT policy; economic barriers (funds); ICT infrastructure; resistance to change; low capacity of communication facility; absence of digital or electronic libraries except in South Africa; lack of policy for manpower development etc. are common barriers mentioned as factors undermining the utilization of ICT.

Frequent power outages, lack of ICT skills, poor wide area network and bad relationship with library staff. The respondent in order to solve the challenges; A large number (81.0%, 60) consulted library staff, while few (7.0%, 5) turned to their colleagues for consultation. Majority (93.2%, 69) of the respondents indicated that they are happy with the assistance and solutions provided, while few (7.0%, 5) were not satisfied. Library user's relationship with library staff contributed to solutions to the challenges. Majority (97.2%, 72) of the respondents indicated that they had good relationship with the library staff, while few (2.7%, 2) revealed that their relationship with the library staff was not that good.

Challenges experienced by informants in providing information to library users are shown in Table 4.16 above. A large number (57.1%, 4) of the informants indicated that there was frequent power outages, Few (28.6%, 2) indicates that some users lacked the necessary skills in information retrieval, limited computers and poor wide area network. One (14.2%, 1) said that there was negative attitude by staff and users towards use of ICT use.

The informants said that despite the challenges of frequent power outages they were quite optimistic that the future was bright because of the coming of the fiber optics. One informant's opinion was that;

“some users ignorance of the use of ICT is a problem and especially the teaching staff have techno-phobia and that getting users to train is not easy as the library is not able to reach a bigger population ”

This results imply that even though there are some challenges the university management was trying hard to address the issues. Also some problems cannot be completely erased, such as limited computers because of the ever changing technologies and innovations.

4.3.12 Measures for Improvement

The fifth objective was to suggest ways of improving the utilization of ICT to users at the two case study organizations. Suggestions were made by informants and respondents on ways of improving utilization of ICT in provision of library services are views from both respondents and informants. The researcher aimed at obtaining the respondents and informant's opinions on the best ways of improving ICT utilization in library services. The following views were pointed out; that staff should be trained and re- trained, staff should work in all sections of the library and not just focus on one model, University management should not focus on the cost of the software and hardware but on the benefits of the technology in the long run, in order to help achieve the effectiveness of services and visibility of the university in global and national web ranking, instructional classes should be incorporated in university curriculum for proper training as this is

critical for learning, teaching and research, and library staff should train students on how to carry out research.

Lastly they indicated that there is a lot of space for improving library services.

4.4 Chapter Summary

This chapter presented a summary of data presentation, analysis and interpretation for Margaret Thatcher library (MTL) and USIU-A resource center, libraries. Data collected related to factors deemed crucial to understanding the subject under study, including; response rate, respondent categories, extent of ICT utilization, institutional factors influencing ICT adoption and utilization, beneficial effects of diffusing ICT, challenges and measures for improvement.

The study established that both MTL and USIU-A resource center, libraries had utilized ICT in library functions. However, analysis has revealed that there are gaps that require to be addressed, so as to enhance service delivery and ICT utilization in both libraries. This can be seen in lack of ICT policy and training levels. Measures for improvement are presented as suggested by the respondents and informants, if implemented in totality this can assist in enhancing ICT utilization for efficiency and effectiveness in university libraries.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

Chapter four presented, analyzed and interpreted data collected from the respondents at the two case study institutions (MTL and USIU-A resource center). Quite a number of fundamental issues were raised pertaining to the utilization of ICT in the provision of information services to library users. The analysis revealed certain similarities and differences between the two case studies and this is the subject of discussion in this chapter.

5.2 Extent of ICT Utilization

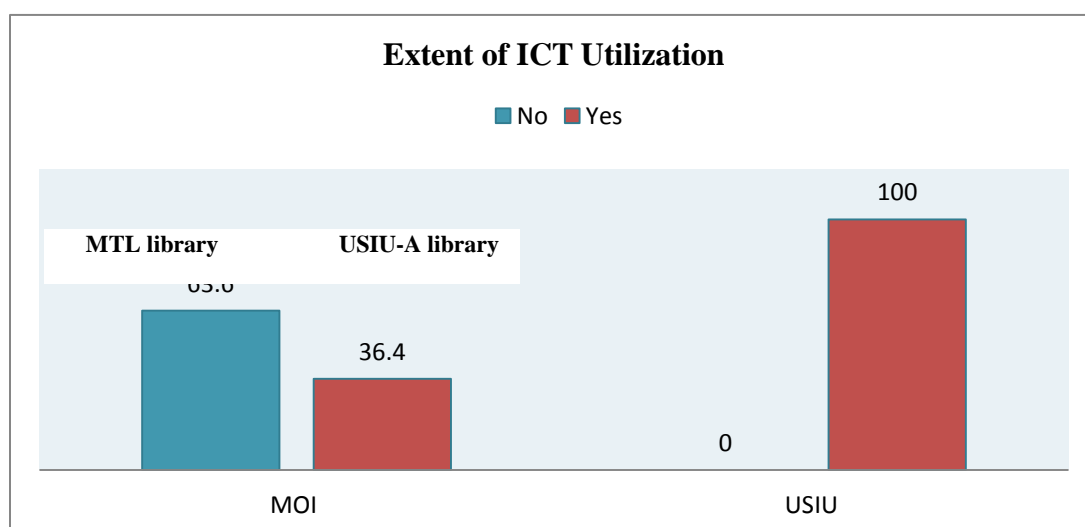


Figure 5.1: ICT Utilization

Comparative findings on the extent of ICT in provision of information in MTL and USIU-A resource center, are presented in Figure 1. Studies have been carried out on ICT in academic libraries in Kenya by scholars like (Odongo (2011), Makori (2009), Namunya (2014), Kurgat (2016) Obiro (2016) and many others. According to the

findings the results indicate that ICT has been utilized in MTL as well as in USIU-A resource center. ICT utilization in academic library improves the value of the library through effective services, information access and retrieval by the users. In MTL ICT utilization in library services was (36.4%, 4), as compared to (100%, 7) in USIU-A resource center. These findings corroborates with the findings of Nwezeh (2010) in a study on the use of ICT in Nigerian universities which found that, 78% of staff and 85% of students at Obafemi Awolowo University use the internet in their work. The informants felt that the extent at which ICT had been applied in MTL was poor, this could be as a result of lack of ICT policy, poor funding from the government or over dependence on donors and lack of proper budget allocation to the library by the university budget committee. Utilization of ICT in provision of library services has impacted Africa, especially the southern and eastern parts, they have tried to provide ICT-based information services to users. Writing from Botswana, Mutula (2004) speaks on the need to make academic libraries ICT-based and on skill development of the academic librarians to effectively utilize the ICT. In Ghana, the DANIDA project has made document delivery/resource sharing easy and practicable.

Odongo, (2011) on assessment of ICT adoption in Kenya academic libraries posits that effective use of ICT in university of Nairobi library is being hampered by a number of factors. In this study, respondents indicated that the cost of computer hardware, poor communication networks and negative attitude by the librarians are the major barriers in utilization of ICT.

Library users views on the extent of ICT utilization in the provision of information indicates (40.2%, 35) in MTL as compared to (93.2%, 69) in USIU –A resource center. The results indicates that at MTL the issue of ICT had not been properly addressed in comparison to USIU-A resource center, where ICT had adequately been addressed. These results are in line with research carried out by Kavulya (2004), points out that allocation of institutional funds in public universities for library purposes is declining. He further notes that failure by administration to release funds as per the university budget has made it impossible for libraries to plan library its activities. Whereas in USIU -A resource center all informants were positive towards ICT use as very good. This might have been attributed to the generous budget and regular purchases of computers by the university management. He further supports these in his study by confirming that private university libraries enjoy a relatively better institutional support. He further argues that there is fairer distribution of institutional funds for library purposes with the purchase of reading materials accounting for more than 40% annually and funds being allocated for more library purposes including equipment and furniture, maintenance as well as computerization.

The study also established that utilization of ICT in any given institution went hand in hand with training and in this regard, it was deemed that inclusion of user education in university curriculum is extremely important, of which neither MTL nor USIU-A resource center had in-cooperated. Instructional skills were not being taught to library users 59(67.8%, 59) in MTL, as compared to (100%, 74) in USIU-A resource center. Results indicated that (32.1%, 28) users in MTL were taught occasional instructional skills through orientation programme to freshmen for one day.

Adeleke & Olorunsola (2010) and Odero-Musakali & Mutula (2007) emphasize that libraries must take a more proactive response to ICT to function effectively in the present age, the manual processes or methods will have to give way to information and communication technologies (ICT) and a computer driven environment. Through teaching of user education should help to make students more independent in the library and hopefully, lead to an improvement of their work. Changes in teaching methods, increased use of project work and tutorials, have resulted in students heeding to be more conversant with the use of their library, interdisciplinary courses also involve the student in greater and more varied amount of library research. Reitz (2004) opines that the concept user education includes skills required to critically evaluate information content and employ it effectively, as well as an understanding of the technological infrastructure on which information transmission is based, including its social, political and cultural context and impact.

This study finding show that in USIU-A resource center, user education was taught by user librarian and is well organized using ICT. Students are given detailed instructions on how to prepare search strategies, bibliographies, term paper write ups and how to make citations. From the presentations of the study it was also revealed that the library had manuals of which they could refer to for any assistance. The study findings are in-line with other scholars. Kavulya (2004), opines that the most recent development in information literacy in Kenyan universities is communication skills course for all undergraduate students. He argues that library skills component of the communication skills course is to ensure that the user can exploit library resources adequately, by establishing a link between the subject taught and the literature available, yet libraries are

not involved in either the design or the delivery of the course. These means that those involved in teaching the skills have no background as such leading to theoretical work which is easily forgotten and no skill is imparted to the users.

These findings revealed that electronic resources are an important resource in the library and its use is quite high and encouraging. Use of electronic resources and retrieval of information from online access catalogues by users (70.1%, 61) in MTL, as compared to (93.2%, 69) in USIU-A resource center. It was also revealed that electronic resources were considered an important and useful information resource in MTL as well as in USIU-A resource center. Further prop on the usefulness of electronic resources, users indicated that (86.2%, 75) in MTL felt that they were useful, as compared to (100%, 74) in USIU-A resource center. These results are in line with views of several authors. Shuling (2007), points out that electronic information has gradually become a major resource in every University library. The emergence of electronic information resources, simply referred to as electronic resources, has tremendously transformed information handling and management in academic environments and in university libraries in particular. Ellis, et.al (2005), notes that through the use of electronic resources, researchers and students; now have access to global information resources, particularly the Internet for their scholarly intercourse. Afolabi (2007), observes that the death of current and up-to-date information for research in university libraries is attributed to poor levels of developing electronic information resources. Libraries need to be vanguards for technology transfer from the developed world to the developing economies of Africa; to meet these expectations African university libraries must provide a link between local

researchers, scholars and their counter parts in other parts of the world. Utilization of online information resources is the way of achieving this objective.

Marketing of electronic resources is key for publicity, awareness and information to the university community. These results are in agreement with the study carried out by Kavulya (2004), opines that many scholars and libraries are not aware of the extent of journal publishing in their regions. Majority of students in under graduate and post graduate programmes are not aware of the available the journals in their university libraries neither do they utilize them in their term papers.

Access to electronic information resources is based on information literacy skills and competencies. Students sometimes lack technical, research skills and professional expertise that are necessary to access and use electronic resources. Results from data analysis in MTL revealed that ICT could be utilized in more areas like networking of all campuses, marketing, and reference desk, pro-cite, indexing, examination papers on line, and through SMS online as compared to USIU-A resource center where they indicated that ICT could be used in areas such as; instructional classes, server for Auto-visual material, digital textbooks in a computer for students to access, drop boxes- returning of library items to the library, scanners to track the misplaced library items (Technology) and in inventory or stocktaking. It was observed in MTL as well as USIU-A resource center that ICT could be used in institutional depositories, one stop library portal for resource sharing and access to all information materials.

Ghuloum and Ahmed (2011) postulates that ICT as used in academic libraries attempts to deliver numerous applications such as wide-area network applications, local area networks, online information services (the Internet), online databases, library databases, CD-ROMs, online access catalogues, retrieval networks, digital online archives, mainframe computers, microcomputer labs, and other digital content services.

5.3 Resources Allocation

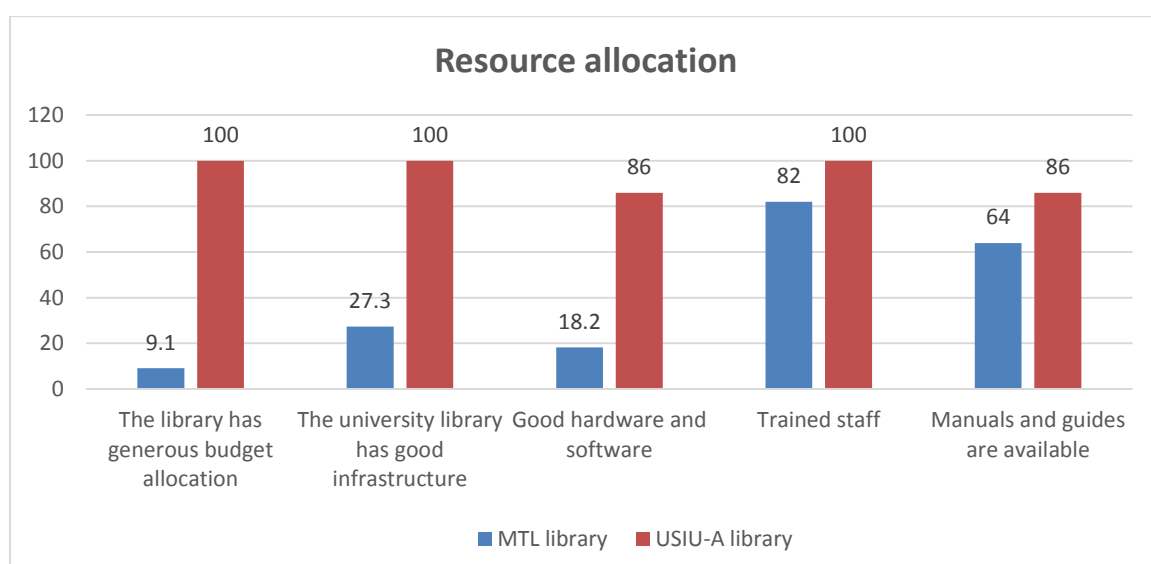


Figure 5.2: Resource Allocation

Comparison findings on resources allocation are shown above in figure 2. The results reveal a wide gap between MTL and USIU-A resource center. Good hardware and software (86.0 %, 6) in USIU-A resource center as compared to (18.2%, 2) in MTL; good infrastructure (100%,7) in USIU-A resource center, as compared to (27.3 %, 3) in MTL; library had a generous budget allocation (100%, 7) in USIU-A resource center, in comparison to (9.1 %, 1) in MTL; trained staff (100%,7) in USIU-A resource center, as

compared to (82.0%, 9) in MTL, availability of manuals is (86.0%, 6) in USIU-A resource center, as compared to (64.0%, 7) in MTL. University libraries have come under increased economic pressure that has compromised the efficiency of their services. These results are in-line with the results of many scholars such as Odini (1999), who points out that libraries are characterized by outdated collections and subscriptions and new acquisitions are very minimal, while Mutula (2001), observes that fiscal resources have also constrained the automation efforts by most of these libraries.

University libraries in developing countries have had to seek for donor support from developed nations in order to initiate and sustain their IT projects. Mutula (2001), argues that only a handful of institutions have received considerably donor support, “most of the public libraries in Kenya still largely use conventional methods of acquiring, storing, managing and retrieving information.

Kavulya (2004), points out that allocation of institutional funds in public Universities for library purposes is declining. He further says that failure by administration to release funds as per the University budget has made it impossible for libraries to plan library activities. Kavulya (2004), supports these in his study by confirming that private university libraries enjoy a relatively better institutional support. He further argues that there is fairer distribution of institutional funds for library purposes with the purchase of reading materials accounting for more than 40% annually and funds being allocated for more library purposes including equipment and furniture, maintenance as well as computerization. He concludes that Private universities are consistent in institutional

expenditure on libraries to meet requirements of the commission of Higher Education and attract more students.

Mutula, (2004), agrees that libraries in sub Saharan Africa have largely depended on grants from national governments and for most of their recurrent and capital budgets have been hit hard. Coffman (2003), admits that reduced funding for libraries is a global phenomenon, however libraries in sub-Saharan Africa, have been visibly been affected by reduced funding which is most notable that there is no longer purchase of books or payment for Journal subscriptions from their own budgets.. All respondents in the institutions under study regarded information provision services to the library users as being important deserving high priority on the University agenda. ICT resources in MTL were found to be wanting as compared to USIU-A resource center. The informants at MTL felt that the library was always sidelined when it comes the issue of funds allocation, basically because all departments were competing for resource from the same fund. This is in line with results carried out by other authors. Rosenberg (2005), agrees that there is heavy reliance on or quest for external funding when implementing library ICT projects.

That funding for infrastructure and maintenance of equipment's was minimal in MTL budget as compared to USIU-A resource center where they had better budget for infrastructure, hardware and software.

Informants indicated that lack of resources in MTL was escalated by the following factors: Limited funds from the government, high number of students and computer ratio. The overdependence by university management to donors has been a setback towards

ICT utilization and the high cost of ICT resources also acted as a barrier towards any support. Besides this, university management perceived that ICT resources are too expensive. These views from the users are in order considering the sorry state of ICT in public institutions of higher learning and MTL as a case study and eye opener to what might be going on in libraries in the country. Respondents in MTL and USIU-A resource center had different views on the issue of number of computers.

Kashorda (2013) in his study suggests that Universities need to invest in enhanced campus backbone and wireless network infrastructures in order to support the large number of student-owned laptop computers. He says that 30 universities were charging student lab fees that could be used to finance all recurrent ICT expenditures, including ICT staff salaries and Internet bandwidth. However, he says that it was not clear from the data if the lab fees were being used exclusively for ICT recurrent expenditures. He adds that ICT departments need to start charging for ICT services provided to other universities departments in order to generate finances for the university.

5.4 ICT Skills

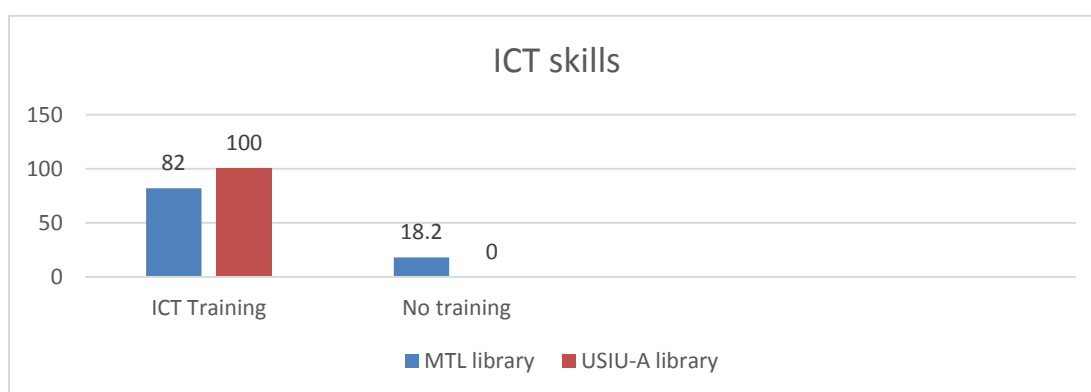


Figure 5.3: Level of ICT Skills

The results indicate that some library users' were not confident and skillful in use of computerized library systems. They show negative attitude towards automation and frustrations in their bid to use the modern library. Arua (2005) stresses on the need to educate library users since automated system is often poorly used when located in a society that is not computer literate. It behooves the librarian to ensure that these users are constantly exposed to use of OPACs, information sources, basic internet search skills, CD-ROM database searching as well as navigating effectively with the various commercial online databases.

The findings in comparison reveal that informants in MTL as well as in USIU-A resource center had attended ICT training. In the two case studies a large number (82.0%, 9) in MTL had ICT training as well as (100%, 7) in USIU-A resource center. This results have a marginal difference in the two case study libraries. Results reveal that few (18.2%, 2) in MTL had no training. Nyamboga (2004), points out that library administrator and executives will need to set up specific training programmes for librarians and staff working in diverse academic library settings. Regular training programmes will help staff to improve their skills for daily operations and services (books, journals and electronics media including web based resources) therefore; staff should possess some indispensable competencies such as: Be alert, innovative and creative; Willing to learn and adapt to environment; Identify specific areas in which technology can advance the institution in fulfilling its academic mission; Enable users to interact with knowledge resources; Sound communication skills and Provide quality services.

The number of trained staff between MTL and USIU-A resource center was above 50% which was quite impressive for ICT adoption and utilization in academic libraries in institutions of higher learning in Kenya. Training and skills in ICT is essential in planning for complete ICT adoption and utilization in information services. Trained Staff have the confidence to support the institution on ICT use in library functions.

Omekwu et al. (2006), notes that many authors agree on the nature of the information environment which calls for new technology skills and competencies on the part of information professionals. Bawden (2005) points out that apart from the traditional skills of information organizations librarians are expected to be firmly grounded in ICT-related competencies such as computing skills, Web design, Internet searching and evaluation of digital information. Information professionals need to possess the requisite knowledge, skills, and competencies to be equal partners in their organizations. Omekwu, et al (2006), opines that Information professionals must be ready to move with the challenges of digital technology, globalized information access, networked resources, a changing economy, new learning and research systems and the demands of the user communities for information that adds value to their work Information professionals in academic libraries in Kenya can master the use of ICT systems and other competencies through motivation, encouragement, and additional training. This can be easily achieved and implemented if Information Science Schools can upgrade their courses. In addition, information professionals can acquire the necessary knowledge, skills, and competencies by attending conferences, seminars, and workshops.

The effective application and adoption of ICT in the organization requires competent staff and willing users, and this involves a substantial process of learning and knowledge sharing. A stable environment for learning and knowledge sharing is essential for cultivating the necessary pool of talent and also to instilling cooperation among users. The fullest user involvement in technology adoption decision is a success. Technology adoption by force may result in individual's non-cooperation and eventually failure to adopt it. There is a dire need to involve all employees in technology adoption decisions by offering all types of rewards. There is also a need to have competent and suitable personnel to work on different projects. The organization should accommodate employees by all means, to make them relax and introduce any new technology gradually by involving them all ways. Mahmood and Khan (2007) observed that in recent years, work for the library and information profession is characterized by fast-paced change and new skills requirements. ICT applications in library operations require professional's motivation of continuing education and acquisition of new skills; training and retraining on the part of the practicing librarians. University librarians themselves need to avail the facilities of the computer training centers to update their ICT knowledge (Adeleke and Olorunsola, 2010).

This results are in-line with many scholars. Onuabunwa (2002), points out that demands of the new information age on library staff are demanding as cited by Omoniwa (2003), who suggested that it will rest largely on staff that possess multiple skills in technology application. Library staff will be expected to provide leadership in computer application, internet capacities and CD-ROM technologies. According to Haliso (2011) points out that training of academic librarians to appreciate skills and fully use information and

communication technologies is very vital. Haliso agrees that training can come in many forms but the most important and cost effective one is training on –the job.

The question on staff support to ICT use library functions brought in a lot of similarities. Majority of staff in MTL as well as in USIU-A resource center agreed that the use ICT in library functions was real and staff supported the idea. ICT use in library functions was (72.2%, 8) in MTL as compared to (100%, 7) in USIU-A resource center. (36.4%, 4) disagreed to use of ICT in acquisition and (64.0%, 7) disagreed on use of ICT in instructional classes.

Reasons attributed to lack of full support in MTL was due to the fact that ICT was operational in some service points such as; circulation, bibliographic, reference services, cataloguing, e-journals, OPACs and multimedia only as compared to USIU-A resource center, where almost all processes are computerized; such as cataloguing, acquisition, reference work, instructional classes, OPACs, multimedia, self-checkout services, biometric and RFID security services. Reason given by informants at USIU-A resource center for high percentage of support was that staff had no option since all library work was computerized. The similarities between MTL and USIU-A resource center was that all staff were positive on the issue of ICT use in library functions.

5.5 Institutional Support

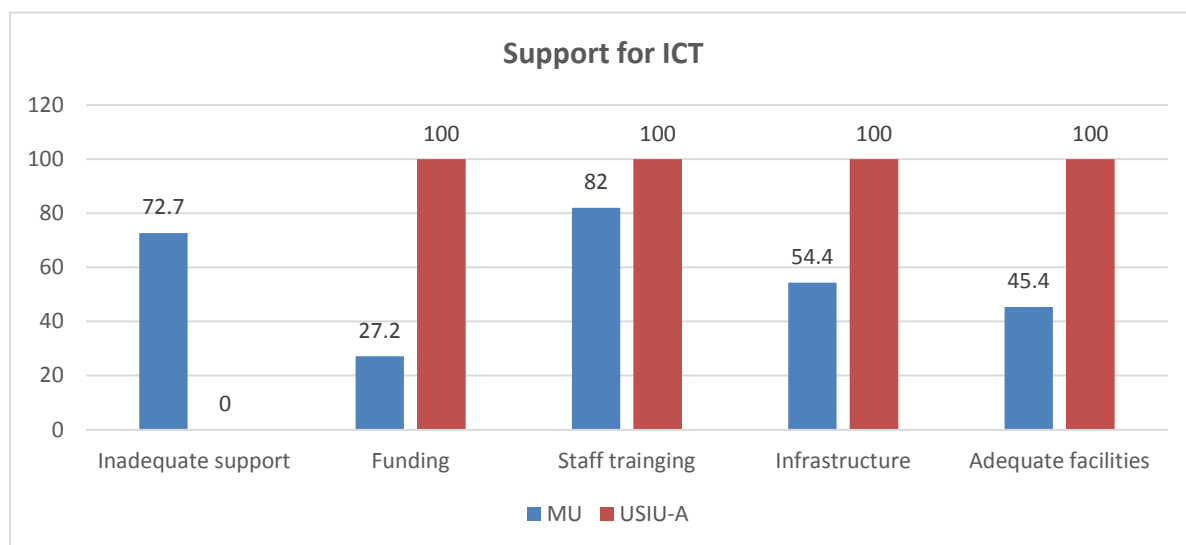


Figure 5.4.: Institutional Support for ICT

Institutional support received by MTL and USIU-A resource center revolved around infrastructure, staff training, working tools and facilities. These findings reveal that USIU-A resource center had done much better than MTL in terms of providing the required infrastructure to support ICT utilization in information services provision to the users. USIU-A resource center had zero inadequate support as compared to (73.0%, 8) in MTL; funding was (100%, 7) in USIU-A resource center as compared to (27.3%, 3) in MTL. This results are in line with a study carried out by Amutabi (2009), who points out that with the dwindling donor support the financial situation it is unlikely that things will improve much. Staff training (100%, 7) in USIU-A resource center as compared to (82.0%, 9) in MU, these results reveal the similarities in staff training levels at the two cases studies; infrastructure was (100%, 7) in USIU as compared to (54.5%. 6) in MTL; adequate facilities was (86.0%, 6) in USIU-A as compared to (45.4%, 5) in MTL. This study is in line with research carried out by Mutula (2004), he points out that the use of ICT in libraries has not made the situation any better and that introduction and use of ICT

facilities in libraries depends on adequate funding for hardware, software purchase and license fees, and maintenance contracts, upgrading of hardware and software systems, telecommunications, and subscriptions costs to e-resources. Unfortunately, most libraries do not have budgets for ICT. He further says that lack of funds for ICT infrastructure is a major reason why in the sub-region.

The study findings revealed that in USIU-A resource center, top management had made it a priority in using ICT and to see to it that the university library was one of the best and modern in East and central Africa. It was also revealed that the university management was closely networking with USAID (United Nations agency for international development) MICROSOFT and KENET.

Library users revealed that the institution had provided support to the library (100%, 74) in USIU-A resource center in comparison to (90.8%, 79) in MTL who said that the university management does not support the library in terms of funding and ICT resources. Few (9.2%, 8) of the respondents in MTL indicated that the university had given some support.

Mayer (2001) in a study conducted for United Nations' project concludes that it is becoming increasingly transparent that human skill shortage and changing skill requirements are the principal initial barriers to the introduction of new technologies like IT, in both the developed and developing countries. The majority of establishments he has surveyed in France, Germany, and U.K have rated 'lack of expertise' as the most important problem when introducing IT into products and processes. Many other studies also reveal that some managers are reluctant to use advance technology because they

often view advanced technology as an expense rather than a strategic investment. They also have the fear that technology adoption can be a never-ending process-one that causes expenses to spiral out of control, so they start resisting its use as they feel that they cannot afford advanced technologies (Estrin et.al. 2003). He further points out that in an organization, owners, managers and employees have multiple responsibilities and perform multiple tasks; they are under tremendous pressure to be productive. So they feel that they don't have time to experiment with new systems or to "wait" for a system to pay for it. Therefore, they avoid adopting new technologies and prefer to work with the old systems.

Evidence in USIU- A resource center show that university management fully supported use of ICT in provision of services, even though the ICT policy was still in draft format. It was noticeable that most responses from USIU - A resource center were positive as compared to MTL. In this regard, it is clear that institutional management's perception towards ICT affected the level and of support towards ICT requirements to the library. Management in USIU-A resource center, was seen to be on the forefront in networking with internationally renowned computer companies like MICROSOFT and also collaborations with USAID and KENET over the same.

Positive perception among staff at USIU-A resource center has resulted from the point of view that everything was computerized and that the library had full support from university management, as well as their working closely with the ICT directorate, as compared to MTL where the informants complained that there was lack of assistance from ICT directorate and limited funds.

5.6 Benefits of ICT Use

Nwalo (2000) specifically notes that library performance statistics is gathered from all sections of work within the library –cataloging, circulation acquisition, bindery, serial consultation and frequency and pattern of clientele visit to the library. This was to find out the effectiveness of the library by meeting the user information needs. In a computer based library system, work is performed better than in the library that is manually operated. An IT based library supplies more and accurate information. Tihamiyu (2000) opines that an automated circulation control system should minimally support the charging discharging of library items. Library automation has some other features. The computer at the circulation desk has the ability to determine:

- Who has what item (on loan);
- When the item is due (date of return);
- Which item a patron has outstanding against him/her (overdue);
- The ability to reserve and recall items (online reservation);
- Produce overdue notice; and
- Compile and summarise circulation statistics.

All these duties can also be done manually but computers can perform them faster and be more error-free (Atinmo *et al.*, 2000).

Okiy (2005) in her paper titled “Strengthening information provision in Nigerian University libraries through information and communication technologies” states that the availability of information and communication technologies would improve library services and at the same time assist students and lecturers in producing quality research

works. Adeogun (2003) states that the availability of Internet facility in academic libraries provide or facilitate on-line access to the world of information to students and faculty members.

5.7 Measures for ICT Use

Library staff should work on rotational basis for there was no guarantee that one would stay in a particular section or place of work for life. Library work is all round, one will work in cataloguing today and tomorrow in reference services. Library administrators should also undergo ICT training, for this will improve the quality of services and library the provisions of information services to users will be timely. library administrators who belong to the old school may not show much interest when the issue of ICT is mentioned but if they undergo training on the use of ICT they will be able to re-skill themselves and great impact shall be seen.

5.8 Chapter Summary

This chapter dealt with discussions of key findings on comparative aspects in MTL and USIU-A resource center. The researcher covered comparisons on of ICT utilization, resources allocation, ICT skills, and institutional support. Benefits of using ICT and measures for improvement have also been covered in this chapter. The comparative aspect has brought out disparities between public university libraries and private university libraries in terms of institutional support from university top management, extent of ICT use in MTL and USIU-A resource center, resource allocation and ICT skills level. The chapter also provides similarities in the two case study institutional libraries.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The chapter summarizes the major research findings, to bring out conclusions resulting from the study. In order to address the key issues of comparison in this study, the research findings from MTL and USIU-A resource center are summarized and compared under appropriate headings and in line with the study objectives of the study. Recommendations have also been proposed based on the research findings and conclusions for utilization of ICT in the provision of information to library users in MTL and USIU -A resource center. This will help in enhancing information provision. Suggestions on areas for further research have also been given.

6.2 Summary of Findings

The findings of this study has revealed substantial implications for those responsible for providing services to library users, library managers and informants who are policy makers. The study findings brought out a number of differences as well as similarities in connection to the areas that were investigated. This section summarizes the results of the study basing on the objectives and question framed to guide the study.

6.2.1 Extent of ICT Utilization

The respondents and informants to the study in MTL and USIU-A resource center revealed that ICT has been utilized to some extent. The use of ICT has largely geared towards improving the efficiency of in-house activities in the operations of library work economically. Findings indicate that of ICT utilization in MTL was minimal in library

services. Majority of the respondents revealed that extent of ICT use in the library was poor. ICT is basically used in some functions of the library, such as, OPACS, circulation services, internet services, CD-ROMs, electronic resources and in cataloguing and classification. The availability of this services had not helped much in infusing ICT for library users. The main causes for the poor state of ICT in MTL was hampered by inadequate ICT resources, poor funding, lack of ICT Policy, poor ICT skills, lack of user education skills, among some respondents and staff.

User education helps in cultivating student's ability to critically evaluate information and at the same time equips users with skill development for self-sufficiency in accessing and exploitation of both print and electronic resources. This skills in most institutions of higher learning are taught by library staff and in some institutions by English language lecturers. Besides this the small number of available computers and the few networked ones could not allow proper ICT utilization in provision of services to library users. Those entrusted with decision making and policy matters had not done much in infusing ICT in library services to the users.

At USIU-A recourse center the respondents and informants revealed that ICT utilization in the provision of services at USIU-A resource center was compulsory. ICT use could be seen being applied in the following areas; OPACs, in teaching, notes, assignments, handouts, group work presentations, web content teaching (WEBCT), electronic resources, instructional skills, Multimedia stations, check in of books and out and FRID security services among others. All informants agreed and confirmed that the university management had done excellent work. This had impacted positively on ICT use in USIU-

A resource center. Informants entrusted with decision making and policy matters had done a lot in permeating ICT in library services to the users. But besides this USIU-A recourse center lacked an ICT policy. The level of internet skills with which students enter higher education might be influencing on of utilization and non-utilization of electronic information resources in libraries. Thachill, (2008) notes that access to electronic information resources is based on information literacy skills and competencies.

Utilization of ICT in Kenyan university libraries could help in improving library staff output, quality of research publication, the quality of journal articles can match the quality of journal articles published in developed countries; the quality of lecture delivery; quality of teaching; quality of graduates in labor market could also improve.

The Mortenson Center for International Library Programs at the University of Illinois, Urbana Champaign indicated that students use the library mainly for study space; few faculty members use the libraries' resources regularly and most seemed unaware of new developments and resources within the library. Library staff are struggling to provide better access to electronic resources while coping with unreliable power, on and off access to the internet, low bandwidth, and inadequate funding. Many view libraries as weak and unable to support research, teaching and learning. The development of effective information delivery system is a key component of university teaching and learning and modern technology greatly enhances such system.

6.2.2 Resource Allocation

Resource allocation is an institutional factor which influences utilization of ICT in the provision of information to users. Resource allocation in institutions of higher learning was carried out by university management and these resources are scarce because every department strives to get the lion's share and in most cases, it is the library which suffers the most.

Budget allocation was pinpointed to be very minimal in MTL as it was always slashed and given to other departments which were considered to be needy. Staff training and resource allocation are key in ICT use for provision of services to library users. It was revealed from the study that library staff are not sent for training in ICT issues; lack of proper software for library was also pointed out however, currently the library had purchased a proper software which was web supported. On the other hand, in USIU-A resource center it was noted that management allocates enough budget for the resource center. Library staff were trained in ICT skills and it was also noted that they had no options but to be ICT literate. USIU resource center was equipped with latest hardware and software equipment's as well as an RFID security system. It was also revealed that students were encouraged to purchase their own laptops since they were available locally at reduced prices. These findings suggest that provision of funding for ICT in utilization of information provision improves services as well as the work environment. It should be noted that training of staff increases their competence and moral to work effectively.

Munge (2006) argues that utilization of ICT in information provision is affected by the nature and level of resources allocated to the libraries, where a higher level of allocation would lead to better provision of services. Siddike (2011) identified lack of support from high authorities as being the major impediment to resource allocation in libraries.

A study by Rosenberg (2005) showed that 85 per cent of the libraries provide less than one computer for every 100 students and 36 per cent provide less than one computer for every 500 students. Despite the poor student's computer ratio, Kamba (2011) added that there is a serious neglect of ICT resources acquired over a period of years, which need upgrading or are out of usage and this increases the complexity of managing ICT resources and inefficiency in provision of services.

The findings from case study one and two revealed some similarity, both institutional libraries had infrastructure that could be used to support utilization of ICT in the provision of services to library users. The available infrastructure at MTL and USIU-A resource center was in the form of technological components and was well utilized in the provision of services. There were noticeable differences, USIU-A resource center had the latest software for library automation which were web based while MTL had not up to date software system, but currently, MTL has acquired a web based system. In both case study institutions the ICT policy was lacking because it was still in draft form and this had negatively affected library services in MTL.

6.2.3 Institutional Support

The study produced useful insights on the role of university top management, that those who support ICT use in their services strongly impacts on the organization. This study

was aware of the fact that without university top management support, utilization of ICT was not possible since they are the decision makers. The study findings show that there was management support in both university libraries. However, institutional support in MTL was inadequate as compared to USIU-A resource center, reasons for inadequacy in MTL being over dependence on government funding, donor factor and focus on the high costs instead of the general benefits accruing to ICT utilization. Budget allocation for library was limited as other areas of the institution are favored against the library. One informant on 6/5/2009 said that there was no harmony between the library and ICT directorate and was quoted as:

“They never advise the library on what to do or rather never share the information with the library”,

Training of staff in MTL might not have been compulsory as some staff did not have hands-on job training in computers. The study revealed that some informants lacked ICT training and skills, whereas in USIU-A resource center, the university management had made the issue of ICT training compulsory. They had also given full support to ICT use in information services, as revealed by the respondents and informants that there was budget allocation, good infrastructure, hardware and software. Library informants revealed that university management was always on the forefront negotiating for networking with internationally renowned computer companies for improvement and keeping abreast with the latest technology in the market. It was noticeable that the ICT policy was still in draft form in MTL as well as in USIU-A resource center. Lack of an ICT policy had impacted negatively on ICT utilization in MTL than in USIU-A resource

Center. This can be concluded that policies are paramount in decision making in institutions of higher learning in the country.

Top management and in particular the CEO is the dominant influencing factor affecting organizational support, readiness for ICT utilization, and Top Management Support to an ICT implementation and utilization in libraries. This requires university top management to be the key drivers of ICT utilization in their university libraries, if they want to increase the chance for successful adoption and utilization in library services. This will ensure adequate availability of resources that will enable the library to make ICT available to library users to access. The study calls for the top management to have a higher level of commitment to any ICT implementation.

6.2.4 ICT Skills

This results show that majority of the respondents and informants at the two case study institutions had good ICT skills except for a few. Academic libraries in institutions of higher learning in Kenya need to look at the quality of library staff in order to maximally utilize the available ICT in provision of services to library users. Training in ICT is essential in planning for complete ICT adoption and utilization in the provision for information services in any given institution. Trained Staff will by all means support utilization of ICT in library functions. The effective application and adoption of ICT in the library requires competent staff and willing users, and this involves a substantial process of learning and knowledge sharing. A stable environment for learning and knowledge sharing is essential for cultivating the necessary pool of talent and also for

instilling cooperation among users, once the user is involved in technology adoption decision then it is a success.

Omekwu, et al. (2006) notes that many authors agree on the nature of the information environment which calls for new technology skills and competencies on the part of information professionals. Mayer (2001) identified that among all employees, comparably younger workers are more strongly influenced by attitude towards using the technology and open to the new technology. In contrast, older worker are more strongly influenced by objectivity and perceived behavioral control. He argues that this issue is very important and the organizations must consider it seriously. Students with good information literacy skills are able to carry out research independently, complete assignments using scholarly information from electronic resources such as e- books and e-journals and complete their studies on time.

Responses from informants expressed diverse skill requirements. Majority of the informants had good information literacy skills except for a few who had low or rather no skills. The informants expressed the need for training in Web design, Troubleshooting Presentation, basic skills in Maintenance and programming among others. Training helps to be able to handle all issues of ICT utilization in the library and be able to assist students reach a level of imparting skills required to effectively utilize electronic resources. Library staff and users at the two case studies need to undergo training in order to possess the required skills to utilize the available ICT effectively. Library management needs to recognize the importance of training workers on the use of ICT. Unless library administration recognizes this need, and provides proper training, the amount of money

put to purchasing of the ICT resources will not yield any benefit as long as it is not maximally utilized, librarians need proper training so as to acquire the needed skill.

6.2.5 Challenges Experienced in Utilization of ICT in Information Provision

Proliferation of new technologies opens a number of challenges for higher institutions of learning (Mutula, 2007). The foremost setbacks identified in providing and utilization of ICT information included the following;

- i. poor wide network and area network (bandwidth);
- ii. inadequate ICT resources, such as computers in the library;
- iii. higher rate of theft and mutilation of books;
- iv. poor information retrieval skills among staff and users;
- v. frequent power surge;
- vi. techno-phobia among some staff. Leading to poor information use; and
- vii. poor funding for libraries.

6.3 Conclusions

Application of ICT in institutions of higher learning has become inevitable in the present era of information resources. Majority of university libraries in Kenya are utilizing ICT to some in provision of efficient services to library users. Findings on ICT utilization studies have demonstrated that where ICT research has been carried out on a single case institution in most cases inconclusive findings had resulted. This study has unearthed the findings that when studying ICT utilization in the provision of information services to library users, researchers, should consider examining more libraries in higher education

for greater results and wider comparative aspects. The comparative case study approach adopted in this study has assisted to arrive at the resultant findings and conclusion.

The study conclusion provides an eye view of what may be happening in both Public and Private University libraries. USIU-A resource center should maintain allocation of resources for the advantage of the users. But there is need to study other academic libraries in institutions of higher learning in the county to avoid generalization.

Results in this report reveals that the inefficiencies experienced in ICT use in provision of services to library users may have been occasioned by challenges experienced in ICT use. The study results on challenges affects both MTL and USIU-A resource center, they include; frequent power outages, poor wide area network, limited computers and lack of information retrieval skills. Besides this other challenges that have affected use of ICT in information provision include; negative attitude by some staff and users towards use of ICT, limited financial resources and shortage of ICT skills.

Measures to similar challenges in both MTL and USIU-A resource center, could be addressed by the university management; arranging for alternative power source such as a big generator on standby in case of power outages; for poor wide area network they should use the fiber optic, which was available in Kenya; The issue of limited computers can only be solved by requesting each student to purchase their own laptops, computers will never be enough; and the matter on lack of information retrieval skills among students, university management should incorporate library instructional classes in the university curriculum for proper skill training, which is critical for learning teaching and

research as the core business of the university. University management in both MTL and USIU-A resource center should develop ICT policies, and treat the issue as key priority.

Staff should not just focus on models they are working on because it' is limiting. Those in circulation should also work in cataloguing in order to sharpen all round skills; university management should not focus on the cost of software and hardware but on the benefits of the technology in the long ran, in order to help achieve the efficiency and effectiveness of services and to uplift the university ranking status internationally and .nationally.

At MTL the university management and library managers should increase the number of networked computer terminals, there was need for closer working relationship between ICT directorate and the university library. Library staff and students should cultivate a positive attitude towards ICT. This can be accelerated by the university ICT directorate organizing sensitization workshops and training seminars.

The researcher in order to assess validity of this thesis, the study examined a number of factors that influence ICT utilization in provision of library service to users, The existence of this report is out of the research findings gathered. Findings have demonstrated that where ICT had been used in provision of services to library users, there was great improvement and user satisfaction as a result of efficiency and effectiveness. Benefits of ICT utilization: easy communication, enhanced processing of information, easy circulation services, faster access and information retrieval, accurate record keeping and updating, information sharing, faster and efficient services, faster registration and clearance of students.

The findings presented in the proceeding section reveals that these had significant practical implications, for top management who are decision and policy makers, should improve on budget allocation to MTL in order for the library to benefit. This will at the same time give Policy makers, an in-depth knowledge on ICT utilization. Library staff will be in position to offer efficient and effective library services to users. Library users at both MTL and USIU-A resource center will get efficient and effective services in the library. Universities will improve ranking on web metrics and Ministry of Education will benefit from proper record keeping and digitization of high education services.

ICT infrastructure in universities should be improved and this includes; hardware, software and properly trained library staff to enable use of the available resources. Also the available resources should be properly maintained and repaired not just locked up in a room because some equipment's are quite expensive. Lack of user education skills among the students had negatively impacted on the utilization of ICT services such as the electronic resources to the extent that some students do not even know that e- journals are an important source of information linking them to the world of research globally. It can be concluded that some universities in the country do not have a working information policy for adoption and utilization of ICT in libraries. The library and computer expertise should get together and implement an information policy in their institutions of higher learning in Kenya.

The study concludes that the usefulness of ICT in libraries are numerous as list blow;

- allows easy integration of library functions;
- facilitates cooperation and formation of library network;

- helps to avoid duplication of effort within a library and between libraries in a network;
- eliminates repetitive work;
- helps to increase the range of services offered;
- provides marketing opportunities of its services;
- increases efficiency library services;
- provides up to date and accurate results; and
- Provides access to unlimited information sources.

ICT as a tool in the library can provide opportunities for full organizational restructure and enhance library services delivery to users.

6.4 Recommendations

Based on the findings of the study, an attempt has been made to recommend some measures which if taken into consideration can help in improving ICT utilization in MTL and USIU-A resource center. The study examined the extent of ICT use in the provision of information to library users in MTL and USIU-A resource center; to determine institutional factors that influenced adoption and utilization of ICT in the provision of information at universities; to establish the benefits of ICT use in the provision of services in the two Organizations; to establish challenges encountered in ICT use at the two libraries at institutions of higher learning and suggest ways of improving the use of ICT to users at the two case study organizations.

6.4.1 Allocation Adequate Financial Resources

ICT resources in MTL are limited. The budget allocation had been reduced drastically and this had negatively impacted on purchase of library resources as well as developing up to date infrastructure facilities in the university library. University management should allocate adequate financial resources towards ICT use as guided by the university standards and guidelines for Commission for university education. The university management should allocate more funds to increase the number of networked computer terminals and computers, which was one of the impediment factors. Some of the inadequacies to ICT use in provision of library services was lack of web based library management system in MTL. But the university management has subsequently purchased the web based management system. It is important to ensure that allocation to university libraries in Kenya are given more emphasis and in situations where allocation is good as in private university libraries it should not decline.

6.4.2 Provision and Improvement of ICT Infrastructure

There is need for those charged with decision making process at universities to appreciate the fact that ICT use in libraries, is a continuing process for improvement, maintenance and upgrading of infrastructure. MTL should set up priorities, since the available infrastructure does not support wide ICT use in the library.

The university management should lay proper networks; provide adequate computing and networking facilities, make use of the available hardware tools and services to enhance the infrastructure base in MTL. University management should be ready to spend on infrastructure to enhance effectiveness and efficiency in provision of ICT services to

library users. There is need to enhance access to computing facilities and other ICT services used by staff at all levels. This will be helpful in assisting those with little or no knowledge in ICT skills to acquire on job training especially in MTL. This training will eventually be valuable in ICT use in provision of library service.

In most cases you will find that those responsible for resource allocation in the university do not appreciate the rationale on which reading materials should be purchased yearly and as such, obsolescence of information and the need to purchase new information to support new courses are not fully understood. This influences attitudes towards library budgets, as they are among the first to be affected by budget cuts in the university, denying students and lecturers access to appropriate academic support materials. Through this process university libraries in Kenya like other developing countries seem to have fallen into a vicious cycle, whereby, given the nature of budgeting and competition for scarce resources, budgetary support for libraries is rarely perceived as an essential institutional infrastructure warranting constant support.

Computers will never be adequate so students should be encouraged to buy their own laptops or notepads. Besides the university management should not focus on the cost but on the benefits of the technology as it can enhance effectiveness in service provision. The management must allocate library budget as per the recommendations of commission for university education to libraries as indicated in the University Standards and guidelines (2014).

6.4.3 Formulation of ICT Policy

Kozma et al. (2005) noted that national ICT policies can serve several important functions. ICT policies provide a rationale, a set of goals, and a vision of how education systems work if ICT is introduced into teaching and learning, and they can benefit libraries, students, lecturers, and the community as a whole. ICT policies are also expected to provide guidance, and failure to do so means that an institutions infrastructure funding and budgets are unlikely to be sustained. Additionally, individual efforts are less likely to be felt in an organization unless there is a shared vision clearly laid out in the policy.

ICT policy was lacking in MTL and USIU-A resource center. Lack of an ICT policy produces many undesirable effects, such as duplication of efforts, lack of strategic purposes, as well as having unjustified expenditures. In order for libraries to realize their potentials, university management should make sure that an ICT policy is in place. Policy framework must be formulated that will encourage and promote the use of ICT as a tool for information access and dissemination. The policy should address the long term users' and organizational needs; should also be flexible and constantly reviewed in keeping abreast with technological trends.

6.4.4 Setting up of Institutional Repository

There was increasing awareness that universities and research institutions lose valuable digital and print material due to difficulties in accessing them and lack of good preservation practices. As a remedy to the situation, the Open Access and Open Archives Movement has been advocating the establishment of institutional repositories (IR). The

internet had made it possible to manage and share digital resources worldwide, while these resources are increasingly being utilized in institutions of higher learning. This had prompted many institutions in the world to set up digital repositories. At the time of undertaking this research MTL had an institutional repository which was not online but in the case of USIU-A resource center it was in digital format.

Setting up of repositories can easily be done by involving all departments in the university. The chairman of departments can play a leading role of selecting a champion in every department to work hand in hand with the ICT directorate to upload the relevant and appropriate information from within and that shared by other institutions. Efforts should be made to regularly or rather weekly update and maintain the institutional digital repository. Globally, information service providers in public, private and special libraries have embarked on a lifelong process of digitizing their information resources. Existing literature reveals constant efforts made by university libraries to create and develop institutional repositories (Tyler et al. (2007).

6.4.5 ICT Skills Development and Training

Building ICT skills is an important component of any ICT intervention, new skills are required for operating computers, browsing the internet for information search, access and retrieval. Providers and users need continuing education and training in ICT to keep up with new developments in hardware, software and services. Investment in human capacity is essential in ICT initiatives. Furthermore, ICT skills development and training for the library information professionals should be seen as more than just a stop-gap

measure, but also as vital tools needed for the promotion of evidence - based culture, which is essential to improving the quality of services offered at the library.

The study findings reveal the gap in training needs in MTL as well as USIU-A resource center. Well trained workers perform effectively and efficiently, than the un-trained. Universities should make it compulsory for all library staff to have qualifications in computer knowledge as well as refresher skills for those who are computer literate. There was need for proper consultation between the library and ICT directorate on training needs.

Estrinet, et al. (2003) demonstrate that managers of many firms have a high-level understanding of their business and operational process but they often lack employees with the experience and skills necessary to adopt new technologies. Scarcity of skilled employees and experienced managers limits the introduction and use of complex and rapidly evolving technology and shortages of highly skilled people, somewhat limits effective implementation of information systems in business and industry. He emphasizes that proper training of employees will sharpen skill to new technology.

6.4.6 Incorporate Information Literacy Skills in the University Curriculum

Information literacy skill are vital for information search, retrieval and access. Universities should incorporate library instructional classes in the curriculum in MTL and USIU-A resource center, in order to reach a wider community of users and for emphasis on skills. This will make all researchers; potential researchers and the rest of the library users will realize the importance of being information literate. IL help build Skills in finding the information one needs, including an underling of how libraries are organized,

familiarity with the resources they provide (including information format and automated search tools and knowledge of community and used research techniques. Reitz (2004) opines that the concept also includes the skills required to critically evaluate information content and employ it effectively, as well as an understanding of the technological infrastructure on which information transmission is based, including its social, political and cultural context and impact.

6.4.7 Suggestions for Further Research

The present research compared the utilization of ICT in the provision of information services in MTL and USIU-A resource center.

1. Further research, be carried out to assess the impact and challenges of emerging technologies on libraries and services.
2. Further research, be carried out the impact of ICT innovative strategies on library use and services.
3. Similar studies can be conducted in other public and private universities in the country to establish the extent of ICT use.

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APPENDIX I: INTERVIEW SCHEDULE FOR LIBRARY INFORMANTS

SECTION A: GENERAL INFORMATION

1 : (a) what is the name of institution?

(b) Do your functions deal with provision of information services?

2 : (A) Do you have any ICT training?

3: Rate your skill level

Very good

Good

Average

Poor

Very poor

4: Who are your library information users?

5: Do the library staff support the use of ICT in access of information?

Indicate your level of agreement/disagreement on Utilization of ICT

SD=strongly disagree (1), D=Disagree (2), NS=not sure (3), A=agree (4), SA=strongly agree (5)

	SD	D	NS	A	SA
Circulation					
Cataloguing and Classification					
Reference work					
OPAC					
Acquisition					
Instructional classes					

6: Do you think the library has adequately addressed ICT usage in the provision of information to library users?

If yes, in which areas?

If no, explain.

7: what is your assessment of the degree of library ICT usage?

Very good

Good

Average

Poor

Very poor

8: Do you think the university management has given enough support towards ICT development in the library?

9: Do you have adequate ICT resources for provision of information to library users?

If yes, how?

If no, explain.

10: Which skills do you need to develop in order to utilize ICT more effectively in your work place?

11: What are the beneficial effects of diffusing ICT in the operations of the library in the provision of information to users currently?

12: What Challenges do you experience in providing information to library users?

13: What measures do you think can be used to improve ICT, use in the library?

APPENDIX II: INTERVIEW GUIDELINES FOR INFORMANTS

SECTION A: GENERAL INFORMATION

1. (a) what is the name of institution?

(b) Do your functions deal with policy?

2. (a) What is your skill level in the utilization of ICT in information retrieval from the and E-resources OPAC'S?

Very good

Good

Average

Poor

Very poor

3: what is your rating of the current status of ICT use in your institutions library?

Very good

Good

Average

Poor

Very poor

4: Has your institution ensured adequate provision of resources and infrastructure?

5: How are major ICT investments or ideas initiated and implemented in your institution?

6: Do you think it is easy to gain library staff positive participation in the use of ICT in your institution?

Indicate your level of agreement/disagreement on Utilization of ICT

SD=strongly disagree (1), D=Disagree (2), NS=not sure (3), A=agree (4), SA=strongly agree (5)

Utilization of ICT	SD	D	NS	A	SA
Circulation					
Cataloguing and Classification					
Reference work					
OPAC					
Acquisition					
Instructional classes					

7: Do you think the university management has given enough support towards ICT development in the library?

8: What is your view of the beneficial effects of diffusing ICT in the provision of information to library users currently?

9: What measures do you think can be used to improve ICT, use in the library?

APPENDIX III: QUESTIONNAIRES SCHEDULE FOR LIBRARY USERS

PART III –Library users

This research is part of a study on how ICT can be used to enhance effective and efficient provision of information services.

I would greatly appreciate your help by filling in this questionnaire. Completing this is not a test and there is no “right or wrong “answers. All I ask you is that give your opinions as frankly and honestly as you can. Your confidentiality is guaranteed and your answers will be dealt with in absolute confidence.

Thank you very much for your co-operation.

Section A

General Information

- a) Name of institution -----
- b) faculty/school -----
- c) year of study -----
- d) course -----

Section B – Existing Information services

1. Institutional factors

- a) What is your assessment of the potential use of ICT in the provision of information to library users?

Very good	<input type="checkbox"/>
Good	<input type="checkbox"/>
Average	<input type="checkbox"/>
Poor	<input type="checkbox"/>
Very poor	<input type="checkbox"/>

- b) What are the beneficial effects of diffusing ICT in the operations of the library in the provision of information to users?
- c) What is your rating of the current status use of ICT in your institution?
- d) What is your perception of the library staff in the provision of information services to library users?

Section C – ICT Usage Level

- 2: How regular do you use ICT to access library information services?

3: How do you rank the status of the provision of information services in the library through the use of ICT?

Very good

Good

Average

Poor

Very poor

4: What problems do you encounter in accessing and using the library services?

5: If and when you do experience problems, how do you go about trying to solve them?

6: Would you say that such problems are usually solved to your satisfaction?

7: How is your relationship with the library staff?

If good in which areas?

If bad, explain.

8: In your opinion, do you consider yourself adequately skilled to enable you utilize ICT in those areas of information provision services that you interact with such as journal services and information retrieval from the OPACs?

9: What benefits, if any, do you think can be derived from the use of ICT in information provision to you as a library user?

10: Do you consider electronic journals to be useful information sources in your library?

11: Does your library give literacy skills/ instructional skills?

12: Do you think the university management gives full support to the library in terms of funding and resources?

If yes explain

If no why?

13: In your opinion, is this institution doing enough to promote the utilization of ICT in its operations, especially in the provision of information services to library users?

14: Are the computers in the library accessible and adequate?

15: What measures do you think can be used to improve ICT, use in the library?

ALL INFORMATION IS CONFIDENTIAL

Thank you