AN INVESTIGATION INTO THE FUTURE OF THE LIBRARY IN THE ELECTRONIC AGE:
A STUDY BASED IN NAIROBI.

BY

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JUNE 2001
DECLARATION

This is my original work and has never been presented for examination in any other University.

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This project has been submitted for examination with my approval as a University supervisor.

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DEDICATION

This work is dedicated to all my family members. Their support, encouragement, inspiration and self-sacrifice greatly contributed to the success of my studies.

Special dedication goes to my sister and friend Brenda who tirelessly supported me in all ways as I pursued this course. Special dedication also to my brother-in-law Steve for his tireless efforts in printing this work.
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ABSTRACT

Information Technology (IT) is greatly transforming the means of access to information. The availability and use of electronic information resources such as CD-ROM, E-Mail, the World Wide Web, Online databases etc, both within and outside the library means that information is no longer only available in print as it was before. This also means that the library is no longer the first port of call for people in search of information.

Computers have now become available in homes, offices, libraries and other information centres. This indicates that the information resources available through the computer are not only accessible in the library but also elsewhere.

Electronic resources are providing certain advantages over the print media. For example, the Internet provides more current information than that to be found in books. This is because information on the Internet can be conveniently updated. Another advantage of electronic resources is that CD-ROM can contain large volumes of data, which would otherwise be contained in large volumes of books.

This study examined what these changes brought by IT in information access spell for the library. Central to the study was the areas of IT application in libraries, the changes IT has brought in information storage, retrieval and dissemination and the implication of use of IT on the library and the librarian.

The study found out that IT is being applied in libraries in Kenya though it is not widespread because of certain limiting factors and that it has brought significant
changes in the areas of information storage, retrieval and dissemination. The changes affect such areas like types of materials stored in the library and methods of information retrieval and dissemination. The study also established that the library's approach to information storage, retrieval and dissemination will have to change to accommodate the electronic resources if it is going to remain afloat in future. These changes include storage of electronic information resources and use of online service in information retrieval and dissemination. The librarian will also need to change his approach to information processing and provision so that he is not relegated in the current technological dispensation. In this respect the study recommends that the librarian keeps abreast with the information technological changes affecting his profession. The implications of this to training institutions are obvious and they have been spelt out in this study.
### LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS/AAAS</td>
<td>African Academy of Science/ American Association for the Advancement of Science.</td>
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<td>AFRALTI</td>
<td>African Advanced level Telecommunications Institute.</td>
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<td>CAS</td>
<td>Current Awareness Service.</td>
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<tr>
<td>CD-ROM</td>
<td>Compact Disk Read Only Memory.</td>
</tr>
<tr>
<td>CERN</td>
<td>Conseil European pour la Recherche, nuclear.</td>
</tr>
<tr>
<td>EARN</td>
<td>European Academic and Research Network.</td>
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<tr>
<td>E-COMMERCE</td>
<td>Electronic Commerce</td>
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<td>EIRs</td>
<td>Electronic Information Resources.</td>
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<td>E-MAIL</td>
<td>Electronic Mail.</td>
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<tr>
<td>HTML</td>
<td>Hypertext Mark up Language.</td>
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<tr>
<td>ICIPE</td>
<td>International Centre for Insect Physiology and Ecology.</td>
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<tr>
<td>ICRAF</td>
<td>International Centre for Research in Agro-forestry.</td>
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<td>ILRI</td>
<td>International Livestock Research Institute.</td>
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<tr>
<td>IRC</td>
<td>Internet Relay Chart.</td>
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<td>ISP</td>
<td>Internet Service Provider.</td>
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<tr>
<td>IT</td>
<td>Information Technology.</td>
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<tr>
<td>LAN</td>
<td>Local Area Network.</td>
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<tr>
<td>NBM</td>
<td>None Book Media.</td>
</tr>
<tr>
<td>OPAC</td>
<td>Online Public Access Catalogue.</td>
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<tr>
<td>PC</td>
<td>Personal computer</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>SDI</td>
<td>Selective Dissemination Information.</td>
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<tr>
<td>UPS</td>
<td>Uninterrupted Power Supply.</td>
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<tr>
<td>USIU-A</td>
<td>United States International University of Africa.</td>
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<td>USIS</td>
<td>United States Information Service.</td>
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<tr>
<td>WAN</td>
<td>Wide Area Network</td>
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<td>WWW</td>
<td>WorldWide Web.</td>
</tr>
</tbody>
</table>
DEFINITION OF TERMS

CD-ROM – A round, flat piece of plastic coated with a magnetizable material containing a high dense set of binary digits.

Database - Collections of related textual and/or numeric data in machine-readable form that are processed for computerized publishing and/or electronic dissemination.

Electronic age – An information age in which information technology ensures the availability of information online.

Electronic Journal – A journal that is published and accessed through the electronic medium.

Electronic library – An information service that uses information technology to avail information online.

Electronic mail (E-mail) – A letter composed, mailed, received, and read through the computer.

Hypertext - A text not constrained to be linear; a text that contains links to other texts.

Information retrieval – The activities involved in searching a body of literature in
order to find items that deal with a particular subject.

Information retrieval tool – Any tool or device that organizes a body of literature in search a way that it can be searched conveniently.

Information technology (IT) – The technology that involves the storage, processing, retrieval, and dissemination of information by use of computers and communication networks.

Internet – One big, loosely connected network that links small networks and individual computers all over using modems, phone lines, and satellite links.

Internet Relay Chart (IRC) – A real time conversational mode that allows more than two users to talk at once, with access throughout the global Internet.

Local Area Network (LAN) – A network of computers in close proximity.

Library – A service institution that enables users to make the most effective use of information resources and services. It acquires information materials, processes them, and makes them available to users.

Modem – A device connected to a computer either internally or externally, that transforms (modulates) the digital computer signals to analogue signals.
that can travel across conventional phone lines and demodulates the analogue signals back to digital signals that can be received by the computer.

Non-Book Media (NBM) – Information resources that are not in print form or book. For example, CD-ROM, and Microfiche.

Protocol - A means or language standard by which computers on a network communicate with each other.

Machine-readable data – Data that can be read and understood by a computer.

User – Used interchangeably with the terms 'patron', and 'client' to refer to users of libraries and information centres.

Wide Area Network – A computer or data transmission network that spans an entire country, region or world.

World Wide Web (WWW or W3) – A hypertext based information system.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECLARATION</td>
<td>ii</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>iv</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF ACRONYMS</td>
<td>viii</td>
</tr>
<tr>
<td>DEFINITION OF TERMS</td>
<td>x</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>xii</td>
</tr>
</tbody>
</table>

## CHAPTER ONE

**INTRODUCTION**

1.1 BACKGROUND OF THE STUDY .......................... 1
1.1 STATEMENT OF THE PROBLEM .......................... 6
1.3 RESEARCH QUESTIONS .................................. 8
1.4 PURPOSE OF THE STUDY ................................ 8
1.5 OBJECTIVES OF THE STUDY ............................ 8
1.6 RESEARCH ASSUMPTIONS ............................... 9
1.7 SIGNIFICANCE OF THE STUDY ......................... 9
1.8 SCOPE AND LIMITATION OF THE STUDY ............... 10
LITERATURE REVIEW

2.1 INTRODUCTION.

2.2 INFORMATION TECHNOLOGY (IT) APPLICATION IN LIBRARIES

2.2.1 Information Technology (IT) – Definition.

2.2.2 Information Technology in libraries.

2.3 CHANGES BROUGHT BY INFORMATION TECHNOLOGY (IT) ON STORAGE, RETRIEVAL AND DISSEMINATION OF INFORMATION.

2.3.1 On-line services in information retrieval.

2.4 THE FUTURE POSITION OF THE LIBRARY AND THE LIBRARIAN

2.4.1 The electronic library.

2.4.2 The future position of the library

2.4.3 The future position of the librarian

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.2 DESIGN AND LOCATION OF THE STUDY

3.3 SAMPLE SELECTION

3.4 RESEARCH INSTRUMENTS

3.4.1 Questionnaires

3.4.2 Personal observation

3.5 DATA INTERPRETATION /ANALYSIS

3.6 FIELD ADMINISTRATION PROBLEMS

3.6.1 Incomplete responses.
CHAPTER FOUR

4.0 DATA ANALYSIS, PRESENTATION AND FINDINGS

4.1 INTRODUCTION

4.2 BACKGROUND INFORMATION OF THE RESPONDENT

4.2.1 Response rate

4.2.2 Title of the Respondent

4.2.3 Frequency of library use by respondents

4.3 AWARENESS AMONG USERS OF THE INFORMATION TECHNOLOGY (IT) SERVICES AVAILABLE IN THEIR LIBRARIES.

4.4 RESPONDENT’S USE OF IT SERVICES

4.5 RESPONDENT’S USE OF IT SERVICES OUTSIDE THE LIBRARY

4.6 AWARENESS OF THE AVAILABILITY AND USE OF NON-BOOK MEDIA (NBM) FACILITIES IN THE LIBRARY.

4.7 USE OF THE INTERNET IN ACCESSING INFORMATION

4.8 BENEFITS AND DISADVANTAGES OF THE INTERNET

4.9 KIND OF IMPROVEMENT REQUIRED FOR THE INTERNET SERVICE

4.10 HOW IT SERVICES HAVE AFFECTED USER’S WORK

4.11 EFFECT OF IT ON THE TRADITIONAL LIBRARY

4.12 THE IMPORTANCE OF THE LIBRARY IN FUTURE

4.13 THE NATURE OF THE FUTURE LIBRARY

4.14 THE STATE OF THE ART IN THE CURRENT LIBRARY SERVICE AND RESOURCES
CHAPTER FIVE

5.0 DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

5.2 INFORMATION TECHNOLOGY (IT) IN LIBRARIES

5.2.1. Limitations of IT use in libraries in Kenya

5.3 CHANGES BROUGHT BY INFORMATION TECHNOLOGY IN STORAGE, RETRIEVAL AND DISSEMINATION OF INFORMATION.

5.3.1. Information storage
5.3.2 Information retrieval and dissemination of information. 113

5.4 THE FUTURE POSITION OF THE LIBRARY AND THE LIBRARIAN 118
5.4.1 The future position of the library 118
5.4.2 The future position of the librarian 130

5.5 CONCLUSIONS AND RECOMMENDATIONS 135
5.5.1 Conclusions 135
5.5.2 Recommendations 139

REFERENCES 142
APPENDIX 1 148
APPENDIX 2 162
CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

For a long time libraries have enjoyed the role of information keepers and providers with channels of communication being based on printed documents. Libraries have therefore played the central role of storing and retrieving the information available in these documents. The library has been the first port of call for people in need of information. With different types of libraries in existence (Public, Academic, School, Special), they have been able to remain as information guardians and disseminators for quite sometime.

However, with information explosion and also the increased realization of the substantial role and value of information not only locally but also worldwide, it became clear that an alternative and efficient means of storage and retrieval of information had to be sought.

As early as 1978, Lancaster observed that the limits of what could be communicated by printing, mailing, storing, and retrieving pieces of paper could justify the means for a replacement for paper. An alternative therefore had to be found for real improvement in the accessibility and usefulness of information. The solution seen by the National Foundation (1975) was an electronic system that would provide the possibility to capture new information from its originators in sensible form and store it in central facilities for presentation at terminals whenever and wherever it would be useful (Lancaster, 1978).
Lancaster's observation and the current trends in the information world attest to the fact that we are indeed moving to a largely paperless environment. These changes in the information scene have been wrought by information technology.

"Technology has been a major factor for change in our institutions". (McCombs, 1991).

With the invention of computers, information from different sources has become efficiently accessible. With advancements in IT, computers have been modified and thus become quite efficient and convenient means of communication. Through the use of CD-ROM and On-line information retrieval services, Information Technology has made it possible for people to locate and obtain information not available within the holdings (collections) of a particular library.

Automation of libraries and information centres has become the norm rather than the exception worldwide. This automation has been evident in areas like computerized acquisition processes, computerized circulation, On-line public catalogue (OPAC), use of CD-ROMS, On-line databases, as well the use of the Internet.

The first attempt in the library computerization process was the development of the On-line public catalogue (OPAC). This replaced the card catalogue in many libraries. With OPAC, users are able to locate information materials available in different libraries unlike the card catalogue that only points to materials available within a specific library. This was followed by the computerization of other library processes such as acquisition and circulation.
Another development was the CD-ROM Compact Disc Read Only Memory. CD-ROM is a round, flat piece of plastic coated with a magnetizable material containing a highly dense set of binary digits. (Theobald, 2000). Tremendous amounts of information can be stored in CD-ROMs. CD-ROMs which is a read only memory compact disk can contain quite an amount of information on different topics and from different areas. CD-ROM is a publishing medium that utilizes technology originally designed for CD audit... It is an ideal medium for distributing databases i.e. a database can be loaded into a master disk and that disk replicated and distributed. It can then be read by a normal PC provided that it is fitted with a CD-ROM drive which can be stand alone or internal. CD-ROM is the most fundamental alternative to online searching which has emerged over the last few years. CD-ROMs databases are therefore widely used in libraries. Online databases also offer access to vast amounts of information worldwide. Most libraries especially in the developed countries are connected to the Internet and therefore library users have access to a wide array of information.

Generally automation has made the library quite efficient in its operations. Computer centres have also come up. In these centres, literature-searching services are offered to users. Whereas in the recent past the use of a computer for any purpose was something of a novelty, the trend has tremendously changed. Today, computers are becoming commonplace in homes, schools, and a growing presence in libraries. This is especially so in the developed countries. In developing countries, Kenya included, availability of computers in homes, schools, and even libraries is something yet to be fully realized.
As earlier noted, Information technology has impacted a lot on the information environment. Not many years ago, people in need of information went to the library to find the books they needed. Also, information published in journals by scientists was sent over long distances to other scientists and other libraries. As time progressed and the age of computers came, it became possible to access information available within other libraries without physically going to those libraries. This has been through the use of Electronic Information Resources (EIRs) such as the CD-ROM, Online Databases, Electronic Journals and the Internet.

"The Internet may be the most important development over the past twenty years. It is a computer network linking many of the world's computers and allowing the transfer of electronic mail, software, private data files and web files" (Theobald, W. & Dunsmore, H.E, 2000)

Through the Internet, users have access to information from all over the world. People now turn to the Internet the way they used to turn to books, magazines, encyclopaedias etc. This is because the Internet offers information of every kind. Through the use of a standard communication protocol, computers on the network can communicate with each other.

The Internet offers a variety of services such as the World Wide Web (WWW), E-mail, Gopher, Telnet, Usenet, etc. Of these services, the most widely used are the WWW and the E-mail.
World Wide Web refers to a collection of information available from thousands of places in the world, all accessible as if it were coming from some common location or set of locations (Theobald, W. and Dunsmore, H.E, 2000). WWW uses a hypertext mark up language (HTML) to create links between related pieces of information. Through using hyperlink, the user can access both bibliographic and full text information on sports, education, finance, entertainment, publications, travel, shopping, employment, software, libraries, etc.

The WWW is providing lots of up-to-date information on virtually all areas of knowledge.

“E-mail (Electronic mail) is a letter or document composed mailed and received through computers”. (Afralti, 1997).

E-mail provides an alternative mail communication service to the normal post box one. It is a fast means of communication, which does not depend on the physical availability of the parties involved.

On the whole however, trends in the information environment clearly indicate that the computer has had a very beneficial effect on the cost effectiveness of information retrieval systems and their overall effectiveness in terms of search time. The availability of a wide array of information through the electronic media is a sure indicator of a transformation of our society into an electronic age; an age when a lot of communication will be through the electronic media.
1.1 STATEMENT OF THE PROBLEM

"A combination of economic and social circumstances evolving technologies and the need to deal with the increased flow of published information has provided the major incentives for libraries and other information processing organizations to seek out new organizational structures for processing materials and providing access to those materials and customers" (Maritim, 1980).

Changes in the economic and social environment created the need for availability of timely information to meet the challenges of such changes. Information explosion is also an issue of concern here. The need arose the need for new and better information structures to meet these challenges. Information Technology (IT) has come in and by no doubt provides a system for better information storage and retrieval.

The library as a major information service provider cannot afford to lag behind the evolving technological changes. IT has been introduced in libraries to ensure better and efficient library service.

"More recently, one of the major developments in library and information systems has been that of Electronic Information Resources (EIRs) and the capturing, creating, processing, storing, exchanging and dissemination of information in this form. This has changed most aspects of the library and information systems in significant ways. EIRs include electronic databases, CD-ROMs, the Internet and other networked resources" (Kabede, 2000)."
Information Technology (IT) is decentralizing the hitherto centralized information service. Whereas initially information could only be found in a centralized place, that is, the library, with IT, it is now possible for people to access information without necessarily having to visit the library. The idea of a library as a physical utility is therefore seemingly changing. The Internet is providing an electronic library service; a system whereby information is accessed through the computer. Electronic publishing is also taking place today and this means that the electronic library issue is becoming a reality.

The changes brought by IT in the library service and also generally in the information environment have led to the following practical questions:

1. Where does this system place the physical library?
2. How does the presentation of information in an online system affect those people whose profession is to work with information? One of those people is obviously the librarian. Many people have argued that we are moving to a completely paperless environment hence an electronic library environment. An electronic library will mean that information is available and accessible only online. With the electronic library therefore the situation is likely to be described as an electronic age.

Various libraries are affected differently by IT in terms of changes in structural or otherwise and areas of IT application. This study will examine such changes and the
affected areas. It will also collate the views of both affected professionals and library users on the future of libraries.

1.3 RESEARCH QUESTIONS

The study was be guided by the following research questions:

R1: In what areas has Information Technology been applied in libraries in Kenya?

R2: What changes has Information Technology brought in information storage, retrieval, and dissemination?

R3: What is the future position of the library and the librarian in the electronic age?

1.4 PURPOSE OF THE STUDY

The study aimed at establishing the future position of the library and consequently the librarian in the electronic age.

1.5 OBJECTIVES OF THE STUDY

The study had the following specific objectives:

1. To identify the areas of Information Technology application in libraries.

2. To assess the changes information technology has brought in information storage and retrieval.

3. To investigate on the future position of the library and the librarian in the electronic age.
1.6 RESEARCH ASSUMPTIONS.

The study was based on the following assumptions:

1. There is Information Technology application in some libraries in Kenya.
2. Information technology has brought changes in information storage, retrieval and dissemination.
3. The future position of the traditional library in the electronic age will have to change.
4. The librarian has a role to play in the electronic age.

1.7 SIGNIFICANCE OF THE STUDY

We are moving to the age of electronic information. Information technology is transforming the world into a global village with the electronic library taking the central place in information storage, retrieval, and dissemination. This places the future of the traditional library at a position of uncertainty.

Literature available reveals that the real position of the traditional library in the electronic age is yet to be established. This study therefore hoped to establish this. The study also aimed at providing information on the role of the librarian in the electronic age. This was deemed crucial because the electronic age has placed the future of both the library and the librarian at stake. The study gathered data from librarians and library users on the areas of IT application in libraries, the changes IT has brought in information storage, retrieval and dissemination. The study also gathered data regarding to the direction such changes were taking the traditional library and librarian.

The study is hoped to benefit the libraries, information seekers as well as the entire
1.8 SCOPE AND LIMITATIONS OF THE STUDY.

At the centre of this study is the future position of the traditional library and the librarian in the electronic age. The study therefore stretched its scope to cover the changes information technology has brought into the information environment, the impact of these changes on the traditional library as well as an assessment of the future position of the traditional library and the librarian in this transformed information environment.

The study was however fairly restricted due to the nature of the background or the area in which the study will be carried out. This is because, whereas information technology has already had a major impact on the traditional libraries in the western world, this is yet to be realized in Kenya. Due to the nature of her economy, Kenya has been slow in adopting information technology. The researcher however felt that because it is slowly and soon creeping into the country, the research is quite viable.

The researcher was also limited by financial constraints as well as time. While not much has been researched on this area in Kenya, literature on the same is available elsewhere but then financial constraints limited the researchers access to these materials. The time for the study was also fairly little for it had to be done alongside course work during the last year of the two-year course. These two factors in a way limited the comprehensiveness of the study.

It is however hoped that the findings of the study will offer useful information to any information seeker.
CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION.

In this chapter, literature related to libraries and the electronic age was reviewed. This was aimed at providing an academic background to the study. The chapter covers three main sections as per the objectives of the study:

2.2 Information Technology (IT) in libraries

2.3 Changes brought by Information Technology in information storage, retrieval and dissemination.

2.4 The future position of the library and the librarian.

2.2 INFORMATION TECHNOLOGY (IT) APPLICATION IN LIBRARIES

2.2.1 Information Technology (IT) – Definition.

Information technology is the technology that involves the storage, processing, retrieval and dissemination of information by use of computers and communication networks. (Mugambe, P.E. in AA/AAS, 1992).

At the centre of information technology is information. Information technology comes into play because of the very importance attached to information. Information is an
invaluable resource and hence the necessity for a useful and profitable system for its processing, storage, and retrieval.

“IT as a tool for collection and analysing large volumes of information in a systematic manner is of prime importance in all aspects of economic development”. (Anyango, 1995).

Information is power, but if any kind of information is not well organized and fully disseminated to all who need it, then the power in it is not realized. The current information explosion situation means that there are large volumes of information in existence. IT plays a great role in ensuring that information reaches the people who need it. Information is of prime importance for the development of any nation.

“The lack of development in Africa is principally attributed to information poverty--- the prevailing situation is not because the planning environment lacks data on which they could base various meaningful social economic planning exercises but by the inability to maintain appropriate infrastructure for generating and transmission of information”. (Yewondwossen, S. in AAS/AAAS, 1992)

In his argument, Yewondwossen underscores the importance of information and the need for a meaningful infrastructure for its processing and dissemination. The infrastructure referred to here is that involving the use of computers and telecommunication networks.
The developing countries are lagging behind in development partly because of their poor communication infrastructures.

Kabede (2000) observes that in many countries within the Eastern and Southern Africa region, poor telecommunication infrastructure hampers widespread Internet use.

IT shifts the processes of information access from print as the conventional information carrier and the librarian as the custodian and disseminator of information to a system of information access through the electronic medium. This latter medium involves the use of computers and telecommunication networks. IT has enhanced the access of information at all levels.

2.2.2 Information Technology in libraries.

Information technology has been applied in libraries and other information centres to improve their operations.

“A combination of economic circumstances, evolving technologies and the need to deal with the increased flow of published information has provided the major incentives for libraries and other information processing organizations to seek out new organizational structures for processing materials and providing access to these materials and customers.” (Maritim, S.K, 1980)

According to Muiruli (1986), the use of modern technology in handling
information has become the concern of every librarian in the world due to increase in literature and its exponential growth rate.

Due to changing circumstances in the social, economic, and technological fields, information professionals felt that new information organizational structures had to be put in place in libraries to ensure that the large volumes of published information are made accessible to those who need them. This was meant to provide knowledge to meet these changes.

It is to be noted that IT application in libraries is not a recent invention. As early as the 1960s, computer application in libraries began to proliferate. For instance, in the US, computer technology was introduced into libraries in the early 1960s. With the introduction of computer technology then, libraries in the US begun collecting information in new ways such as on-line.

“IT in the form of PCs, CD-ROM and E-mail is now the norm rather than the exception. It has brought demonstrable benefits, especially the combination of CD-ROM and E-mail for the identification of items and more efficient document delivery and its positive effect on library image” (Rosenberg, D., 1997).

Rosenberg further observes that:

--- it is unquestionable that CD-ROM has brought rapid access to current and archival journal literature and made users aware of otherwise unknown
“Librarians have also long recognized the limitations of print sources, such as indexes and abstracts. Those print sources are linear in nature, so that a library user has to move forward and backward within or among volumes in order to retrieve information—users are also, by and large, limited to searching only one descriptor or index term at a time.” (Budd and William, 1993)

Libraries have automated their operations for efficient information storage, access, and retrieval. The use of PCs and CD-ROMs for developing databases and for literature searching is evident in many libraries today. Libraries also use E-mail and the On-line for international linkage.

According to Mutula (2000), integrated library systems have made it possible for library procedures such as circulation, cataloguing, acquisitions and periodicals control to be interlinked to make information management easy. He further adds that...the traditional practice of automating cataloguing, acquisitions, circulation and online public access has expanded to include Internet access, desktop publishing and access to external databases.

Library processes and operations such as acquisition, cataloguing (OPAC), circulation and periodical control have also been automated. This has resulted in the general improvement and efficiency in the quality of services and in the library’s image.
The use of computers for information processing, organization and retrieval in libraries has become commonplace though at different levels for different libraries. For the developed countries, IT application in libraries has gone on for quite a while now and it is at a very advanced stage. In many developing countries, the concept of IT in libraries is still new. For instance, in Kenya, its only a few libraries that have so far applied IT in some of their activities. This has mainly been because of financial constraints. However, any library worth its salt is moving toward full adoption of IT in its operations.

A survey carried out by Mutula in 1998 to assess IT use in libraries in Kenya revealed that many libraries are not automated. The study also found out that automation was confined to libraries in private institutions such as the British council, United states information service (USIS), Unites States International University of Africa (USIU-A), international Centre for Insect physiology and ecology (ICIPE), International centre for Research in Agro-forestry (ICRAF) etc. For libraries that do not belong to the international organizations, efforts of automation were confined to using CDS/ISIS to develop and access small and internal databases.

Mutula's study further revealed that there is very little knowledge of the options for automating libraries and that many of the libraries were not connected to the Internet and those connected barely accessed the facility either because of restrictions, infrastructure problems and inadequate skill. (Mutula, 1998)

Raseroka (2000) reports of a similar situation in many university libraries
in sub-Saharan Africa where many libraries rely on CD-ROMS and many more remain unautomated.

“The centres that maintain any kinds of computerized networks are those owned and maintained by international organizations. These are mainly the special libraries.” (Ng’ang’a, 1994)

Although the above literature reveals that there are libraries that are not automated because of the limitations of inadequate telecommunication infrastructure, inadequate skill among others, it is also clear from the literature that information technology is being applied progressively in libraries.

“Information technologies collectively and individually are changing the nature of access to documents via libraries and have the capability to improve access to information. They can provide timely and accurate information to users in a variety of formats and for various purposes.” (US. Congress, office of technology assessment, 1988)

Information technology has also created a positive framework for information networking in libraries.
2.3 CHANGES Brought BY INFORMATION TECHNOLOGY (IT) ON STORAGE, RETRIEVAL AND DISSEMINATION OF INFORMATION.

2.3.1 On-line services in information retrieval.

The impact of information technologies on information processing and retrieval has not only been felt within the internal workings of the library but also generally in the provision of information services to users even outside the library. Advancements in telecommunication networks and microcomputer applications have resulted in the growth of online information retrieval services.

"On-line information services are computerized information sources which may be searched in an interactive (conversational) mode from a remote computer terminal, sometimes thousands of miles from the host computer. The on-line user or searcher sits at a computer terminal that is connected to the host computer by a telephone and telecommunications network. The user has access to hundreds of databases from dozens of On-line services. Both bibliographic and source databases are available from the same terminal. The user is "on-line" with the retrieval program. Just as a person is "on-line" when conversing with another person by telephone." (Hoover, E.R., 1982).

On-line information service is not restricted to physical carriers of information like books but it involves the electronic medium. Through on-line search, one can access information from various sources. The Internet offers on-line information service.
2.3.1.1 The Internet

"The Internet is a worldwide computer network linking countless thousands of computer networks, through a mixture of private and public data and telephone lines." (Onunga, 1998).

"The Internet is essentially one big loosely connected network that links smaller networks and individual computers all over the world using modems, phone lines, and satellite links." (Afralti, 1997)

The Internet is in the third distinct phase of growth. In the first phase (from its origins in mid 1960s to the late 1980), it was a well-kept secret used primarily by the knowledge elite; government scientists and researchers in the department of defence, the department of energy, The National Science Foundation and academic researchers, primarily in the computer and the hard sciences. The second phase (from 1987 to 1992) saw the opening of the Internet to the general public; during this time, many commercial service providers opened gateways to the net. The third phase begun in 1992 with the release of the HTTP protocol and graphical browsers which allowed people to explore hyper-linked documents. (Tseng et al., 1997)

The Internet gives people the ability to communicate with other connected users all over the world. Internet service providers connect users to the Internet.

"Users connected to the Internet communicate with other connected users
through electronic mail (E-mail) and real-time typed conversations (IRS or Internet Relay Chart). It also provides easy access to a wealth of information and entertainment, as well as a fairly large amount of garbage.” (Afralti, 1997).

Also, with the Internet, it is now possible to hold conferences with people in distant places through Video Conferencing. Anyone can now be ‘hooked’ onto the Internet as long as he has a computer and a modem, which can support standard Internet protocols and a telephone line. The user inputs data into the end station computer (Terminal). The computer’s digital information is changed into analogue form by the modem so that it becomes transmittable over the conventional telephone lines. The reverse is done at the ISP station before the message is dispatched into the Internet and to the ultimate destination.

“The Internet allows you to have access to abundant information about just anything in the world. You will get information you need from business to education, from sports to politics, from arts to eating out- the sky is the limit. With Internet, You are hooked to instant worldwide information that you need to make accurate and informed decisions.” (Onunga, 1998)

The Internet has become an important information resource for many in both their academic, professional, and private lives. Though the Internet, one can find information virtually about anything.

“Libraries are having their traditional role as information providers and
custodians of information resources undermined by the Internet. Much of the information in any sector of development is not widely available on various web pages which are not associated with libraries...with Internet access, libraries are increasingly gaining access to Internet browsing, telecommunications, remote learning, online gaming and video on demand facilities..." (Mutula, 2000)

The Internet is a network of computers on either:

Local Area Network (LAN)

Wide Area Network (WAN)

LOCAL AREA NETWORK (LAN)

"LAN is any group of two or more computers with communication access with each other so that they can share information. This is through a wire connection." (Theobald and Dunsmore, 2000)

LAN is a network of computers in close proximity to each other. They could be in a room, building, floor, campus, aircraft, etc. Such computers are linked so that they can share resources like printers, software, etc. There is also communication between the computers via E-mail. This kind of computer network is referred to as Intranet.

"Intranets refer to organizations' use of WWW and related Internet Technology to do their essential work, that of helping to produce the goods or services the organization exists to produce, through the necessary
Information Technology tools." (Afralti, 1997.)

Intranets target the people within. (i.e. the employees or clients within an organization or an institution.

Local networking services provide opportunities of serving users within a restricted geographical area with accurate and reliable information, communication (e.g. via E-mail), sharing resources e.g. printers, files, etc.

WIDE AREA NETWORK (WAN)

WAN refers to computer network or data communication network that spans an entire country, region, or world. WAN covers long distances beyond national boundaries. Communication is not by cabling as for LAN but it is by telecommunication links and satellite. WWW is an example of WAN.

WAN offers services like file transfer, remote processing, remote access, shared processing, gateways, and interactive discussion.

Harries, (1993) summarizes the main purpose of networking in the library world as primarily for institutes to achieve a better sharing of resources.

The Internet offers a variety of services such as E-mail, World Wide Web (WWW), Gopher, Telnet, Usenet, etc. Of these tools, currently the most commonly used and
especially in libraries are the E-mail and the WWW.

2.3.1.1.1 The World Wide Web. (WWW)

WWW is a body of information or an abstract space of knowledge available on the Internet. (Theobald and Dunsmore, 2000).

WWW was developed by a collection of high-energy physics researchers located at CERN (Conseil European Pour La Recherche Nucleaire) while in search of a better way of sharing scientific information. They wanted to be able to quickly access related information.

"WWW is a hypertext based information system. Any word in a hypertext document can be specified as a pointer to a different hypertext document where more information pertaining to that word can be found. The reader can open the second document by selecting the word (using different methods depending on the interface; in a mouse based system, a user would probably place the mouse over the word and click the mouse button); only the part of the linked document that contains relevant information will be displayed." (EARN, 1994).

"The operation of the Web relies on hypertext as its means of interacting with users. Hypertext is basically the same as regular text—it can be stored, reached, and searched, or edited— with an important exception: hypertext contains connections within the text to other documents." (Onunga, 1998)
Access to the WWW facilities is via a WWW tool called a ‘browser’ that provides access to WWW servers. Through the web browsers, users can access a wide array of information from the web.

The WWW can also be used as a publishing tool hence the concept of electronic publishing; information is captured in electronic form when collected or created and is retained in electronic format through whatever revision and processing cycles are needed.

“Web sites are providing interfaces to library resources with links to the library holdings.” (Mutula, 2000)

“WWW makes it possible for users to access a variety of media in a simplified fashion. It allows users to select images and then link them with sounds or documents.” (Onunga, 1998)

The WWW offers a variety of information on all kinds of areas. Users are therefore consulting the WWW or accessing information from the web the way they would before visit the library and obtain the same kind of information. The WWW is therefore a kind of a library (a digital/electronic library), which is accessed on line.

Apart from the WWW, the other widely used Internet tool is the E-mail.

2.3.1.1.2 Electronic mail. (E-mail)

“E-mail is a letter or document composed, mailed, received and read through computers.” (Afralti, 1997).
E-mail reaches its destination by travelling on the Internet. Also, through Intranet, E-mail services are offered. E-mail lets people use written communication in a timely manner as compared to sending a letter or document through the postal service.

“E-mail is the most popular use of the Internet, and in the future, almost everyone in the future will have two addresses, one where they receive their ‘real’ mail and one where they receive their E-mail.” (Afralti, 1997).

Today, E-mail is still the most popular use of the Internet. In libraries, E-mail is for among other purposes transactions with publishers and distributors in the acquisition of library materials.

“Meadow underscores the fact that E-mail offers the most efficient way of ordering new books from suppliers.” (Lovey, 1980)

According to Rigby (1994), e-mail can be applied in library services like inter-library search request, (and responses) to a list of participating libraries that are ‘online’. This can be done by referencing in a message. Copies of requests are automatically generated to users.

Lovely (1980) is of the view that E-mail provides a high speed alternative to the physical delivery of a message by conventional mail service or private courier service as a result communication between readers and staff might be improved in such cases as new books and location change
2.4 THE FUTURE POSITION OF THE LIBRARY AND THE LIBRARIAN

2.4.1 The electronic library.

With the Internet and its offspring the WWW, information has become available worldwide on-line. Whereas initially anyone in need of information had to visit the library, which was the sole repository of information sources, these days one just needs to sit by his computer and connect to the Internet and search for the required information.

The idea of a library as a building in which books and other information sources are stored, retrieved and disseminated is therefore changing.

As early as 1965, Lacklinder observed that:

"...any concept of the library, which begins with bookshelves, is sure to encounter trouble... we should be prepared to reject the schema of the physical library...the arrangement of shelves, card indexes, checkout desks, reading rooms and so forth." (Lacklinder, 1965).

Lacklinder further adds that:

"We are assuming that the average man of that year (2000AD) may make a capital investment in an 'intermedium' or 'console'- his intellectual Ford or Cadillac to the investment now made in an automobile- the computer would be used as an interface in applying sequences of procedures to named texts, graphs, and tables; observing the results; and intervening whenever a change or extension of plan is required."

26
Lacklider’s predictions are now like a dream come true. The online service for information retrieval confirms his argument.

Electronic publishing is also taking place today. Many years ago, Vickery, B.C. observed that:

“There will be ‘publications’ that originate in machine-readable form, are acquired and stored in the library in that form, and never appear in visually legible form except on the screen of a user console.”(Vickery, B.C., 1966).

Probably Vickery had no idea how soon his words were to be proved real. Electronic publishing has created a situation whereby some information is only available online. Today we have electronic journals and the e-book. Libraries are subscribing to electronic journals. We are heading to a stage whereby a lot of publishing will be done online. The implication for this is that the understanding of the library in the traditional sense will completely change.

“The use of the Internet has enabled researchers and scholars in African universities to get access to international online systems and databases, electronic journals and other full text documents, bibliographic references, factual and numerical data available from libraries and information centres in different parts of the world.” (Lwehabura and Matovelo, 1999).
The fact that Internet provides access to information initially available only in the library then indicates that another type of a library is replacing the traditional library, as we know it; a library that unlike the conventional library moves beyond the confines of walls and avails information from all over the world in electronic form.

"Today we see that IT development and its application in storing and retrieving information is quickly shifting libraries from traditional conversion to electronic and digital forms." (Lwehabura and Matovelo, 1999).

The observations of many people coupled with trends in the information world today is clear proof that we are moving closer and closer to a totally electronic age: where most information will be available in electronic information resources. However, how close we are to this age in Kenya is something this study seeks to establish.

Kabede (2000) observes that developments in electronic information resources have changed the way library and information systems store, access, process, and disseminate information comprehensively and made them one of the work places where a wide range of electronic processes is taking place.

Although this is yet to be realized in developing countries like Kenya, trends in information technology developments clearly indicate that it is just a matter of time before this scenario becomes a reality all over the world.
2.4.2 The future position of the library

As we draw closer and closer to the electronic age, it has become the concern of many librarians and information specialists on what the place of the library and the librarian is in the electronic age. There are therefore several views put forward concerning this issue of the library, the librarian, and the electronic age.

Salton (1975) is of the view that:

A system in which information is in electronic form is most appealing for it eliminates the enormous duplication caused by the storage of multiple copies of the same material in many different places; it keeps the stored information continuously for all comers because texts do not 'circulate' in the normal sense of the word; it avoids delays in obtaining the desired information items and avoids losses, and, finally it may improve not only the efficiency but also the effectiveness of the search.

According to Salton therefore, an electronic library is likely to have a great impact on the traditional library because of the effectiveness and efficiency presented by the former.

Teague (1985) is of a different view altogether. He argues that; even with home based extensions of the electronic office concept adapted to academic information, I am confident that the library as the storehouse, distribution centre, and a reference workshop for all information needs has a continuing role.
According to Lancaster (1982), the fact is that, through the capabilities of electronic access, librarians are becoming in a sense "disembodiment". This process of disembodiment will continue, at a greatly accelerated pace, as print on paper publications give way and are eventually completely replaced by electronic publications. A research library of the future, then, need not contain any printed materials at all. It can be a room containing a terminal and nothing more. Apart from archival repositories of the printed records of the past and institutions designed primarily to lend inspirational/recreational recording materials, libraries, as we know them are likely to disappear.

Lancaster also points out that:

In the early years of the transition from a paper-based society to one that is electronics based, libraries will still be places that people visit for access to information resources. In addition to paper resources, these libraries will provide the terminals needed to access the electronic resources. More importantly, they will provide the expertise needed to exploit these resources effectively. Later in the transition, as the electronic sources continue to gain importance, and the paper sources decline, as terminals become more common in offices and in homes, and as individual researchers become familiar and comfortable with the use of online databases, the need for these researchers to visit libraries will rapidly diminish, when this occurs, the library as an institution will begin its inevitable decline.

"Gathuya observes that Library functions have evolved from a mere
provision of materials to readers to a situation where the active search of information from various sources is paramount.” (Daily Nation, March 18, 1997)

It is quite clear that we are at a stage when electronic sources have gained importance and have become common especially in the developed countries. However, paper sources are yet to lose their importance as per the predictions of many.

“Libraries are advancing towards a future in which a significant proportion of information will be mediated in electronic forms besides the bibliographic or esoteric research resources”. (Sykes, 1996).

According to Lwehabura and Matovelo, 1999… an important issue here is the move from print based to electronic information which opens up new services such as electronic journals, electronic short loan collections, Integrated local databases and guiding library users to existing print-based information. Shift towards electronic information implies a move away from conventional study places to IT workstations, perhaps arranged in integrated learning resources centres rather than a conventional library building.

Palmer (1987) tries to point out some light for the libraries in his argument as thus: Growing numbers of full text databases will tempt scholars to use online systems with greater frequency. Libraries appear to be in a good position to help scholars move in this direction.
Libraries traditionally publish pathfinders and provide professional reference service to guide users through their collections. Similar approaches to information resources beyond the library's walls may be required in the future.

Muiruli (1986), points out that library and information services can only continue to act as the depository of knowledge and the central point for the dissemination of information if the task of utilizing modern technology is undertaken by libraries and information workers.

"Libraries of the future have a lot of opportunities to offer to users. These libraries can, for example, exploit the Internet service by publishing library information on the web, helping to link with communities to provide community information, publicize library membership programs, indigenous research findings, fee-based services in the library and advertise its own information online as well as put databases on the web for remote user consumption. Libraries of the future will in addition have the opportunity to centralize the services and provide means of access to the library resources so that the users can access the library from their homes, perform renewals of materials, submit reference queries, suggest new titles and request home delivery value added services." (Mutula, 2000)

The library is therefore expected to offer remote services to users in future.
2.4.3 The future position of the librarian

Commenting on the role of the librarian in the electronic age, Lancaster (in A Reader for the Professional librarian, 1982) observes that …librarians need no longer operate within the four walls of an institution. They can apply their professional skills in searching information sources and in answering questions wherever they can plug in a terminal. They can freelance from the home or form themselves into group practices as doctors and attorneys do. These trends, of course, are already quite evident in the profession.

Lancaster further notes that;

...the future of those librarians who support research activities, in academia, in industry and elsewhere, depends on their ability and willingness to get out of the library...the librarian of the electronic age does not need to function within a library.

Lancaster therefore sees the librarian as becoming an information consultant in the new information environment.

According to Teague, S.J. (1985), ...as long as librarians and of course schools of librarianship continue to update their knowledge and expertise, then there is no need to fear that the new computer and electronic based information professions will emerge to take over the
role of the librarian.

Teague makes it clear that schools of librarianship have a role to play in order to ensure that the information professional is not relegated in the new technological dispensation.

McCombs (1991) is of the view that the increasing availability of computerized information sources and networking capabilities, along with the proliferation of microcomputers in faculty homes and offices has led to increased demands for direct access to databases. The librarian’s role as online search intermediary appears to be changing from performing searches to aiding users in doing their own searching.

McCombs sees a situation whereby the librarian will take the role of the intellectual person guiding the user in literature searching in the online environment.

Lancaster (in A Reader for the Professional librarianship, 1982) notes, this information professional is likely to be employed as a facilitator or linker, as a kingpin in a network in which control is shared by service providers and their clients in jointly coping with complex tasks. It will be an occupation of great responsibility, requiring correspondingly high standards of admission to and training for the profession.

According to Ng’ang’a (1994), information managers should give computerization priority. The centres that are not computerized should begin hatching out plans to do so. It has become apparent that the amount of
information being produced can no longer be handled effectively through the use of conventional manual methods.

"Library and information workers in libraries of the future will have to position themselves to participate effectively in the new electronic revolution. Establishment of positions of “web librarians” shall be required. This member of staff shall have the role of a coordinator for e-mail publications in the library, trouble shooter and trainer to attend to house keeping tasks such as updating mailing lists, deleting and adding users and acting as a liaison between the library and the institution wide computing staff…" (Mutula, 2000)

What comes out from these arguments by several information professionals is that the librarian has a role to play in the electronic age on condition that he embraces the new technology and that the library in the traditional sense is bound to change.

It is also clear that little study has been done in the developing countries generally and none in particular done in Kenya, which documents the future of the library and the role of the librarian in the electronic age. This study will therefore fill this knowledge gap and investigate on the future of the library and the role of the librarian in the electronic age in Kenya.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 INTRODUCTION

This study sought to establish the future position of the physical library and the librarian in the electronic age. Central to the study was the exploration of the likely implication of using Information Technology (IT) in libraries in Kenya and what role this plays in processing and transmission of information. The study was confined within Nairobi and it covered two libraries; one special library and one academic library.

3.2 DESIGN AND LOCATION OF THE STUDY

The study comprised two case studies, that is, Dr. Lillian Beam library (USIU-A) and International livestock Research Institute (ILRI) library. Dr. Lillian Beam library is an academic library while ILRI library is a special library specializing in research. These two libraries were purposely chosen because they are within Nairobi and also because of their extensive use of information technologies. The researcher also considered the two libraries because they reflect two kinds of users, that is, users in an academic setting (Dr.Lillian Beam library) and Researchers (ILRI library).

3.3 SAMPLE SELECTION

The target populations for this study were library users and library staff. These were
randomly selected from amongst the library users and library staff and they included,

15 librarians

55 library users (15 from ILRI and 40 from USIU-A)

Altogether the sample selected was composed of 70 subjects.

The sample for library users were randomly selected by picking every second user who entered the library until the total of 55 was achieved. The 15 library staff were also randomly selected with preference being given to senior librarians, that is, the head librarians, the assistant head librarians, and the library sectional (departmental) heads.

3.4 RESEARCH INSTRUMENTS

To achieve the objectives of the study the following data collection techniques were used:

3.4.1 Questionnaires

3.4.2 Personal observations

3.4.1 Questionnaires

Two types of questionnaires were used; one for library staff and another for library users. The design for the two questionnaires included both open and closed-ended questions.

The nature of the study was explained to the respondents through a covering letter that was attached to the questionnaires. The researcher personally distributed the questionnaires to the respondents. In cases where the respondents were too busy to respond at the time of the researcher’s visit or where the respondent was absent, the questionnaire was left behind to be collected later.

The Questionnaire sought to find identify the areas of IT application in the library, the
user's use of IT services both within and outside the library as well as the respondents' views on the future position of the library.

3.4.1.1 Questionnaire for library staff

This aimed at revealing the overall implication of information technologies on libraries and the library profession. This questionnaire sought information on IT services offered by the library, factors hindering library computerization in Kenya and the librarians' views concerning the future of the library and the librarian.

3.4.1.2 Questionnaire for library users

This questionnaire solicited for information on library users' awareness of and use of various electronic information resources. This aimed at establishing the advantages of IT in libraries as compared to the traditional library system. Of great concern was the impact of IT on the way library users do their work, research and studies. Views of library users based on their experiences with the use of IT facilities and services in their libraries were sought. Such views were aimed at revealing the future direction of libraries and librarians in the electronic age.

3.4.2 Personal observation

Non-participant observation was also used. In this case, the researcher observed the IT facilities and services available in these libraries and their utilization by both library users and library staff. Observations necessary to the study were recorded down in a notebook, for instance, through observation the researcher was able to find out how the various information resources are stored or organized in the library. This method was
meant to help facilitate counter checking of the reliability of the responses in the Questionnaires.

3.5 DATA INTERPRETATION / ANALYSIS

The data was analysed using descriptive analysis. The researcher grouped the data collected in accordance with the objectives of the study as follows:

3.5.1 Information Technology (IT) in libraries.
3.5.2 Changes brought by IT on information storage, retrieval and dissemination.
3.5.3 The future position of the library and the librarian.

The responses gathered were coded by assigning a number to each response and then tallying them in frequency counts. For some data, the frequencies were calculated into percentages so as to facilitate the interpretation of the collected data. For other data, descriptive statements were used. The data was then presented in a descriptive form supported by tables for those questions that required further clarification.

3.6 FIELD ADMINISTRATION PROBLEMS

The researcher encountered the following problems in the course of data collection for this study.

3.6.1 Incomplete responses.

Some respondents were filling in incomplete responses and therefore the researcher had to go back to them for further explanation to their responses.
3.6.2 Incomplete sample response.

At the time of data collection, some library staff from USIU-A were on leave and it was therefore not possible to get them to fill the questionnaires. Because of this, the response rate for library staff was 80%. (12 instead of 15 library staff filled the questionnaires).

3.6.3 Lack of enough finances.

The researcher did not receive any sponsorship for the study. As a result the data collection process was slow because sometimes the researcher did not have enough finances to facilitate the process.
CHAPTER FOUR

4.0 DATA ANALYSIS, PRESENTATION AND FINDINGS

4.1 INTRODUCTION

This chapter presents with the findings from data collected through the use of
Questionnaires and by personal observation of the activities in the library by the
researcher. Library users and library staff filled the questionnaires.

The information gathered has been analysed, presented and discussed as per the objectives
and research questions of the study, then accordingly grouped in accordance with different
aspects of the problem being investigated as follows:

4.2 Background information of the respondent

4.3 Awareness of the various Information Technology (IT) facilities and also awareness of
their availability in the library

4.4 Respondent's use of IT services within the library

4.5 Use of IT services outside the library

4.6 Respondent's awareness of availability of Non Book Media (NBM) in the library and
use of the same.

4.7 Use of the Internet in accessing information

4.8 Benefits and disadvantages of the Internet service

4.9 The kind of improvement required for the Internet service

4.10 The effect of the use of IT services on the way the respondent does his work
4.11 The changes brought by IT on the traditional library

4.12 The importance of the library in future

4.13 The nature of the future library

4.14 The state of the art in the specific libraries (USIU-A and ILRI) as regards the library service and resources.

4.2 BACKGROUND INFORMATION OF THE RESPONDENT

4.2.1 Response rate

A total of 55 users filled and returned the users’ questionnaire. This was a 100% response rate because the researcher had sampled the same number of users. Out of the 55 respondents, 40 were from Dr. Lillian Beam library (USIU_A) while 15 were from International livestock Research Institute (ILRI).

4.2.2 Title of the Respondent

The 55 respondents included 36 undergraduate students, 10 postgraduate students, 2 academic staff members and 7 researchers. This is as shown in the table below;

<table>
<thead>
<tr>
<th>Title</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate student</td>
<td>36</td>
<td>65.5</td>
</tr>
<tr>
<td>Post-graduate student</td>
<td>10</td>
<td>18.2</td>
</tr>
<tr>
<td>Academic staff</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>Researcher</td>
<td>7</td>
<td>12.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

All the respondents were users of the library. The researcher did not gather any
information from a non-library user for it was only frequent library users who were in a position to fill the questionnaire.

4.2.3 Frequency of library use by respondents

On the frequency at which the respondents use the library, the information gathered indicated that more than 50% of the respondents use the library on daily basis. The following table further illustrates this.

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a day</td>
<td>19</td>
<td>34.5</td>
</tr>
<tr>
<td>More than twice a day</td>
<td>23</td>
<td>41.9</td>
</tr>
<tr>
<td>Once a week</td>
<td>3</td>
<td>5.5</td>
</tr>
<tr>
<td>Twice a week</td>
<td>6</td>
<td>10.9</td>
</tr>
<tr>
<td>Four times a week</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>Once a month</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>As need arises</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The highest percentage (41.9%) of the respondents visit the library more than twice a day followed by those who visit once a day (34.5%). The lowest percentage (1.8%) visit the library once a month and as need arises. This is an indication that most of the respondents visit the library regularly.

4.3 AWARENESS AMONG USERS OF THE INFORMATION TECHNOLOGY (IT) SERVICES AVAILABLE IN THEIR LIBRARIES.

As the table below shows, out of the total number of respondents a high frequency indicated an awareness of the worldwide web service (53). 50 were aware of e-mail,
44 were aware of OPAC, 40 were aware of CD-ROM while 37 were aware of online databases. There were a total of 224 responses on the issue of awareness of IT services. This is an indication that not all the library users are aware of IT services.

Table 3: Awareness of IT Services

<table>
<thead>
<tr>
<th>No.</th>
<th>IT-service</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Online Public Catalogue (OPAC)</td>
<td>44</td>
<td>19.6</td>
</tr>
<tr>
<td>2.</td>
<td>CD-ROM</td>
<td>40</td>
<td>17.9</td>
</tr>
<tr>
<td>3.</td>
<td>Online databases</td>
<td>37</td>
<td>16.5</td>
</tr>
<tr>
<td>4.</td>
<td>Internet-World Wide Web (WWW)</td>
<td>53</td>
<td>23.7</td>
</tr>
<tr>
<td>5.</td>
<td>Internet-Electronic mail (E-mail)</td>
<td>50</td>
<td>22.3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>224</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

On the awareness of the availability of the same IT services in their library, the data gathered indicated that; 42 respondents (6 from ILRI and 36 from USIU-A) were aware of the availability of OPAC in their library, 34 (22 from USIU-A) and 12 from ILRI) were aware of the availability of CD-ROM), 36 (27 from USIU and 9 from ILRI were aware of online databases), 47 (32 from USIU-A and IT from ILRI) were aware of Internet-WWW service 27 (22 from USIU-A and 15 from ILRI) were aware of E-mail service in their library while 26 (19 from USIU-A and 7 from ILRI) were aware of the availability of electronic journals in their library. This is clearly shown in the table below.

Table 4 – Awareness of availability of IT services in the library

<table>
<thead>
<tr>
<th>No.</th>
<th>IT-service</th>
<th>Frequency</th>
<th>ILRI</th>
<th>USIU-A</th>
<th>Total</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>OPAC</td>
<td>6</td>
<td>12</td>
<td>19</td>
<td>18.9</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>CD-ROM</td>
<td>12</td>
<td>22</td>
<td>34</td>
<td>15.3</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Online databases</td>
<td>9</td>
<td>27</td>
<td>36</td>
<td>16.2</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Internet-WWW</td>
<td>15</td>
<td>32</td>
<td>47</td>
<td>21.2</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Internet E-mail</td>
<td>15</td>
<td>22</td>
<td>37</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Electronic journals</td>
<td>7</td>
<td>19</td>
<td>26</td>
<td>11.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>222</strong></td>
<td></td>
<td></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

44
From the table it can be observed that the facility or service whose availability in the ILRI library is least known to the respondents is OPAC. This is mainly because the computer offering this service is not placed where users can easily access. It is located in an enclosed area. In USIU-A library, the computers offering this service are kept at a point where users can have access to them without difficulties hence a big number of respondents (36) from this library are aware of the availability of the service in the library.

Few respondents (19) indicated an awareness of electronic Journals in their library. This is probably because they are still very much accustomed to print journals as some of the library staff explained to the researcher. For the ILRI users not all of them were aware of the availability of online databases and electronic journals in their library. This can also be explained by the fact that the respondents are still very much accustomed to print.

Further research and personal observation by the researcher revealed that all the above IT services were available in each of the two libraries. However, USIU-A library users are not allowed to use the E-mail service in the library hence this can explain why only 22 out the 40 respondents were aware of the availability of the same service in their library. On the other hand, the Internet (whether the WWW or E-mail services) was available to users in ILRI library. Again this explains why all the respondents reflected an awareness of these services in their libraries.

4.4 RESPONDENT'S USE OF IT SERVICES

As shown in the table below, each of the respondents had used one, more or all of the above-mentioned IT services.
Table 5: Use of IT services

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>54</td>
<td>98.2</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>100</td>
</tr>
</tbody>
</table>

This situation is a clear indication that library users are embracing the new technology.

The question on the use of IT services gathered 170 responses. The following table illustrates the breakdown of the responses.

Table 6 Use of IT-Services within the library

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ILRI</td>
<td>USIU-A</td>
</tr>
<tr>
<td>1. OPAC</td>
<td>7</td>
<td>33</td>
</tr>
<tr>
<td>2. CD-ROM</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>3. Online databases</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>4. Internet WWW</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>5. Internet-E-mail</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td>6. Electronic Journals</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>170</strong></td>
<td><strong>170</strong></td>
</tr>
</tbody>
</table>

The data gathered indicates that 40 respondents had used the OPAC service, 24 had used E-mail; 28 had used online databases, 41 had used Internet-WWW, 33 had used E-mail while 4 had used Electronic Journals. The very low use of electronic journals (only 4 respondents from both libraries) further explains the fact that the respondents have not lost their attachment to print journals. There is also an indication of low usage of CD-ROM among the USIU-A library respondents. This is possibly because some respondents do not know how to use it. It is also because before the new multimedia centres were established which has a good number of computers there were only two computers offering these services in the library. This was obviously not sufficient for all the users.
and it explains why most of the respondents have not used some of these computer services in the library yet. For the OPAC service there is a high level of use among the USIU-A respondents. One reason for this is that the computers used for this service are not the same ones used for the other services and therefore the competition of use of the computers for various services does not arise.

4.5 RESPONDENT'S USE OF IT SERVICES OUTSIDE THE LIBRARY

On the question of whether the respondents had used the IT services elsewhere a part from within the library, only one respondent had not used any of the IT services elsewhere. A great number of the respondents had used the Internet service (both WWW and E-mail service) elsewhere. Only one respondent had used electronic journals elsewhere a part from the library. This is as shown in the table below:

Table 7: Respondent's use of IT-Services outside the library

<table>
<thead>
<tr>
<th>No.</th>
<th>IT-Service</th>
<th>ILRI</th>
<th>USIU-A</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OPAC</td>
<td>5</td>
<td>7</td>
<td>12</td>
<td>8.3</td>
</tr>
<tr>
<td>2</td>
<td>CD-ROM</td>
<td>7</td>
<td>13</td>
<td>20</td>
<td>13.8</td>
</tr>
<tr>
<td>3</td>
<td>Online databases</td>
<td>8</td>
<td>12</td>
<td>20</td>
<td>13.8</td>
</tr>
<tr>
<td>4</td>
<td>Internet WWW</td>
<td>14</td>
<td>29</td>
<td>43</td>
<td>29.9</td>
</tr>
<tr>
<td>5</td>
<td>Internet E-mail</td>
<td>13</td>
<td>35</td>
<td>48</td>
<td>33.0</td>
</tr>
<tr>
<td>6</td>
<td>Electronic Journals</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td></td>
<td></td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>145</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

30 respondents had used the IT services from a Cyber cafe, 18 from the office, 33 from a computer laboratory, 11 from home while 9 used the services from information centres.
These results reveal that there are other centres from which the users can access the various IT services. The library is therefore not the only place that offers IT services. Of the 54 users who had used the IT service(s) from elsewhere apart from the library. 38 indicated that they had paid for the use of the service(s) while 16 had used the service(s) free of charge.

The ILRI respondents who had used the service(s) within the library had not paid for the use service. This is because as they explained the computer centres within ILRI offer these services free of charge. However, for the USIU-A computer laboratory, which is the other centre offering computer services, these services are offered at a fee. Other respondents who indicated that they had paid for use of these services explained that they had used the services in other centres like cyber cafes, computer bureaus etc. not necessarily within their institution.

On the question on how the respondents rated the computer services in terms of speed of access, the response was as below.

Table 8: Speed of access of computer services

<table>
<thead>
<tr>
<th>No.</th>
<th>Speed of Access</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Very fast</td>
<td>14</td>
<td>25.5</td>
</tr>
<tr>
<td>2.</td>
<td>Fast</td>
<td>36</td>
<td>65.5</td>
</tr>
<tr>
<td>3.</td>
<td>The same as searching for information from books</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>4.</td>
<td>Very slow</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>5.</td>
<td>Sometimes very fast and other times slow</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>55</td>
<td>100.0</td>
</tr>
</tbody>
</table>

A great percent (65.5%) of the respondents felt that the computer services were generally fast while 25.5% felt that the services were very fast. 3.6% felt that there was no
difference between information access from books and access from the computer in terms of speed. Another 3.6 could not clearly comment on the speed because they felt that sometimes the computer services could be very slow and other times very fast. Only 1.8% felt that the computer service was slow. These results could mean that there are quite a number of factors coming into play with regard to the speed of information access and the computer service. Such factors would include: the state of the server, the organization of information (for example the organization of the particular website being searched), and the specificity of the required information, among other factors.

4.6 AWARENESS OF THE AVAILABILITY AND USE OF NON-BOOK MEDIA (NBM) FACILITIES IN THE LIBRARY.

The data gathered from the question on the availability of NBM facilities in the library reflected that not all the respondents were aware of all the NBM facilities available in their specific libraries. Some (4) were not even sure of the existence of any NBM facilities in their library.

On the use of NBM facilities, the total number of respondents who use one or more than one of the NBM facilities in their library was ninety-six (96). This number is less than half the total number of respondents aware of the existence of the facilities in their library. This shows that although some users are aware that certain NBM facilities exist in their libraries they do not make use of them. There are also those users who are not aware of some NBM facilities available in their library.
The table below reflects this information:

Table 9: Respondents’ awareness of the availability and use of NBM facilities in the library.

<table>
<thead>
<tr>
<th>NBM Facility</th>
<th>Awareness of availability of Facility in the library</th>
<th>Use of NBM Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ILRI</td>
<td>USIU-A</td>
</tr>
<tr>
<td>Videotapes</td>
<td>8</td>
<td>39</td>
</tr>
<tr>
<td>Audio tapes</td>
<td>7</td>
<td>32</td>
</tr>
<tr>
<td>Films</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Photos</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Slides</td>
<td>0</td>
<td>26</td>
</tr>
<tr>
<td>Overhead Projector</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>CD-ROMs</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Diskettes</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Computerized Projector</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Not sure</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>171</td>
</tr>
</tbody>
</table>

The respondents’ low usage of the NBM facilities could be attributed to little publicity of the same by library staff such that some users do not use the facilities because they are not aware of the existence of the same in the library. Where the facilities are kept in the library will also determine the way they are used. That is, if they are made easily accessible to the users then they are likely to be regularly used. On the other hand, if they are not easily accessible to the users, then they will most likely be poorly used or not used at all. The researcher observed that the NBM facilities in these two libraries are not kept in the open like in the shelves where users can easily have access to them. This is because of security reasons. However the library staffs need to look for a way of making these facilities easily accessible to users without exposing them to the risks of insecurity and damage.

4.7 USE OF THE INTERNET IN ACCESSING INFORMATION

The responses given for the question on whether the respondent had used the Internet
to access information revealed that all the respondents had used the Internet. This is an indication that all the respondents are conversant with the Internet service. The information gathered indicated that the respondents used the Internet to access the following kinds of information:

4.7.1. Information on published journals and books in a specific field.
4.7.2. Current information from electronic journals.
4.7.3. Entertainment/leisure information.
4.7.4. Information related to a specific study (e.g. – research project).
4.7.5. Religious related information.
4.7.7. Software downloads.
4.7.8. Information on educational scholarships and academic seminars.
4.7.9. Multimedia news.

The following table illustrates the number of respondents on each of the above uses and the percentages for use.
The question on the quality of information received from the Internet as compared to that from books yielded the following results. 52.8% of the total 55 respondents felt that the information from the Internet was of high quality. 14.5% felt that the information from the Internet was of low quality as compared to that from books. 20% of them felt that both sources (the book and the Internet) yielded information of the same quality while 1.8% felt that the information from the Internet was shallow. On the other hand 10.9% the respondents felt that sometimes information from the Internet was low quality while other times it was of high quality. This is an indication that the respondents value both the Internet and the books as important sources of information.
From the data gathered, the following stood out as the benefits of the Internet service in accessing information.

4.8.1 The Internet is user friendly, that is, the computer provides menus that guide the user into using the Internet. The links provided help a user in moving from one point to another as they access the service.

4.8.2 The Internet provides a fast access to required information.

4.8.3 The Internet makes access to a variety of information resources possible.

4.8.4 The Internet makes access to information in a variety of formats possible.

4.8.5 It can provide very current information for information on the Internet can be conveniently updated.

4.8.6 The Internet makes it possible to amalgamate information from different sources to suit user needs.

4.8.7 Through the Internet Information search may not involve physical movement. It is possible for one to access all the information they need from the comfort of home, office etc as long as one has a computer that is connected to the Internet.

4.8.8 The Internet allows quite a number of people to access the same information at the same time.

4.8.9 The Internet provides wide subject coverage for it provides information on all fields of knowledge.

This question on the benefits of the Internet in accessing information yielded 135 responses. Out of these 135 responses, the greatest number (41) was of the opinion
that access to a variety of information resources is made possible by the Internet.

The table below shows how the 135 responses are distributed among the various points.

Table 11: Benefits of the Internet

<table>
<thead>
<tr>
<th>No.</th>
<th>Benefit</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>User friendly</td>
<td>31</td>
<td>23</td>
</tr>
<tr>
<td>2.</td>
<td>Faster access</td>
<td>32</td>
<td>23.7</td>
</tr>
<tr>
<td>3.</td>
<td>Access to a variety of information resources is made possible</td>
<td>41</td>
<td>30.4</td>
</tr>
<tr>
<td>4.</td>
<td>Access to information in a variety of formats e.g. Audio, Prints, Graphics etc.</td>
<td>22</td>
<td>16.3</td>
</tr>
<tr>
<td>5.</td>
<td>Provides very current information</td>
<td>5</td>
<td>3.7</td>
</tr>
<tr>
<td>6.</td>
<td>Amalgamation of information from different sources to suit user needs is made possible.</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>7.</td>
<td>The process of information access may involve movement from one place to another.</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>8.</td>
<td>A number of people can access the same information at the same time.</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>9.</td>
<td>Wide subject coverage.</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>135</td>
<td>100</td>
</tr>
</tbody>
</table>

The responses indicate that the Internet service presents a number of advantages to the information seeker. It is also noted that what one user may find as a good point of the Internet may not be the same to another user. For example, not all the users feel that the Internet provides fast access to information. This can be explained by other factors involved which would include; the state of the power supply, the state of the server, the
kind of information needed, the number of people surfing the Internet at the same time, etc.

On the question on whether there were any disadvantages to be attributed to the Internet service, out of the total 55 respondents, 41 felt that the Internet service had some disadvantages while the remaining 14 felt that no disadvantages could be attributed to the service.

The following table outlines the disadvantages/limitations attributed to the Internet service as given by the respondents. The information in the Internet implies that although the Internet service offers a number of benefits to the information seeker, it is not devoid of weaknesses. Some of these weaknesses are as a result of the limitations inherent within the computer as a machine while others are to do with external factors such as the telecommunications infrastructure, power supply, etc. The issue of cost seems to be of concern to many respondents. These as the respondents explained are costs involved in getting connected to the Internet as well as the charges involved in accessing information from the Internet. Purchasing a computer also involves some costs, which are not affordable to all those who may wish to have one.
<table>
<thead>
<tr>
<th>No.</th>
<th>Disadvantage</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>No privacy or confidentiality of information</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>2.</td>
<td>Rays (Gamma) can be disastrous to the eyes</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>3.</td>
<td>When the server is down access to information is slow. Also when many people are surfing it takes time to download something from the Internet and even sometimes the exercise fails completely.</td>
<td>10</td>
<td>11.4</td>
</tr>
<tr>
<td>4.</td>
<td>Information is summarised and hence sometimes insufficient</td>
<td>7</td>
<td>8.0</td>
</tr>
<tr>
<td>5.</td>
<td>Some files cannot be reproduced</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>6.</td>
<td>No quite user friendly. The Internet contains a lot of junk such that a user who is not conversant with the service can retrieve a lot of unnecessary information. Also the use of many links can waste a user's time.</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>7.</td>
<td>Needs efficient Telecommunication service and electric power. This is yet to be achieved in most developing countries like Kenya.</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>8.</td>
<td>If the computer's memory is low then the speed of access will also be low.</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>9.</td>
<td>Bugs and viruses can tamper with information on the computer.</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>10.</td>
<td>There is too much information on the Internet leading to confusion. The user needs to be quite specific. It can be time-consuming especially for blind-ended searches.</td>
<td>6</td>
<td>6.8</td>
</tr>
<tr>
<td>11.</td>
<td>Sometimes some information or some Websites are not well organized.</td>
<td>5</td>
<td>5.7</td>
</tr>
<tr>
<td>12.</td>
<td>Power failure (a serious problem in Kenya) affects the Internet service. Without electric power it is not possible to access information on the Internet.</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>13.</td>
<td>There is a lot of pornographic information on the Internet</td>
<td>5</td>
<td>5.7</td>
</tr>
<tr>
<td>14.</td>
<td>Reading from the screen can be tedious</td>
<td>3</td>
<td>3.4</td>
</tr>
</tbody>
</table>
| No. | Disadvantage                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Frequency | Percentage (%)
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------
| 15. | Lack of a bibliography on the information on the Internet can make searching quite a frustrating exercise                                                                                                                                                                                                                                                                                                                                                             | 4         | 4.5            
| 16. | Sometimes you only get excerpts of books on the Internet yet you may be interested in more than just an excerpt                                                                                                                                                                                                                                                                                                                                               | 3         | 3.4            
| 17. | The internet lacks abstracts for some very important scientific papers                                                                                                                                                                                                                                                                                                                                                                                           | 3         | 3.4            
| 18. | The Internet is only relevant to computer literate people                                                                                                                                                                                                                                                                                                                                                                                                          | 3         | 3.4            
| 19. | The Internet service is quite costly – It involves the cost of getting connected as well as the costs for accessing information from the Internet.                                                                                                                                                                                                                                                                                                              | 16        | 18.1           
| 20. | There is information censorship. Some sites require one to pay membership fee in order to access them.                                                                                                                                                                                                                                                                                                                                                  | 2         | 0.2            
| TOTAL |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 88        | 100            

### 4.9 KIND OF IMPROVEMENT REQUIRED FOR THE INTERNET SERVICE

The respondents gave some suggestion that they felt would improve the Internet service and hence make it a better information service. The following table outlines the suggestions they gave.
Table 13: Suggestions for improving the Internet service.

<table>
<thead>
<tr>
<th>No.</th>
<th>Suggested improvement</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The cost of accessing information form the Internet should be cut down.</td>
<td>41</td>
<td>38.3</td>
</tr>
<tr>
<td>2.</td>
<td>The cost involved in getting connected to the Internet should be reduced.</td>
<td>39</td>
<td>36.4</td>
</tr>
<tr>
<td>3.</td>
<td>Information on the internet should be well organized</td>
<td>20</td>
<td>18.7</td>
</tr>
<tr>
<td>4.</td>
<td>Censorship on some vital information to be lifted</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>5.</td>
<td>Phonographic websites to be linked or only accessed by the use of passwords.</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>6.</td>
<td>Security on Websites to avoid information hanging</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>7.</td>
<td>TELCOM to improve access to airwaves</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>8.</td>
<td>Improved speed of server for faster access</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>107</td>
<td>100</td>
</tr>
</tbody>
</table>

The responses given indicate that the respondents felt that if the above suggestions are implemented where necessary then the Internet service will become a better information service provider as opposed to the way it is now.

4.10 HOW IT SERVICES HAVE AFFECTED USER'S WORK

50 (90.9%) of the total 55 respondents felt that the services like OPAC, CD-ROM, and the Internet had positively affected the way they did their work while the remaining 5 (9.1%) felt that the services had not affected the way they did their work in any way. The way the did their work as far as the mentioned IT services are concerned.

Only a very small percentage of the respondents felt that the use of the above
mentioned services had not affected the way they did their work. This is as opposed to the other group (90.9%) who felt that the above services had positively affected the way they did their work. The fact that a big number were on the positive side implies that the computer has not been without impact as far as the library user's work is concerned.

The responses on the ways in which the IT services like OPAC, CD-ROM and the Internet had affected users/respondents work are as detailed below:

**Table 14: Effect of IT services on respondent's work**

<table>
<thead>
<tr>
<th>No.</th>
<th>Effect</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Has made my work easy in terms search time</td>
<td>44</td>
<td>36.1</td>
</tr>
<tr>
<td>2.</td>
<td>Has improved the quality of my work</td>
<td>33</td>
<td>27</td>
</tr>
<tr>
<td>3.</td>
<td>Has slowed down the rate of my work</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>Has made it possible for me to access a variety of information resources</td>
<td>44</td>
<td>36.1</td>
</tr>
<tr>
<td>5.</td>
<td>Has made me a better global scholar as it offers diversity of ideas.</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>122</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

This is a clear indication that the mentioned computer services have had a positive effect on the way the respondents did their work.

### 4.11 EFFECT OF IT ON THE TRADITIONAL LIBRARY

All the 55 respondents responded to the question on whether the role of the traditional library as a custodian and provider of books had changed in any way with the use of IT services. 48 (87.3%) of the respondents were of the opinion that the role of the
traditional library had changed while the rest (12.7%) felt that no change had taken place as far as the role of the traditional library is concerned.

Those respondents who were of the opinion that the role of the traditional library had changed gave the areas of change as follows:

Table 15: Effect of IT on traditional library

<table>
<thead>
<tr>
<th>No.</th>
<th>Effect</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The library now stores not only books but also other forms of information resources.</td>
<td>37</td>
<td>30.6</td>
</tr>
<tr>
<td>2.</td>
<td>The library users can now access information from the Internet without the help of the librarian.</td>
<td>40</td>
<td>33.1</td>
</tr>
<tr>
<td>3.</td>
<td>Library users can now get the same kind of information they would get from the library from elsewhere.</td>
<td>22</td>
<td>18.2</td>
</tr>
<tr>
<td>4.</td>
<td>The library is no longer a custodian of information but a disseminator of information</td>
<td>22</td>
<td>18.2</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>121</td>
<td>100</td>
</tr>
</tbody>
</table>

A great percentage of the respondents felt that the role of the traditional library had changed with the use of IT. The areas of change as the respondents indicated show that the library is moving from its tradition of storing books to storing of information in a variety of formats. The nature of information retrieval and dissemination has also changed because now users can access information from the Internet without the assistance of the librarian. Another significant change is that the library is no longer the first port of call for most people looking for information. This is because now people can get information from elsewhere via a computer that could be at home, in the office, etc.
4.12 THE IMPORTANCE OF THE LIBRARY IN FUTURE

38 (69%) of the total 55 respondents felt that they would still need the library in the years to come. 14 (25.5%) felt that they would not need the library while the remaining 3 (5.5%) were not sure if they would still need the library in future or not.

It is clear from the table that more than half of the respondents felt that the library would still be important in future. This is a very significant observation as far as the future position of the library is concerned. It gives a positive pointer for the library though for how long this is something yet to be established for many changes are still taking place.

Those who felt that they would still need to visit the library in future gave the following reasons for their position.
Table 16: Reasons why respondents will still need to visit the library in future

<table>
<thead>
<tr>
<th>No.</th>
<th>Reasons</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not all information is available on the Internet</td>
<td>8</td>
<td>28.6</td>
</tr>
<tr>
<td>2</td>
<td>Information in fine details will be found in books</td>
<td>5</td>
<td>17.9</td>
</tr>
<tr>
<td>3</td>
<td>The library will still be necessary for archival information needs</td>
<td>5</td>
<td>17.9</td>
</tr>
<tr>
<td>4</td>
<td>Books can be used where there is no electric power. Places that are not yet supplied with electric power will therefore still need the library.</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>5</td>
<td>The book and the internet will supplement each other and will always do. The Internet should be seen as a guide or reference with the book still remaining an indispensable authority.</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>6</td>
<td>Some information on the Internet is in the form of abstracts and therefore not sufficient. The library will therefore still be a necessary resource in the years to come.</td>
<td>1</td>
<td>3.5</td>
</tr>
<tr>
<td>7</td>
<td>Reading a book is preferable to reading from the screen. This is because a book is more tangible. Books are therefore more user friendly</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>9</td>
<td>The internet is costly. Because of the cost involved, people in developing countries like Kenya will still need to visit the library to access information from books and also from the Internet facilities within the library.</td>
<td>1</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>28</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

These responses indicate that there are features inherent in the book that makes it an important source of information.

On the other hand, those who felt that they would not need the library in future also gave reasons as below.
Table 17: Reasons why respondent will not need to visit the library in future

<table>
<thead>
<tr>
<th>No.</th>
<th>Reason</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All the information that we need will be available on the Internet</td>
<td>12</td>
<td>75</td>
</tr>
<tr>
<td>2</td>
<td>Because one can access the Internet from the comfort of home, Office, etc, there will be no need to visit the library in future</td>
<td>3</td>
<td>18.8</td>
</tr>
<tr>
<td>3</td>
<td>The Computer will take over the work of the library</td>
<td>1</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

For those respondents who felt that they would still need the library in future the greatest number felt that the library would still remain important because not all information will be available on the Internet. On the other hand, the other group had the highest number being of the opinion that in future all information will be available on the Internet and therefore the Library will not be necessary in future. This is a point worth noting because as it is now a lot of what is in books is not yet available on the Internet. Though it may be just a matter of time before most of this information is available on the Internet, there is a great possibility that still a very significant part of information we have in books may never find its way into the Internet.

4.13 THE NATURE OF THE FUTURE LIBRARY

The question on the nature of the future library gathered 59 responses. This is as shown below;
Table 18: Nature of the future library

<table>
<thead>
<tr>
<th>No.</th>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Information will be available on the Internet so we will not need to visit the library</td>
<td>5</td>
<td>8.5</td>
</tr>
<tr>
<td>2</td>
<td>The Internet and the library are going to supplement each other</td>
<td>46</td>
<td>78</td>
</tr>
<tr>
<td>3</td>
<td>The physical library is only going to be useful as a storehouse of books</td>
<td>8</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>59</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

A great number of the respondents (78%) felt that the Internet and the physical library are going to supplement each other in future. The smallest percentage (8.5%) felt that all information would be available on the Internet and therefore we would not need the physical library.

Currently the library and the Internet are to some extent supplementing each other. However, as the situation is in Kenya currently, that is, given the poor economic state, the poor telecommunication infrastructure, the power supply, etc. the possibility of the Internet being accessible to all is likely to take sometime before it is fully realized in Kenya.

4.14 THE STATE OF THE ART IN THE CURRENT LIBRARY SERVICE AND RESOURCES

The question on whether the respondent was satisfied with the current library service and resources was analysed separately for respondents from each of the two libraries. The researcher felt that that this was necessary because the issues affecting one library may
not be the same to those affecting another library. The data gathered yielded the following results;

4.14.1 ILRI library

The total respondents from ILRI library were 15. Out of these, 8 responded that they were satisfied with the current library service and resources offered in their library. The remaining 7 expressed dissatisfaction with the same.

Those who expressed dissatisfaction gave the following reasons.

4.14.1.1 The library has few computers that are not sufficient for the users. This makes them have to queue as they wait to use a computer, something that eats into their time.

4.14.1.2 The library subscribes to few journals. Some respondents felt that the journals subscribed to were not enough and hence did not offer the users sufficient information for their work.

4.14.1.3 The available computers have outdated programs and are slow.

4.14.1.4 The library lacks all the necessary literature references.

4.14.1.5 Information available in the library is limited to areas of research interest of the institute. The respondent’s felt that no discipline in knowledge is independent and hence information on disciplines closely related to the Institute’s areas of interest should be acquired.

4.14.1.6 Computers are infected with viruses.

4.14.1.7 The Library’s opening hours are limited.

4.14.1.8 Sometimes the librarian’s service to users is slow. The respondent’s felt that this was because the library staffs are few.
The ILRI library respondents also gave the following as the positive changes they would want to see in the library.

4.14.1.8.1  The number of computers should be increased so that they can be sufficient for the library users.

4.14.1.9  The computer software should be regularly updated.

4.14.1.10  The library should acquire safer and faster computers.

4.14.1.11  The library should subscribe to more scientific Journals.

4.14.1.12  The library’s opening hours should be looked into so that they can be convenient for all users.

4.14.1.12.1.1  The number of library staff should be increased so that the library service can be fast and efficient.

4.14.1.15  There is need to improve on the varieties of information stocked. There is need to introduce information resources on various relevant disciplines.

The library should look into the above issues raised by the respondents and improve on them in order to provide a better service to its users.

4.14.2 USIU-A

The total number of respondents for USIU-A was 40. Out of these 40, 37 expressed satisfaction with the current library service while the remaining 3 expressed dissatisfaction with the same.

Those who expressed dissatisfaction gave the following reasons

4.14.2.1  The online database subscribed to (EBSCO-HOST) does not always offer sufficient information.

4.14.2.2  The reading space in the library is limited.
4.14.2.3 Sometimes the library service is slow because the library staffs are few. For instance, a user may forward a request to a librarian and by the time they get the response back it may too late.

4.14.2.4 Users are not allowed to use the E-mail service in the library.

4.14.2.5 The CD-ROMs are not properly arranged and accessing them is sometimes very hectic for the users.

The USIU-A respondents gave the following as the positive changes they would want to see in their library.

4.14.2.6 The number of computers to be increased so that they can be sufficient for users.

4.14.2.7 The library should subscribe to more online databases, as sometimes EBCO-HOST does not have sufficient information.

4.14.2.8 The library staff should properly arrange CD-ROMs for easy access.

4.14.2.9 The issue of reading space should be looked into such that enough reading space is provided for users.

4.14.2.10 Users should be allowed to use E-mail service in the library.

4.14.2.11 The number of library staff should be increased so as to make the library service more efficient.

Certain issues stand out as issues of concern for respondents from both libraries. Such issues include:

1. The number of computers in the library.

2. The number of Journals subscribed to.

3. The number of library staff.

These are critical issues, the others not withstanding, and they should be looked into if the library is going to stand a chance in future.
4.15 BACKGROUND INFORMATION OF THE RESPONDENT

4.15.1 Response rate.

12 library staff members filled the library staff questionnaire. This was an 80% response rate for the researcher had a sample selection of 15 library staff. Out of the 12, 3 were from ILRI library while 9 were from USIU-A library. ILRI has 3 qualified library staff and therefore the response rate from ILRI was 100%. From USIU-A library the 12 library staff should have filled the questionnaire but only 9 did. This was because at the time the researcher was collecting the data, 3 library staff members were on leave.

4.15.2 Title of Respondent.

The 12 respondents included;

1. 2 chief librarians (one from ILRI and one from USIU-A)
2. 1 librarian
3. 6 assistant librarians; and
4. 3 library assistants
Table 19: Title of respondent

<table>
<thead>
<tr>
<th>Title</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Librarian</td>
<td>2</td>
<td>16.7</td>
</tr>
<tr>
<td>Librarian</td>
<td>1</td>
<td>8.3</td>
</tr>
<tr>
<td>Assistant Librarian</td>
<td>6</td>
<td>50.0</td>
</tr>
<tr>
<td>Library Assistant</td>
<td>3</td>
<td>25.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.16 USE OF INFORMATION TECHNOLOGY (IT) IN THE LIBRARY

Respondents from both librarians (USIU-A and ILRI) indicated that there is IT use in their libraries. This is an indication that IT is being used in libraries in Kenya.

On the IT facilities available in the libraries, the responses were as tabulated below:

Table 20: IT facilities/services in the library

<table>
<thead>
<tr>
<th>IT facility</th>
<th>Frequency</th>
<th>ILRI</th>
<th>USIU-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Public Catalogue (OPAC)</td>
<td>9</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CD-ROM</td>
<td>9</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Online databases</td>
<td>9</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Internet – World Wide Web</td>
<td>9</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Internet - E-mail</td>
<td>9</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

This implies that in both libraries, all the above IT facilities are provided.

The responses indicated that each of the two libraries was using an integrated software system. Respondents from USIU-A indicated that they are using a library
software called Erudite. ILRI respondents on the other hand indicated that the library software they are using is called In-Magic.

4.16.1 Connection to information Networks

The responses gathered indicated that both libraries were on an information network.

On the question on which information network they were connected to, the responses indicated that each of the two libraries was on both Local Area Network (LAN) and on Wide Area Network (WAN).

The responses gathered implied that the library users from each of the two libraries know how to access information in the library using information networks. While the ILRI library users use the information networks for both literature searching and for e-mail service the USIU-A users only use the network services for literature searching.

According to the USIU-A respondents, the USIU-A library users got to know how to use the information networking facilities through:

a. Training

b. User education

c. Introductory courses which are part of the student’s course in their first year.

On the other hand, the ILRI library users got to know how to use their library through;
4.16.2 Subscription to electronic journals

According to the respondents, both libraries (i.e. USIU-A and ILRI) subscribe to electronic journals. USIU-A subscribes to EBSCO - Host (a database that contains 6000 journals). ILRI subscribes to Elsevier-Science Direct database.

This is an indication that these two libraries are able to access external resources of information. The database that each library subscribes to is relevant to the objectives of its parent organization.

Only six (6) out of the ten (10) respondents responded to the question on the cost of subscribing to electronic journals as compares to that of subscribing to Print Journals. All these six respondents indicated that Electronic Journals were relatively cheaper if subscribed to as a database rather than as individual titles. The other six (6) respondents did not respond because they were not directly involved with library acquisitions and were therefore not in a position to comment on the cost.

Many of the respondents were not in a position to clearly respond on the Journals users preferred using (i.e. whether print or electronic journals). This was because as some explained no survey had been carried out in either of the libraries on the type of Journals preferred. Only three respondents responded to this question. One respondent (from ILRI) indicated that the users preferred Electronic Journals. On the other hand, two respondents from USIU-A indicated that users preferred print Journals because they
were more accustomed to them after having used them for a long time.

This is an indication that it is yet to be established as to what kind of journals users prefer (that is, whether print or electronic). This is mainly because as some respondents explained, users have not lost their attachment to print journals. Because the electronic journals are offering the conveniences of time, currency, and place, some users are going for them. However, these users are still using print journals.

4.17 NON BOOK MEDIA (NBM) FACILITIES OFFERED TO USERS.

On the question on the NBM facilities provided to users, the responses given yielded the following:

Table 21: NBM facilities provided to users.

<table>
<thead>
<tr>
<th>NBM Facility</th>
<th>LIBRARY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USIU-A</td>
</tr>
<tr>
<td>Microfilm</td>
<td>✓</td>
</tr>
<tr>
<td>Microfiche</td>
<td>✓</td>
</tr>
<tr>
<td>Video Cassettes</td>
<td>✓</td>
</tr>
<tr>
<td>Photographs</td>
<td>✓</td>
</tr>
<tr>
<td>Audio tapes</td>
<td>✓</td>
</tr>
<tr>
<td>CD-ROM</td>
<td>✓</td>
</tr>
</tbody>
</table>

The above implies that USIU-A library offers a variety of NBM facilities to its users. ILRI library on the other hand only offers three (3) types of NBM facilities to its users. These are videotapes, audiotapes and CD-ROM.

The reason for this scenario is that USIU-A library offers a variety of subjects and therefore the library offers a variety of subjects and therefore the library provides
resources appropriate and sufficient for the courses offered. On the other hand, ILRI as an organization specializes in livestock research and therefore offers resources only relevant to this area and a few other related areas like Biochemistry.

4.18 TRANSFORMATIONS BROUGHT BY INFORMATION TECHNOLOGY (IT)

All the respondents felt that IT has transformed the means of communication and information access. This means that IT has not left the area of communication and information access without a positive impact.

The respondents indicated that this transformation could be seen in a number of areas.

This is as shown in the table below.

Table 22: Areas in which IT has transformed communication and information access.

<table>
<thead>
<tr>
<th>No.</th>
<th>Area</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Communication and information access has become faster.</td>
<td>12</td>
<td>25.5</td>
</tr>
<tr>
<td>2.</td>
<td>Users can now have access to a variety of information resources.</td>
<td>12</td>
<td>25.5</td>
</tr>
<tr>
<td>3.</td>
<td>Users can now access information in a variety of subjects.</td>
<td>12</td>
<td>25.5</td>
</tr>
<tr>
<td>4.</td>
<td>Users now refer to books less.</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>5.</td>
<td>The librarians' work has become easy.</td>
<td>9</td>
<td>19.1</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>47</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

All the respondents (12) felt that IT has made the process of communication access faster and also made access to a variety of information resources on a variety of subjects possible. Two (2) of the respondents were of the view that users now refer to books...
less. Nine (9) of them also felt that the librarian’s work has become easy. This implies that IT is improving the process of communication and information access. It is also clear that only a very small fraction of the respondents felt that users now refer to books less. This again is an indication that the book is still a very important source of information even in the presence of IT. Some of the respondents who felt that the librarian’s work has become easy gave the reason that some of the work that would initially be done manually by the librarian was now being done by the computer. For example, with the OPAC, the librarian’s are no longer preparing card catalogues. The respondents also explained that the librarian was now doing works that required personal interaction with the users such as reference work.

Nine (9) respondents (6 from USIU-A and 3 from ILRI) felt that IT had made it possible for resource sharing in their library. Two (2) respondents from USIU-A felt that IT had not made it possible for resource sharing in their libraries while one (1) was not sure of what effect it had brought in the library in terms of resource-sharing. This is as shown in the table below:

Table 23: Resource sharing between libraries

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>USIU-A</th>
<th>Percentage (%)</th>
<th>ILRI</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>6</td>
<td>66.7</td>
<td>3</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>22.2</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Not sure</td>
<td>1</td>
<td>11.1</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>100</td>
<td>3</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
Those USIU-A respondents who felt that IT had made resource sharing in their libraries possible gave the following as the reasons for their position.

1. Request to and from other information specialists has been made faster by use of e-mail.
2. IT enables the library to communicate detailed information via e-mail to anyone if need arises.

E-mail has made it possible for USIU-A library to network with other information specialists.

The ILRI respondents gave the following reasons for their response.

1. IT has made it possible for the ILRI library to exchange holding lists with other libraries via e-mail.
2. It has become possible for the library to request and share information with other libraries much faster than before.
3. IT makes teleconferencing possible.

This is an indication that IT has promoted networking between ILRI and other libraries.

However, the two (2) USIU-A respondents who felt that IT had not made resource sharing between their library and other libraries possible also had an explanation for their position. They were of the opinion that resource sharing had not been possible because libraries in Kenya were using different software and also because most of these libraries were not yet computerized.
On the question on the role IT had played in the library’s acquisition process the responses were as below:

Table 24: The role IT has played in library’s acquisition process

<table>
<thead>
<tr>
<th>No</th>
<th>Role</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The acquisition process has become faster</td>
<td>12</td>
<td>33.3</td>
</tr>
<tr>
<td>2.</td>
<td>It has become possible to acquire a variety of information resources.</td>
<td>12</td>
<td>33.3</td>
</tr>
<tr>
<td>3.</td>
<td>Through the Internet, it has become possible to acquire electronic information resources such as electronic journals and access to online databases.</td>
<td>12</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

From the responses, it is clear that all the respondents were of the opinion that IT has improved the acquisition process in their libraries. For instance, it has become possible to access electronic information resources such as online databases.

On the question on the positive contributions of IT on general information services in the library the respondents responded as follows:
Table 25: Contribution of IT on general information service.

<table>
<thead>
<tr>
<th>No.</th>
<th>Contribution</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Information access had become faster</td>
<td>12</td>
<td>27.9</td>
</tr>
<tr>
<td>2.</td>
<td>The information accessed from the Internet is current because it is continuously updated.</td>
<td>10</td>
<td>23.3</td>
</tr>
<tr>
<td>3.</td>
<td>Users have access to a variety of information in different formats on the different subjects.</td>
<td>12</td>
<td>27.9</td>
</tr>
<tr>
<td>4.</td>
<td>Library networking and resource-sharing has become possible.</td>
<td>9</td>
<td>20.9</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>43</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The greatest number (27.9%) felt that IT has made general information access faster and also that users can now access a variety of information resources in different formats. (23.3%) felt that information accessed from the Internet is current while the smallest number (20.9%) felt that IT has made resource sharing and networking possible. All these respondents agree on the opinion that IT has contributed positively in general information service in the library.

4.19 IT SERVICES OFFERED OUTSIDE THE LIBRARY (IN OTHER CENTRES)

According to the respondents, there are other centres apart from the library offering IT facilities. These centres include computer laboratories and various offices for both USIU-A and ILRI.
Respondents from both libraries indicated that the services users get from these other centres include:

a. Literature searching services;
b. E-mail service; and
c. Typing and printing services.

All the respondents felt that the library users also frequent these other centres for the above IT service on whether the users preferred getting the same services from the library to getting them from those other centres, the respondents could not clearly tell.

However, USIU-A respondents made it clear that their library only offers literature-searching services to the users. They therefore felt that it is possible that the users frequently visit these other centres for the other IT services, (which includes E-mail, Typing and printing services).

In USIU-A IT services in these other centres are offered at a fee while in ILRI they are offered free of charge.

The very fact that these services are offered free of charge at the other centres in ILRI explains why the users also frequent them.

Two respondents from USIU-A felt that their library users were very satisfied with the services they offered in the library. Seven of the respondents (still from USIU-A) felt that their users were satisfied (not very satisfied). All the respondents from ILRI (three of them) indicated that their library users were very satisfied with the services offered in the library.
According to the respondents therefore, the services they are offering to users are satisfactory. Whereas for USIU-A only 2 out of the 9 respondents said that their users were very satisfied with the services offered in the library. All the 3 respondents from ILRI felt that users were very satisfied with the services they offered in the library. Most of the USIU-A respondents felt that their users were not very satisfied with the services the library offered. For instance while users may want the e-mail service in the library to be open to them, this is not allowed and therefore the users may not be satisfied with such a scenario.

4.20 LIMITATIONS OF IT USE IN LIBRARIES.

The respondents identified the following as the limitations in the use of IT in libraries in Kenya today:

4.20.1 High costs. They explained that the initial cost for library computerization was quite high and therefore unaffordable for most libraries.

4.20.2 Power supply problems. The respondents felt that electric power, which is a prerequisite to computerization, was still lacking in many parts of the country. Even in areas supplied with electric power, power rationing was still a problem in times when rains fail. This scenario hinders library computerization.

4.20.3 Poor telecommunication infrastructure. The respondents explained that the telecommunication infrastructure in Kenya is not well developed. This is a limitation because any efficient computerization is based on a well-developed infrastructure.

4.20.4 Techno phobia (fear of technology). They explained that some people were still afraid of and not confident with the new technology and therefore were yet to embrace it.
4.20.5 Lack of awareness among libraries of what IT facilities are available.

4.20.6 Lack of enough trained staff.

4.20.7 Fear of frequent machine failure and server malfunctioning.

4.20.8 Lack of understanding by managers of the library parent institutions of the importance of IT in libraries.

4.20.9 Poor management practices at both the organizational and the library level.

The distribution of the above responses is as in the table below.

Table 26: Limitations of IT use in libraries in Kenya

<table>
<thead>
<tr>
<th>No.</th>
<th>Limitation</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>High costs</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td>2.</td>
<td>Power supply problems</td>
<td>9</td>
<td>25.7</td>
</tr>
<tr>
<td>3.</td>
<td>Poor Telecommunication Infrastructure</td>
<td>11</td>
<td>31.6</td>
</tr>
<tr>
<td>4.</td>
<td>Techno phobia</td>
<td>3</td>
<td>8.6</td>
</tr>
<tr>
<td>5.</td>
<td>Lack of awareness among libraries of what IT facilities are available</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td>6.</td>
<td>Lack of enough trained staff</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td>7.</td>
<td>Fear of frequent machine failure and server malfunctioning</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td>8.</td>
<td>Lack of understanding by managers of the library parent institutions of the importance of IT in libraries.</td>
<td>3</td>
<td>8.6</td>
</tr>
<tr>
<td>9.</td>
<td>Poor management practices at both the organizational and the library levels.</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>35</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

From the table, it is clear that the libraries are facing certain limitations as they endeavour to computerize their activities. Because of some of these limitations such as the limitation of costs, many libraries in Kenya have not been able to computerize their operations.
4.21 Recommendations that can help enhance IT use in libraries.

The respondents also gave suggestions that they explained could help enhance the use of IT in libraries in Kenya today. The table below outlines these suggestions.
Table 27: Suggestions to enhance IT use in libraries in Kenya

<table>
<thead>
<tr>
<th>No.</th>
<th>Suggestions</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Training of information personnel/providers on IT skills.</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td></td>
<td>This can be done through seminars, workshops, etc. to equip them with the IT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>skills so that they may be able to understand the benefits of computerization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>There should be proper power supply</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>3.</td>
<td>The library management should source for external funding where necessary</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td></td>
<td>to support library computerization since the initial costs are high.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>The government should wave or reduce taxation charged on imports of IT</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td></td>
<td>facilities. This will make the facilities affordable to institutions that</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>may not have been able to afford them owing to the high costs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>The library should sensitise the institution's management of the importance</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td></td>
<td>of IT in libraries so that the management can allocate funds for library</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>computerization.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>The telecommunication infrastructure in Kenya should be improved.</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>7.</td>
<td>There should be creation of awareness about the available IT facilities so</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td></td>
<td>that libraries are not left in the dark about the same.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>The library should look for means and ways of income generation to fund the</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td>library's computerization exercise.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>The library should employ qualified IT staff or librarians</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>27</td>
<td>100</td>
</tr>
</tbody>
</table>

If the relevant parties give these suggestions the seriousness they deserve,
then IT use in libraries in Kenya will be enhanced. This is very necessary because of the benefits accruing from such IT use in libraries.

4.22 Shortcomings in the use of IT in the library

The librarians at the management level (i.e. one from ILRI and three from USIU-A) indicated that they had experienced some shortcomings in the use IT in their respective libraries.

The ILRI librarian identified the issue of high costs as the main problem experienced in ILRI library as regards IT use.

The USIU-A librarians on the other hand identified the following as the shortcomings experienced by the USIU-A library as regards IT use.

4.22.1. Use of IT is very costly.

4.22.2. Power supply problems.

4.22.3. Indifference from librarians and library users.

4.22.4. Lack of a systems librarian.

4.22.5. Techno phobia (fear of technology)

4.22.6. Server malfunctioning.

It is clear that the limitations facing libraries in general as they endeavour to computerize their activities are the same ones that these two libraries have had to struggle with. Such include the problems of costs, power supply, Techno phobia, etc.

These librarians however explained that their libraries had so far taken steps to avoid the above problems.
The ILRI librarian explained that to help solve the problem of high costs, the ILRI library had tried to control the use of IT facilities or services such that they are only used for serious information work. In this way costs paid to the Internet Service Providers (ISP) are reduced.

The USIU-A librarians identified the following as the steps their library has taken.

1. To deal with the problem of power supply, they have installed standby generators as well as uninterrupted power supply (UPS).

2. To deal with the problem of high costs, they have prepared viable budgets to automate on a modular basis.

3. For staff shortages, they have prepared a proposal explaining their need for more staff. The proposal is with the institution's administration.

4. To curb the problem of user indifference, they have tried to spare time during which to direct the users on how to handle the computers in literature searching.

5. They also do periodical re-booting of the server to ensure that the system stays activated. This helps solve the problem of server malfunctioning.

6. The library has also tried to control the users to avoid browsing more than one website. This helps ensure that the server does not go down.

This is an indication that these libraries have not just sat back but have attempted to make IT use in their libraries possible and effective.
4.23 The future situation

4.23.1 Future prospects of the library

The two chief librarians (one from each library) identified some of the future prospects of their libraries as regards IT use. These are as below;

Table 28: Future prospects of the library

<table>
<thead>
<tr>
<th>No.</th>
<th>Future prospect</th>
<th>USIU-A library</th>
<th>ILRI library</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>To integrate Internet and other technologies in all operations of the library.</td>
<td>YES</td>
<td>Already in place</td>
</tr>
<tr>
<td>2.</td>
<td>Professional and continuing education for the librarians to equip them to work effectively in the new technological dispensation</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>3.</td>
<td>Interlinking all the library operation such as circulation, cataloguing, acquisitions and periodicals control to make information management easy.</td>
<td>Already in place</td>
<td>YES</td>
</tr>
</tbody>
</table>

If the library is going to keep abreast with the technological changes taking place, each library should set goals to achieve and provide the path of how this can be done to satisfy user needs. Such goals and prospects should be aimed at keeping the library in step with relevant technological changes. Both USIU-A and ILRI libraries have such prospects and can therefore be said to be on the right track.

On the question on whether the respondents felt that IT was making the concept of an electronic age a dream come true, the responses were as below:
Table 29: The electronic age

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
<td>83.3</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>16.7</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>100</td>
</tr>
</tbody>
</table>

This implies that a great percentage of the respondents felt that with the wide use of IT the concept of an electronic age was becoming a reality. Asked why they felt so, the respondents gave the following reasons:

1. The Internet has made it possible for people to access information from anywhere in the world.

2. E-commerce has made it possible for people to carry out business transactions internationally via the computer.

3. Increased electronic access to information is the mainstay of the electronic age. This is becoming the trend world wise.

4. The World Wide Web (WWW) has placed us in a global village.

5. A lot of people are adopting IT in their businesses/activities. Soon or later when the use of IT becomes inevitable to all, the dream will have come true and this is going to be soon.

The above points imply that the world has truly become small. IT is creating a situation whereby there will be virtually no gap for we are able to communicate with each other from whichever corner of the world.
4.23.2 The future direction of publishing

On the question on what the respondents felt was going to be the future publishing direction, their responses were as shown in the table below.

Table 30: The future direction of publishing

<table>
<thead>
<tr>
<th>No.</th>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>It is going to be purely electronic based</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>It shall remain paper based</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>About 90% is going to be electronic based</td>
<td>5</td>
<td>41.7</td>
</tr>
<tr>
<td>4.</td>
<td>It shall be both paper based and electronic based</td>
<td>4</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

As the responses indicate, the concept of publishing is changing from purely print publishing to both print and electronic.

4.24 The future of the library and the librarian

On whether the fact that IT was making it possible for users to access information from their homes, offices etc. had an effect on the role of the library and/or the librarian, the responses were as shown below;

Table 31: Effect of IT on the library and the librarian

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>The library</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>The librarian</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>
Those respondents who were of the opinion that IT was changing the role of the library gave the following as the reasons for their stand:

1. We may have a virtual library in future.
2. The library will no longer be confined in a building.
3. The libraries will change to information centres or telecentres (centres with the state of the art technology providing access to information electronically plus other communication technologies like Fax, e-mail, telephone etc.)
4. The library is moving away from a collection of books to providing information in a variety of formats e.g. CD-ROMs.
5. The library will become a centre from which users can access information from anywhere in the world.

On the other hand, the two respondents who maintained that the role of the library had not been affected had the following reasons:

1. Even those with personal computers will still need the library because for instance they cannot subscribe to databases individually as the library would.
2. Not everyone is likely to afford a computer or even be in a position to connect their computer to the Internet because of the expenses involved. Because of this therefore the library is still likely to maintain its role as the hub for all information resources.

As shown in the table above, ten (10) respondents were of the opinion that the use
of IT was having an effect on the librarian's role. They identified the following as the factors contributing to this.

1. The librarian is moving away from the role of a custodian of information resources to a disseminator of information.

2. The librarian will be more or less an information consultant.

3. The librarian will have to move away from traditional librarianship. He will need to change the focus from traditional information processing procedures and adopt the new technology developments.

4. The librarian's role will be more of identifying the relevant databases and be more active in selective dissemination of information (SDI) and current awareness service (CAS).

5. The librarian will remain the technical person involved in the acquisition, organization and retrieval of information. He will be charged with management and access to these resources.

6. Though IT reduces the librarian's manual work, he (the librarian) will be required to offer intellectual guidance and assistance to information seekers.

7. The librarian will change to an information manager and provider; one with skills to package information into the computer i.e. develop databases, design websites etc.

On the question on whether the librarian in Kenya needs to do something in order to cope with the IT developments taking place, responses are tabulated as below:
Table 32: Role of the librarian

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>11</td>
<td>100</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>100</td>
</tr>
</tbody>
</table>

As can be seen from the table, 11 respondents felt that the librarian needs to do something. They gave the following suggestions as to what the librarian needs to do.

1. Training in IT skills. The librarian should train in information management with emphasis on IT. For example, he should train in areas like Internet searching, use of CD-ROMs, database management, etc.
2. The librarian needs to embrace the new technology. He should acquire a positive attitude towards IT.
3. He should carry out extensive research on IT use in libraries so that he may not be marginalized in the information environment in future.
4. The librarian also needs to attend workshops, seminars, conferences, etc. on IT developments in order to get updated on IT skills and its use in libraries.
5. He should spearhead the campaign on library computerization. He should look for means and ways to implement library computerization.
6. He should work toward networking of the library services for increased resource sharing nationally, regionally and internationally.
6.7 The librarian should read widely and practice the new technology.
This will go a long way in enabling him keep abreast with new technology.

The above indicates that the librarian in Kenya cannot afford to just sit back and watch if he will have a role to play in the present technological dispensation. He will have to be well informed of the technological changes taking place that affect his field and hence one of the suggestions given by the respondents is that the librarian will have to read widely.

Asked to give their opinions as regards the future of the library in Kenya, the respondents had the following to say:
Table 33: The future of the library

<table>
<thead>
<tr>
<th>NO.</th>
<th>Response</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The future of the library is bright especially for those libraries that embrace IT as an integral part of the library information services.</td>
<td>2</td>
<td>10.5</td>
</tr>
<tr>
<td>2.</td>
<td>The library is here to stay for despite IT, there are aspects that cannot be performed by the machine such include SDI.</td>
<td>2</td>
<td>10.5</td>
</tr>
<tr>
<td>3.</td>
<td>The library will still provide a lead in where and how the information can be sorted and utilized best.</td>
<td>2</td>
<td>10.5</td>
</tr>
<tr>
<td>4.</td>
<td>If the libraries in Kenya embrace resource sharing, then the future of the library remains bright.</td>
<td>3</td>
<td>15.8</td>
</tr>
<tr>
<td>5.</td>
<td>The library remains an important component of information storage and access because information needs to be organized for quick and easy access. This is the role of the library.</td>
<td>2</td>
<td>10.5</td>
</tr>
<tr>
<td>6.</td>
<td>The library as we know it today will gradually change to web-based e-library (i.e. a library of electronic resources that is linked to web-based electronic sources of information. Because of this, the library will still have a central role in the information society.</td>
<td>1</td>
<td>5.3</td>
</tr>
<tr>
<td>7.</td>
<td>The future of the library is bleak unless the library changes its approach to information dissemination through the print to electronic means.</td>
<td>3</td>
<td>15.8</td>
</tr>
<tr>
<td>8.</td>
<td>The future of the library is somehow uncertain because we are all going to be computer literate. Electronic media may therefore supersede the book.</td>
<td>2</td>
<td>10.5</td>
</tr>
<tr>
<td>9.</td>
<td>The future of the library is threatened unless the librarians keep up with the present day technology.</td>
<td>2</td>
<td>10.5</td>
</tr>
</tbody>
</table>

**Total**                                                                                                         | **19**    | **100**        |
As the given responses indicate, the library will obviously need to change its approach to information storage, retrieval and dissemination if it is to have a place and a role as an information disseminator in future. These changes have to be in line with the technological changes that take place in the information environment.

4.25 THE ROLE THE LIBRARY SHOULD PLAY SO THAT IT IS NOT MARGINALIZED IN FUTURE.

In response to a question on how the respondents thought the library should strategize itself in order that it is not relegated/marginalized in future, the respondents gave the following suggestions:

1. The library should be assertive. It should know its place and role in the institution as the centres of learning. It should therefore work for its integration in the institution’s vision, mission, objectives and activities.

2. The library should justify its existence by achieving its goals in providing information and keeping pace with modern IT information related developments in its operations.

3. The library should pull its resource together and invest in IT.

4. The library should work hand in hand with IT providers to enhance information service provision. It should not view itself as a separate entity from IT.

These points indicate that the library has a role to play if its position and role in the institution is going to remain justifiable.
4.26 THE ROLE THE TRAINING INSTITUTIONS SHOULD TO HELP THE FUTURE LIBRARIES.

The respondents identified the following as the things the training institutions should do to help the future libraries.

1. They need to revisit their curriculum that is currently traditional. The curriculum must be revised from time to time to keep pace with the emerging developments in the field.

2. They should train their students for the future library i.e. in IT skills such as database development and management, web design, office automation, computer based information retrieval etc.

3. The training institutions also need to work in partnership with libraries and other information and resource centres in drawing up the syllabi or the curriculum. This will ensure that the curriculum reflects the current library needs.

The above implies that the library and the training institutions need to work together in ensuring that the library is not marginalized in future.
CHAPTER FIVE

5.0 DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The major focus of this study was to investigate the future of the library in the electronic age. The study focused on the application of Information Technology (IT) in libraries, the role IT has played in information storage, retrieval and dissemination, and the views of library users and staff on the future place of the library.

This chapter discusses the findings of the study and makes conclusions and recommendations based on the findings of the study as analysed in chapter four and the literature review in chapter two. The objectives of the study provide a frame of reference for the discussion.

5.2 Information Technology (IT) in libraries

5.3 Changes brought by IT in information storage, retrieval and dissemination.

5.4 The future position of the library and the librarian.
5.2 INFORMATION TECHNOLOGY (IT) IN LIBRARIES

This section set out to identify areas of IT utilization in libraries. Available literature reveals that Information Technology is in use in libraries.

According to Rosenberg (1999), Information Technology in the form of Personal Computers (PCs), and E-mail is now the norm rather than the exception. It has brought demonstrable benefits, especially the combination of CD-ROM and E-mail for the identification of items efficient document delivery and its positive effect on the library image.

This study revealed that there is some IT use in libraries in Kenya. For instance, in both ILRI and USIU-A libraries, IT facilities such as the Internet, E-mail, online databases, CD-ROM, and online public catalogue are in use. The library users are making use of these facilities. This is as shown in the following table

Table 20: IT facilities/services in the library

<table>
<thead>
<tr>
<th>IT facility</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Public Catalogue (OPAC)</td>
<td>ILRI 9</td>
</tr>
<tr>
<td>CD-ROM</td>
<td>ILRI 9</td>
</tr>
<tr>
<td>Online databases</td>
<td>ILRI 9</td>
</tr>
<tr>
<td>Internet - World Wide Web</td>
<td>ILRI 9</td>
</tr>
<tr>
<td>Internet - E-mail</td>
<td>ILRI 9</td>
</tr>
</tbody>
</table>

Some libraries are also using integrated software systems that allow for interlinking of library operations such as acquisitions, cataloguing, circulation and periodical
control for efficiency. For instance USIU-A library is using an integrated software system called Erudite while in ILRI library they are using one called Inmagic.

With an integrated software system, library operations have become faster and consistent. This has made the librarian’s work efficient. It is also of advantage to the library user, for instance, the system at USIU-A allows for the user to be able to know the status of a book (i.e. whether it is ‘in’ or ‘out’) before he goes to the shelves to look for it. This is because the cataloguing and circulation operations are interlinked.

The two libraries in which the study was carried out (ILRI and USIU-A) are also subscribing to electronic journals and hence the users of these libraries now have access to both electronic journals and print journals. The study revealed that the library users are now using both types of journals although the study could not establish which of the two types of journals users prefer using. (See Chapt. Section 4.16.2). This is possibly because at this stage it is too early to tell for many users have used print journals for a long time. On the other hand, they are now being presented with an alternative type (electronic), which offers the advantages of timeliness, providing current information, and also offers wide subject coverage.

Each of these two libraries is also connected to the Internet

The study therefore established that some libraries in Kenya e.g. USIU-A and ILRI are utilizing IT although many libraries which are funded from the treasury are yet to benefit.

5.2.1. Limitations of IT use in libraries in Kenya

This study however also gathered that IT use is not widespread in libraries in Kenya
because of certain limiting factors. Literature available shows some of these limitations to include:

According to Yewondwossen, the lack of development in Africa is principally attributed to information poverty ... the prevailing situation is not because the planning environment lacks data on which they could base various meaningful social economic planning exercises but the inability to maintain appropriate infrastructure for generating and transmission of information. (AAS/AAAS, 1992).

Another observation is from a survey carried out by Mutula (1998) to assess IT use in libraries in Kenya. The study revealed that many libraries are not automated. It also found out that automation was confined to libraries in private institutions such as the British council, United states information service (USIS), Unites States International University of Africa (USIU-A), International Centre for Insect physiology and Ecology (ICIPE), International centres for Agro-forestry (ICRAF) etc. For libraries that do not belong to the International organizations, efforts of automation were confined to using CDS/ISIS to develop and access small and internal databases. Mutula’s study further revealed that there is very little knowledge of the options for automating libraries and that many of the libraries were not connected to the Internet and those connected barely accessed the facility either because of restrictions, infrastructure problems and inadequate skill.

"Knowledge transfer through access to the world’s scientific literature is a fundamental and cost-effective necessity. Methods to cope with library
collections and provide systematic access to literature are well developed in Europe, the US and other industrialized countries. However, many of the tools are not readily available in the third world countries where financial obstacles and the commitment "to provide the intellectual investments are not as strong." (Nyantika, 1995)

According to Ng'ang'a (1994), the centres (in Kenya) that maintain any kind of computerized network are those owned and maintained by international organizations. These are mainly the special libraries.

The above observations imply that Africa lacks appropriate social and economic infrastructure on which to base meaningful development such as technological development. This study revealed the following as some of the limitations hindering IT use in libraries in Kenya.

5.2.1.1 High initial costs involved in library computerization.

These include the costs of purchasing computers; both hardware and software. Several libraries in Kenya and especially those in public institutions/organizations are not computerized because their parent organizations/ institutions cannot afford the initial costs for computerization.

The study recommends that the following be done in order to help solve the problem of costs.
I. The government should seriously look into the issue of taxation charged on imports on IT facilities so as to make them affordable to institutions that may not afford them owing to high costs. Although the government has already decided to reduce taxation on such imports, as the situation is currently these charges are still relatively high and hence the costs for such facilities continue to be an inhibiting factor.

II. The library should try to source for funding from to all possible sources to fund the computerization exercise. For example, the library can look for funding from external donors. The library can also organize income-generating activities internally in a bid to raise funds for the computerization exercise. For instance, the library can charge some reasonable fee for the services offered and seriously ensure that this is effectively done. The library can also organize seminars or workshops for example on reading and then charge those attending. In some cases, it is not that the parent institution cannot afford to fund the computerization exercise but it is a matter of the library project not being given a priority. In such cases, the library should take it upon itself to sensitise the institution's management on the importance of library computerization.

III. Pooled access for libraries to the Internet through a single service provider would bring considerable cost savings. In this case, organizations dealing in one area of interest such as agriculture, agro-forestry, medical or academic institutions should cooperate together and support a leased line to the Internet.
5.2.1.2. Power supply problems and imbalances in the country.

Computers rely on electronic power to operate. In Kenya, electronic power is not efficiently provided. For instance, electronic power supply in Kenya is only restricted within major towns such that most rural areas do not benefit. This means that libraries in such areas will not efficiently benefit from computerization. Even in those areas supplied with electronic power, there are frequent power disruptions at times meaning that even in these areas are not fully benefiting from computerization.

Although the government has already set aside funds for rural electrification through the ministry of energy, most rural areas are yet to benefit. Misappropriation of funds as well as poor management of such projects are to a great extent to blame for the present situation. The government should therefore ensure that proper management for such projects is put in place.

There are also situations when rains fail and therefore dams from where hydroelectric power is generated dry up. A case in mind is the recent one when for a good part of the years 1999 and 2000 the country had to do with frequent power rationing. To help avoid a similar situation in future, the researcher recommends that the government does contingency planning. This will mean that the government prepares for such occurrences early in advance so that they are not caught unawares. One thing the researcher recommends that the government does is building of more dams for generation of hydroelectric power.

The libraries should also look for alternative ways of power supply to help in
those times when the main power supply fails. This would involve installation of back-up power supply like generators. Some libraries have already done this. For instance, in those libraries where this study was carried out (such as USIU-A and ILRI) this is already in place.

5.2.1.3. Poorly developed telecommunication infrastructure.

The telecommunication system in the country continues to be inefficient because the government purely controls it and the same government has not been able to efficiently manage and maintain it. Part of the reason for this is that the charges for telephone services are relatively high and therefore only affordable to a few. As a result the money got from the services is not sufficient to maintain the system. Even with liberalization of the telephone lines, the government has still retained full control of the system. For instance, only two private firms (Safaricom limited and Kencell communications limited) have so far been licensed to operate. However, even for them, the government has put limitations for instance on the areas they can reach. This means that their services are only being enjoyed by a few.

As long as poor telephone services exist, extensive networking will be greatly inhibited.

To make the telecommunication infrastructure in Kenya more efficient, the researcher recommends the following;

I. There is need to privatise the Kenya telecommunication system that is currently still a quasi-government otherwise referred to as Parastatal. This may mean that
with a new management geared toward profit making the system may become more efficient.

II. There is need to make the telephone services affordable to most people even if not everyone. Even though with liberalization the service is becoming a bit cheaper, it is clear that it is still not affordable to most people.

With proper management the telecommunication system can be more effective. The researcher therefore recommends that the issue of management be looked into to ensure that our telecommunication system is properly run. A proper management would be one where funds are not misappropriated and also one that aims at providing the best service to the people at the most affordable rates.

5.2.1.4. Lack of enough trained staff.

This is as a result of;

I. Curriculum inadequacy. The curriculum offered by training institutions is to a great extent traditional. These training institutions therefore do not adequately equip their students with the IT skills necessary in the IT environment.

II. Some of those library personnel who are not trained in IT skills and are already in the field have a wrong attitude toward automation and therefore do not find it necessary to train. This is because may be they do not as yet know the benefits of automation. For example, they may not be aware of what computers can do for them and they therefore tend to feel that they will loose their jobs for they believe that computers will replace them.

The training institutions in Kenya lack sufficient training facilities for training their
students adequately on IT skills. For instance, they have insufficient number of computers.

Some libraries in Kenya are manned by people who are not professional librarians. In most of these cases, the personnel do not possess IT skills. Due to this, some of these libraries are not computerised. In those computerised libraries lacking personnel trained in IT skills maintenance of the system becomes difficult and therefore the library cannot benefit fully from the system.

Computer technology is a dynamic technology and the personnel manning the operation of these computers as well as guiding users require workshops, symposia, seminars and short term as well as long term courses to keep them appraised with such changes.

The library should ensure professional and continuing education for the librarians to equip them to work effectively in the new technological dispensation. The library should sponsor its librarians for training in Information Technology skills.

The training institutions together with Kenya Library Association (KLA) need to organise seminars/workshops that are tailored to meet the training needs of those older librarians who may not like the idea of going back to school.

Also, training institutions should train their students for the future library. To do this, they need to revisit the curriculum that is currently to a great extent traditional. This curriculum will need to be revised from time to time to keep pace with emerging developments in the field. The training institutions will therefore need to work together with libraries in drawing up the curriculum or the syllabi in order to ensure that the curriculum reflects the current library needs. By so doing, these training
institutions will help ensure that the library and the librarian are not marginalized in future.

As the study found out, both ILRI and USIU-A libraries have made an effort to employ qualified personnel.

5.2.1.5. Techno phobia (fear of technology) amongst some librarians

The study found out that in some libraries, computerisation was inhibited by indifference to IT by librarians. There are some librarians who are just afraid of dealing with computers because they believe that the technology of computers is too sophisticated for them to ever learn. In other situations, some librarians tend to think that computerisation will cost them their jobs. They imagine that their roles will be taken over by machines and they will therefore be rendered jobless.

Some other librarians feel embarrassed to be seen learning with younger people. They do not want to join them in the same classes. They feel threatened by the younger generation and therefore do not even encourage them to learn.

Due to such convictions, a negative attitude develops among such librarians towards library computerisation and therefore they do not promote it in their libraries.

These librarians need to understand that library computerisation will not cost them their jobs but will on the contrary make their work more efficient. There is need for the library association to organise a seminar or workshop for these libraries in which they will bring to their awareness that IT is here to stay and that re-training is for both their good and also for the good of them that they are serving.

105
5.2.1.6. Lack of awareness among libraries of what IT facilities are available

"Some libraries in Kenya are not enjoying the benefits of computerisation because they are ignorant of the available IT facilities for libraries." (Were, 1988)

A survey carried out by Mutula (1998) to assess IT use in libraries in Kenya revealed that many libraries are not automated. It also found out that automation was confined to libraries in private institutions such as the British council, United States information service (USIS), United States International University of Africa (USIU-A), International Centre for Insect physiology and Ecology (ICIPE), International centres for Agro-forestry (ICRAF) etc. For libraries that do not belong to the International organisations, efforts of automation were confined to using CDS/ISIS to develop and access small and internal databases. Mutula’s study further revealed that there is very little knowledge of the options for automating libraries and that many of the libraries were not connected to the Internet and those connected barely accessed the facility either because of restrictions, infrastructure problems and inadequate skill.

To help solve this problem, the researcher recommends that there should be creation of awareness mechanisms about the available IT facilities for libraries so that libraries are not left behind. There is need for proper marketing and advertising of the available IT facilities so that libraries can know of what IT facilities are available and the range of choices available to them. For instance, the Kenya library association (KLA) or even individual libraries can create awareness through such activities such as seminars in which they invite librarians and then talk to them about the available IT facilities. They can
also use newsletters or even the Internet to create awareness about the IT facilities available.

5.2.1.7. Lack of understanding by parent institutions of the importance of IT in libraries.

The study established that this is a factor hindering IT use in libraries in Kenya. This is because of the fact that if the management will not understand the importance of IT in libraries, then they will not allocate funds for library computerisation.

Were (1986) identifies the lack of appreciation by national decision makers of the role of libraries and other information centres as one of the factors hindering automation of libraries in developing countries like Kenya.

"Policy makers and public funds administrators or planners for that matter, place library and information services under welfare services thus giving them second priority.” (Nyantika, 1995).

The library should take it upon itself to sensitise the institution’s management of the importance of IT in libraries. To do this, the library can prepare a proposal or a report emphasising the benefits of computerisation on information processing, storage retrieval and dissemination. For instance, the report can show what a computerised cataloguing system would have over a manual one. Such a report can then be presented to the institution’s administration for example in a meeting called by the library management with the administration or through library committees.
Due to the limitations identified above, IT use in libraries in Kenya is restricted to a few libraries. As Mutula (1998) identified in his study, the lucky libraries are those in private institutions such as ILRI and USIU-A.

5.3 CHANGES BROUGHT BY INFORMATION TECHNOLOGY IN STORAGE, RETRIEVAL AND DISSEMINATION OF INFORMATION.

The objective of this section was to assess the changes IT has brought in information storage, retrieval and dissemination.

According to Anyango (1995), these new developments in IT use are having a significant influence on the traditional activities of librarians and information scientists, encouraging change in pattern of existing information services and making possible new potentialities in information centres which are faced with ever increasing information demand and ever dwindling budget. It means that greater demands will be made on the formal and informal interlending networks, and existing document delivery facilities may need to be supplemented by electronic based document delivery system.

The study found out that the use of IT has had an impact on information storage, retrieval and dissemination of information. (See tables 14, 24, and 25)

5.3.1. Information storage

"Today we see that IT development and its application in storing and retrieving information is quickly shifting libraries from traditional conversion to
electronic and digital forms". (Lwehabura and Matovelo, 1999)

This implies that IT is changing the means of information storage in libraries.

The study shows that information in the two libraries investigated (ILRI and USIU-A) is no longer stored in print form only. The libraries are storing other types of information resources such as CD-ROM, cassettes, microfiche and microfilm, Videotapes and Audiotapes. This is as can be seen in the following table.

Table: 2 Availability of NBM facilities in the library

<table>
<thead>
<tr>
<th>NBM Facility</th>
<th>USIU-A</th>
<th>ILRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microfilm</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Microfiche</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Video Cassettes</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Photographs</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Audio tapes</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CD-ROM</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Some of these information resources such as CD-ROM, microfiche, and microfilm store large volumes of data. For instance, One CD-ROM can hold data that could be carried by volumes and volumes of books. The same applies to other forms like microfilm and microfiche.

Libraries are also subscribing to electronic journals in the form of databases. In this case, instead of going through a large volume of books, users can at the click of a button access a variety of information through the computer from the electronic databases. For
instance, the study found out that USIU-A library subscribes to a database called EBSCO_HOST (it contains around 6000 journals). ILRI library subscribes to a database called ELSEVIER-SCIENCE DIRECT. The Elsevier Science Direct database contains quite a number of journals specifically on the area of science. Such databases (both EBSCO-HOST and Elsevier Science Direct) provide a variety of information to the users by one point access.

The storage of information in electronic resources (CD-ROMs, diskettes online databases, etc.) and other forms such as microfiche, microfilm, videotapes and audiotape presents certain benefits in the area of information storage.

Salton (1975) says;

“A system in which information is in electronic form is most appealing for it eliminates the enormous duplication caused by storage of multiple copies of the same material in many different places; it keeps the stored information continuously for all corners because texts do not ‘circulate’ in the normal sense of the word; it avoids delays in obtaining the desired information items and avoids losses, and finally it may improve not only the efficiency but also the effectiveness of the search”.

This implies that the storage of materials in electronic form presents certain benefits. The following are some of these benefits as identified by this study.

1. Saving of space, which would have been occupied by large volumes of books.
Non-book media facilities such as microfiche, microfilm and the electronic resources (CD-ROM, Diskettes and online databases) contain lots of information. The tangible ones like the CD-ROM, microfilm and microfiche occupy minimal space. From online databases one can access lots of information that is not physically available in the library. These non-book resources therefore save on library space for the information they contain would otherwise have been contained in large volumes of books.

II. Saves time that would have been spent going through volumes of books in search of information. With lots of information that could be contained in books or print journals being found in the computer, the information seeker’s time is saved because he does not need to go through volumes of books in search of information.

III. Convenience in terms of place, for instance, with electronic databases, users do not have to move from one place to another in search of information for at the click of a button they can access a lot of information that they need. The user can browse through the Internet for information on virtually any topic.

The study however also identified certain limitations in the library users’ use of the Information Technology (IT). For instance,

1. Because most of these facilities are not stored in the open like books are, some users are not aware of the IT facilities available in their libraries.

2. Others do not even know how to use some of these facilities. For instance, some users do not know how to use CD-ROM.

In other instances, the library does not have enough computers and therefore the users are not in a position to use the electronic resources available in the library.
To improve this situation,

I. Librarians should try to create awareness of the availability of these facilities through Current Awareness Service (CAS). Some users fail to use the IT facilities like CD-ROM and online databases because they are not aware of the existence of such facilities. The librarian can assist such users by providing CAS on the available services and resources either within the library or elsewhere.

II. The libraries should also offer continuous training on the use of these facilities. IT is a dynamic technology. Many changes are taking place and hence new facilities are being introduced every now and then. To ensure that users benefit from these services, the library should organise continuous or regular training programs to update users on the use of these facilities.

III. There should be a mechanism for identifying new users and then training them in services like CD-ROM searching and online database searching if they do not know. There can be a program whereby new users fill a form in which they provide information on what they know as well as what they do not know as regards the use of library facilities. For instance, they can indicate whether they know how to search online databases or not. The library should therefore then train each user on how to use at least each service or resource offered in the library. User education should be taken seriously and also the timing should be appropriate. For instance, for an academic library like USIU-A library, user education when offered to students immediately after they join the college may not be effective. This is because at this level the students have not yet identified their information needs. User education can therefore be more effective if offered at a time when users have already identified
their information needs. This training need not always be a group activity. The librarians should try as much as possible to make it a personalised service because different users have different information needs. In cases where this may not be possible because of a large user population, the grouping of users should be in such a way that users with related needs are grouped together.

5.3.2 Information retrieval and dissemination of information.

The study set out to find out what effects or changes have been brought by IT in information retrieval and dissemination. Available literature on IT and information retrieval and dissemination says;

Kabede (2000) observes that developments in electronic information resources have changed the way the library and information systems store, access, process and disseminate information comprehensively and made them one of the work places where a wide range of electronic processes are taking place.

Such electronic processes as observed in the two libraries (USIU-A and ILRI) where the study carried out include;

I. E-mail services. Both libraries (USIU-A and ILRI) have the E-mail service. For ILRI library, the E-mail service is open to users while in USIU-A library the service is only used for official communication.

II. Internet browsing. Users in both libraries browse the Internet in search of information.

III. On-line database searching. These two libraries subscribe to online database. Users
from the two libraries therefore do on-line database literature search.

IV. CD-ROM searching. Users in each of the two libraries also do CD-ROM searching.

V. Downloading services.

VI. On line reference services.

According to Mutula (2000), integrated library systems have made it possible for library procedures such as circulation, cataloguing, acquisitions and periodicals control to be interlinked to make information management easy.

As already observed in section 5.3.1, Both ILRI and USIU-A libraries are also using integrated library software systems. In these systems, the library procedures of acquisition, cataloguing, circulation and periodical control are interlinked. According to what most of the librarians interviewed indicated, this system has made their work more efficient. for example, with such a system, it becomes possible for the librarians to tell of the status of the library resources within a short time.

This study has revealed that the use of information technology (IT) is presenting certain benefits/advantages in the area of information retrieval and dissemination. Such benefits are being seen in the following areas:

(a) Users are now having access to information in a variety of subjects.

For instance, the Internet provides information on virtually all areas of human knowledge. With the online service therefore, users are getting information on a variety of
subjects from one point of access. Users are now having access to a variety of information resources faster than they would from books.

IT has made it possible for the library to provide a variety of information resources to its users. Whereas some years back the library was offering mainly print information resources, currently those libraries that are using IT are using a variety of resources. For instance libraries like ILRI and USIU-A are offering services/facilities like CD-ROM, online databases, Internet services, as well as other non-book facilities like microfiche and microfilm.

According to Lwehabura and Matovelo, 1999... an important issue here is the move from print based to electronic information which opens up new services such electronic journals, electronic short loan collections, Integrated local databases and guiding library users to existing print-based information. Shift towards electronic information implies a move away from conventional study places to IT workstations, perhaps arranged in integrated learning resources centres rather than a conventional library building.

(b) Electronic information resources are providing the convenience of time and place.

With electronic information resources, the user may not have to move from one place to another in search of information. This is because through a shared OPAC system, the user can be able to tell what information resources are available in other libraries without having to physically visit these libraries. Such also saves the user’s time.

(c) With electronic information resources, users are getting up to date information.
Information on online electronic resources such as the Internet can be conveniently updated and hence it is current.

This study also gathered that the publishing industry in Kenya is taking a new dimension. (See chapter 4 Table 30). Some years back, publishing was purely paper-based (or in print form). This is not the case anymore for electronic publishing is already taking place.

As early as 1966, Vickery observed that there will be 'publications' that originate in machine readable form, are acquired and stored in the library in that form, and never appear in visually legible form except on the screen of a user console. (Vickery, 1966)

What Vickery was talking about is electronic publishing. This study revealed that Vickery's predictions is coming true. (See chapter 4.table 30). Currently we talk of the e-book and also the e-journal. The two libraries in which the study was carried out (USIU-A and ILRI) are acquiring electronic journals (e-journals). These journals are transmitted electronically. Some of them are published electronically while others are published in print form and then put in electronic form.

While some of the interviewees interviewed on the question of the future publishing direction felt that the publishing was likely to take a purely electronic direction. Others were of the opinion that future publishing industry would be both electronic and paper-based. (Refer to chapter. 4. Table 30.)

A great percentage of the respondents (41.7%) as shown in the above table,
indicated that about 90% of the publishing would be electronic based. All these respondents however agree on one thing, that is, the publishing industry is taking a new direction. It is no longer purely paper based.

With some information being purely electronic based, this implies that this information is not available in print form but can only be read from the computer screen. It therefore means that you may never find a print copy of this information in the library. To ensure that the users do not miss out on vital information that is published electronically, the library should subscribe to such information resources and then keep their users well informed of such resources for instance through current awareness and where possible selective Dissemination of Information (SDI).

This study established that although use of IT in libraries is presenting major benefits to both the user and the librarian, in Kenya such benefits are being enjoyed by only a few. This is because IT use is not widespread in libraries in Kenya owing to the already identified limiting factors. (See chapt.4.Table.26 and chapt.5 section 5.2.1)

To enable them to fully benefit from the advantages IT presents for information retrieval and dissemination, libraries should strive toward full library computerisation. For instance, for the library operations such as cataloguing and circulation, computerisation should not be seen in automating only one area of operation such as cataloguing. However, there should be full computerisation of all operations so that the library can benefit from the services presented by the Internet. This will mean that the library operations will become efficient and that users have access to a variety of literature.
Librarians should take it upon themselves to guide users in utilising of various information resources. They should also repackage the information for the user. For instance, they can download information for the users from the Internet. The librarians also need to be very alert on any new relevant information available on the Internet and then through SDI alert the relevant users.

With the librarian performing his role effectively even in an electronic based system, the users will continue to have confidence in him and consequently in the library.

5.4 THE FUTURE POSITION OF THE LIBRARY AND THE LIBRARIAN

The objective of this section was to investigate the future position of the library and the librarian with the changes IT is bringing in terms of information processing, storage, retrieval and dissemination.

5.4.1 The future position of the library

The literature in this subject seems to be limited but whatever is available says the following:

Lwewabura and Matovelo (1999) observe that today we see IT development and its application in storing and retrieving information is quickly shifting libraries from traditional conversion to electronic and digital forms.

Palmer, (1987) observes that growing numbers of full text databases will tempt scholars to use online systems with greater frequency. Libraries appear to be
in a good position to help scholars move in this direction. Libraries traditionally publish pathfinders and provide reference service to guide users through their collections. Similar approaches to information resources beyond the library's walls will be required in future.

As early as 1965, Lacklinder observed that "...any concept of the library which begins with bookshelves, is sure to encounter trouble...we should be prepared to reject the schema of the physical library...the arrangement of shelves, card indexes, checkout desks, reading rooms and so forth".

Lancaster (1982) also points out that in the early years of the transition from a paper-based society to one that is electronics based, libraries will still be places that people visit for access to information resources. In addition to paper resources, these libraries will provide the terminals needed to access the electronic resources. More importantly, they will provide the expertise needed to exploit these resources effectively. Later in the transition, as the electronic sources continue to gain importance, and the paper sources decline, as terminals become more common in offices and in homes, and as individual researchers become familiar and comfortable with the use of online databases, the need for these researchers to visit libraries will rapidly diminish, when this occurs, the library as an institution will begin its inevitable decline.

These observations imply that the electronic information resources are gaining
a lot of importance. With the technological changes taking place in the information environment, the library is left with no choice but the need to change its approach to information storage, retrieval and dissemination to the electronic environment that we are currently in.

The study gathered that the use of the Internet both in the library and outside the library is totally transforming the area of information access. With the Internet, people are now in a position to access lots of information (both full text and bibliographic) that they would initially have had to visit the library to obtain. With this, the whole idea of a library as a building where people visit to obtain information especially is changing to a centre where various information resources will be available.

Kabede (2000) observes that developments in electronic information resources have changed the way the library and information systems store, access, process and disseminate information comprehensively and made them one of the work places where a wide range of electronic processes are taking place.

"The use of the Internet has enabled researchers and scholars in African universities to get access to international online systems and databases, electronic journals and other full text documents, bibliographic references, factual and numerical data available from libraries and information centres in different parts of the world". (Lwehabura and Matovelo, 1999).

However, because of the limitations already identified in section 5.1.1 of this chapter, in the developing countries the benefits of computerisation are only being enjoyed by
those libraries owned and run by international organisations.

According to Gathuya (Daily nation march 18, 1997), university libraries will be left behind in the new technological era if they do not hook on to the Internet.

The implication for the library here is that it will need to change its traditional approach to information organisation, retrieval and dissemination. For instance, they will need to provide a variety of information resources. The library will also need to train its personnel in skills that will enable them to organise and disseminate these resources and information effectively. Such will include information repackaging skills such as preparation of abstracts for online information resources, offering computerised SDI as well as designing web sites.

The study identified certain benefits of the Internet as an information resource. Some of these benefits include the following; (see chapt.4.table.11)

1. The Internet is user friendly. This is because of the use of guides like menus and links that help the searcher to move from one window to another. The Internet window provides users with menus that guide users in moving from one point to another as they search for information.

2. The Internet makes access to a variety of information resources possible. The Internet allows access to information in a variety of formats (text, pictures and sound).

3. With the Internet, it is possible to amalgamate information from different sources to suit user needs. The Internet allows access to several databases. A
researcher can therefore go through numerous journals, retrieve the relevant information from each journal and then put the retrieved information together to suit his need.

4. The Internet can provide very current information for information on the Internet is conveniently updated. This is because with the current technology information can be easily put on the Internet or updated. Most of the journals and local dailies are now on the Internet. For example the Daily Nation newspaper in Kenya. Kenyans in far places like USA can read the Daily Nation early in the morning just like they are in Kenya.

5. The Internet allows for a great number of people to access the same information at the same time. For example, several people can access one website at the same time and on different terminals.

With the Internet the user has access to wide subject coverage for the Internet provides information in all fields of knowledge.

The researcher found out that because of the benefits presented by the Internet, people are greatly turning to the Internet for information that they would initially only get from the library. From the Internet, users are getting all types of information.

According to Onunga(1998), the Internet allows you have access to abundant information about anything in the world. You will get information you need from business to education, from sports to politics; from arts to eating out- the sky is the limit. With Internet you are hooked to instant worldwide information, which you need to make informed decisions.
This means that the library is no longer the central custodian and provider of information. It was also discovered that access to the Internet is not only restricted within the library. Although the library is offering Internet services, there also other centres from which users are accessing this service. These include; cyber cafes, computer laboratories, information centres, offices, homes, etc. for instance, the data gathered from USIU-A and ILRI indicated that the users in these libraries also visit other centres like cyber cafes computer labs offices, homes etc. for such services as E-mail, electronic journals, etc.

All this implies that though the library is going to be important in future, it is no longer going to be the central information resource. It can however maintain its role by incorporating IT in its activities.

The study also discovered that the Internet service is not devoid of limitations. Some of these limitations include the following:

1. With the Internet, there is no absolute confidentiality of information.

2. When the server is down, access to information is not possible. Also, when many people are surfing, it can take one a long time to download something from the Internet and even sometimes failing completely.

3. The Internet requires efficient telecommunication infrastructure and electric power. This is yet to be achieved in most developing countries like Kenya. (See section 5.1.1 of this chapter)

4. The costs of getting connected to the Internet as well as accessing information from the Internet are not affordable to most people. Internet costs include connection (installation) charges, Monthly charges and Telecommunication
charges. The market for Internet service has become quite competitive of late. According to a report by the International Telecommunications Union (ITU) on the Daily Nation of May 17, 2001 (During the world Telecommunication Day), to date the Communications Commission of Kenya (CCK) has licensed 61 Internet Service Providers (ISPs). Because of such a competitive market, The Internet service is becoming relatively cheaper compared to some years back when the market was not competitive. The researcher looked at the charges of two such ISPs (Today's Online Ltd and Kenyaweb.com Ltd) and their charges were as follows:

For Today's Online Ltd. The connection/ set up fee is Kshs. 1,180 and the monthly charges range between Kshs. 1,180 and 8,260 depending on the type of Internet Service one subscribes to. Such service types include Unlimited E-mail, Unlimited Internet and E-mail, etc.

For Kenyaweb.com limited, the connection fee is Kshs. 1,150.00 and the monthly charges range between Kshs. 1,180 and 6,500 but with specified Internet access hours. The above charges are not inclusive of Telecommunication charges.

5. The Internet is only relevant to computer literate people. In Kenya, majority of people are not computer literate.

6. There is much information on the Internet leading to confusion. The searcher needs to be quite specific. The Internet can be quite time-consuming for blind-ended searches.

7. There is information censorship. Some sites require one to pay membership fee in order to access them.

8. The Internet is not always user friendly. The Internet contains a lot of junk
such that a user who is not conversant with the service can retrieve a lot of unnecessary information. Also, the use of many links can waste a user's time.

9. The Internet has also of phonographic literature, which does not augur well with moral values. Children have access to the Internet and consequently access to such phonographic literature. This can be quite detrimental to the moral growth of such children.

It is clear from the study that the Internet is offering a variety of information to the user (refer to chapt. 4. Table. 10.) and also that it is presenting the benefits of offering timely and current information. It is also offering the convenience of place. However, there are certain factors involved as outlined above which reduce the impacts of the benefits accruing from the service. For instance, because of the costs involved in purchasing a computer, getting connected to the Internet or even paying for the Internet service are not affordable to everyone who may need them. According to the weekly advertiser (may 21-27, 2001), the prices of computers in the market currently are ranging between 25,000 and 100,000 Kenya shillings depending on whether the computer is new or old and also on the accessories it has. There are also other factors like efficient telecommunication infrastructure and consistent power supply, which are not available in Kenya. Because of the above factors, the researcher found out that though the Internet is providing lots of information, it is not sufficient on its own. The library therefore still has a future. However for the library to still have a role in future it needs to have incorporated the relevant technological developments in its operations. Currently, those libraries that are computerised are offering both electronic and print information resources.
This study found out that the library will still be important in future because of the following reasons:

1. Not all information is available on the Internet. As it is now, a lot of what is in books is on the Internet. Although it may just be a matter of time before most of this information is available on the Internet, there is a great possibility that most of this information may never find its way into the Internet.

2. Information in fine details will be found in books. Sometimes the information on the Internet is summarised and therefore not sufficient, in such instances the book comes in quite handy to provide the missing information.

3. The library will still be necessary for archival information needs.

4. Books can be used where there is no electric power. Places that are not yet fully supplied with electric power will therefore still need to visit the library.

5. Even those with personal computers will still need the library because for instance they cannot subscribe to databases individually as the library would.

6. Not everyone is likely to afford a computer or even be in a position to connect their computer to the Internet because of the expenses involved. Because of this therefore the library is likely to maintain its role as the hub for all information resources.

There are some tasks of the library that cannot be effectively performed by the machine. Such include those tasks requiring interpersonal interaction in the reference service for example reference interview, development of user profiles and search profiles.

The study also gathered that some respondents felt that the library will not be important in future because all the information we need will be available on the Internet (see chapt.4 126
However, the researcher established that although the Internet may offer a lot of information, it is not likely to be available to everyone in the near future especially in a developing country like Kenya. This is because of the limitations of costs, telecommunication infrastructure, and electric power among others.

Sykes (1996) observed that libraries are advancing towards a future in which a significant proportion of information will be mediated in electronic forms beside the bibliographic or esoteric research sources.

With the technological developments taking place, libraries are having their means of information acquisition, processing, retrieval and dissemination changing. For instance, the libraries on a network are using E-mail for acquisition transactions. The implication of this to the library is that any library hoping to keep afloat in the current and future as an information service must go for computerisation.

About the nature of the library we are going to have, it was found out in the study that:

1) The library as we know it today is going to change to a web-based library (i.e. a library of electronic resources which is linked to electronic sources of information. If this happens, the library will still have a central role to play in the information society.

As Sykes (1996) and Kabede (2000) observations indicate, electronic information resources are gaining importance in the library. The present scenario of online information resources and electronic publishing implies that if the library is going to be of benefit to its users, it will need to get connected to electronic resources such as the Internet. This is because as the study identified (see this chapt. section 5.2.2), there is going to be a
lot of information that will originate in electronic form and is transmitted in the same form. To tap such resources, a web-based system is necessary and hence a web-based library.

2) The library may no longer be confined in a building.

According to Lwehabura and Matovelo, 1999... an important issue here is the move from print based to electronic information which opens up new services such electronic journals, electronic short loan collections, Integrated local databases and guiding library users to existing print-based information. Shift towards electronic information implies a move away from conventional study places to IT workstations, perhaps arranged in integrated learning resources centres rather than a conventional library building.

"Librarians have evolved from a mere provision of materials to readers to a situation where the active search of information from various sources is paramount". (Gathuya in Daily Nation of March 18,2001)

This means that the main focus for the library should not be on confining its service provision within a certain place or building. The major focus here will have to change to making sure that information gets to those who need it. This will require that the library concentrates on the information it is providing and the best way to get it to those who need it but not on where it is provided.

3) The library is moving away from a collection of books to providing information
in a variety of formats e.g. CD-ROMs, online sources such as online databases, etc.

Gathuya (Daily Nation, March 18, 2001) contends that libraries are currently faced with the challenge of collection and storage of the rapidly growing amount of information in print formats.

Sykes in 1996 observed that libraries are advancing towards a future in which a significant proportion of information will be mediated in electronic forms beside the bibliographic or esoteric research sources.

4) The library is going to offer remote services to its users. That is, the users may not physically visit the library. This is because those with their own computers can, via their computers communicate with the library from their homes or offices.

Mutula (2000) observes that.... Libraries of the future will in addition have the opportunity to centralise their services and provide means of access to the library resources so that users can access the library from their homes, perform renewals of materials, submit reference enquiries, suggest new titles and request home delivery value added services.

These observations reveal that although the library will still be important in future, it will have to change its traditional approach of information storage, retrieval and dissemination.
5.4.2 The future position of the librarian

According to Mutula (2000), Libraries and information workers in libraries of the future will have to position themselves to participate effectively in the new electronic revolution. Establishments of positions of “web librarians” shall be required. This member of staff shall have the role of a co-co-ordinator for e-mail publications in the library, trouble shooter and trainer to attend to house keeping tasks such as updating mailing lists, deleting and adding users and acting as a liaison between the library and the institution wide computing staff.

Lancaster (1982) is of the view that the information professional is likely to be employed as a facilitator or linker, as a kingpin in a network in which service providers share control and their clients in jointly coping with complex tasks. It will be an occupation of great responsibility, requiring correspondingly high standards of admission to and training for the profession.

"The increasing availability of computerised information sources and networking capabilities, along with the proliferation of microcomputers in faculty homes and offices has led to increased demands for direct access to databases. The librarian’s role as online search intermediary appears to be changing from performing searches to aiding users in doing their own searching". (Mccombs, 1991)

Gathuya (Daily Nation, March 18, 2001) observes that librarians must come to terms with the fact that computers, which are the basis of the Internet, provide
integrated opportunities for new storage techniques and information processing systems.

The above observations imply that with the application of IT in libraries, the librarian's role and approach to information service can no longer remain the same. He will need to change or move away from traditional librarianship to adopting the new technological developments taking place. The librarian will no longer therefore act as a custodian of information resources but will act more as a link between information and the information seeker. He will direct users to the information and he will also facilitate the user's access to information. This role will require that the librarian be not confined within the walls of a building for with the online system information is no longer confined within the library walls.

To ensure that the library personnel get the appropriate skills to enable them serve effectively in the information technology age, there is need for the training institutions to match their curriculum with the needs in the field. This curriculum should cover such areas as website creation and management, database creation and management, Internet searching, Online reference service and CD-ROM searching.

The study therefore gathered that

1. The librarian is moving away from the role of a custodian of information resources to a disseminator of information. He will guide or aid users in doing their own information searching.

We are getting to a time where users will not be so much concerned with the
information resources as with the information itself. The information professional will therefore need to be well skilled in disseminating the necessary information in the form that the users shall require it. Repackaging skills therefore become quite paramount in such a case.

McCombs (1991) observes that the increasing availability of computerized information sources and networking capabilities, along with the proliferation of microcomputers in faculty homes and offices has led to increased demands for direct access to databases. The librarian's role as online search intermediary appears to be changing from performing searches to aiding users in doing their own searching.

2. The librarian is going to be more or less an information consultant.

According to Lancaster (1982)...Librarians will no longer operate within the four walls of an institution. They can apply their professional skills in searching information sources and in answering questions wherever they can plug in a terminal. They can freelance from the home or form themselves into group practices as doctors and attorneys do. These trends, of course, are already quite evident in the profession.

3. The librarian will have to move away from traditional librarianship. He will need to change the focus from traditional librarianship processing procedures and adopt the new technological developments.
For instance the traditional approach to cataloguing, classification, reference service, current awareness service etc. will need to change to a computer-based system.

Information managers should give computerisation priority. The centres that are not computerised should begin hatching out plans to do so. It has become apparent that the amount of information being produced can no longer be handled effectively through the use of conventional manual methods. Computers can be acquired through soliciting for funds from donor agencies. (Ng'ang'a, 1994).

Muiruli (1986) observes that, the use of modern technology in handling information has become a concern of every librarian in the world due to the increase in literature and its exponential growth rate. As such, manual system have become difficult to improve and library and information services can only continue to act as the depository of knowledge and the central point for the dissemination of information; if the task of utilising modern technology is undertaken by librarians and information workers.

4. The librarian will remain the technical person involved in the acquisition, organisation, and retrieval of information. He will be charged with the management and access to the information resources. The librarian will be charged with the responsibility of identifying the relevant information and organising it in a way that will benefit the users. For instance, he will need to identify the relevant databases, organise them and carry out current awareness service (CAS) and selective dissemination of information (SDI) in the most appropriate way.
5. The librarian will change to an information manager and provider; one with skills to package information into the computer, that is, develop databases and also design websites. Information repackaging is very important for it will mean that users get information organised in a way to suit their needs. The librarian will therefore need to repackage information for his users in accordance with the current technology and information needs. Such repackaging activities can involve providing print outs of information to relevant users, and also offering computerised SDI.

In order for the librarian to fit into his emerging role, he will need to keep abreast with the technological changes taking place in his field. To do this the researcher recommends that the librarian should;

i. Embrace the new technology and train in IT skills.

ii. Attend workshops, seminars and symposiums on IT developments in order to get updated on IT skills and its use in libraries.

iii. Read widely on the new technology.

iv. Spearhead the campaign on library computerisation.

v. Carry out extensive research on IT use in libraries so that he may not be marginalized in future.

vi. Work toward networking in provision of library services for increased resource sharing nationally, regionally and internationally.

The schools of librarianship also have a role to play to ensure that they train
information professionals who will not be relegated or marginalized in future. One major thing they need to do is to revisit their curriculum that is to a great extent traditional. The revising of the curriculum should not be a one-time event but it should be done from time to time to keep pace with the emerging technological developments in the field.

Teague (1985) is of the view that as long as librarians and of course schools of librarianship continue to update their knowledge and expertise, then there is no need to fear that the new computer and electronic based information will emerge to take over the role of the librarian.

This observation implies that if the librarian consistently updates his knowledge in line with the technological changes taking place in his field, he faces no threat of being relegated in the electronic age.

5.5 CONCLUSIONS AND RECOMMENDATIONS

5.5.1 Conclusions

5.5.1.1. Information Technology in Libraries

The study established that:

There is use of information technology (IT) in some libraries. This is in the areas of use of integrated library system (interlinked acquisition, cataloguing, circulation, and periodical control), use of electronic information resources (CD-ROM, online databases, the Internet, e-mail etc.), and also in typing, printing, and downloading services.
However because of certain limitations IT uses is not widespread in libraries in Kenya.

Such limitations include:

1. High costs
2. Poor telecommunication infrastructure.
3. Poor electric power supply.
4. Lack of awareness among libraries of the available IT facilities.
5. Techno phobia (fear of technology)
6. Lack of understanding by managers of some library parent institutions of the importance of IT in libraries.
7. Lack of trained staff.

5.4.1.2 Changes brought by IT in information storage, retrieval and dissemination.

5.4.1.2.1 Use of IT in libraries and also in other centres has brought changes in information storage, retrieval and dissemination. Such changes are to be seen in the following areas:

1. The library is no longer storing only print forms of information resources but also in other forms such as microform, microfiche, videotapes, audiotapes, and also electronic resources such as CD-ROM, diskettes, etc.
2. The library is also offering a variety of services such as typing and printing services, online literature searching, CD-ROM searching, downloading services, online reference services.
5.4.1.2.2 The Internet provides certain advantages chief among them being the following;

1. With the use of the Internet users have access to a variety of information resources.

2. Users have access to information on a variety of subjects.

3. Users have access to up-to-date information because information on the Internet can be conveniently updated.

4. Fast access to information is possible.

Because of these advantages, users are relying a lot on the Internet for information. However, the Internet also has certain limitations, some of which include the following:

1. The Internet requires efficient telecommunication service and electric power. This is yet to be achieved in most developing countries like Kenya.

2. The Internet is not always user friendly. The Internet contains a lot of junk such that a user who is not conversant with the service can retrieve a lot of unnecessary information.

3. When the server is down access to information is slow. Also, when many people are surfing, it can take a long time to download something from the Internet and even failing completely.

4. With the Internet, there is no absolute confidentiality or privacy of information.

5. Information on the Internet is sometimes summarised and hence insufficient.

6. If the computer's memory is low, then the speed of access will be low.

These limitations among others mean that the Internet alone is not a sufficient
information resource. The Internet and the future library need to supplement each other as information sources. Moreover, in those places without electric power for instance, (such as most parts of Kenya), the library will still remain the chief information resource for quite sometime because people in these areas cannot use computers even if they were to afford them.

5.5.1.3 The future position of the library and the librarian

1. The idea of the library, in the traditional sense is changing. The library is changing from a store of books to a workstation or centres where various information resources and services and services are provided. If any library is to stand a chance in the future, it will have to embrace the new technological changes.

2. The librarian has a role to play in future. However, his role is changing from that of a custodian of information resources to a disseminator of the information itself. With the new technological developments, the librarian will have to move away from traditional librarianship. His role will be more of identifying the relevant databases and he will also be more active in services like the reference service, SDI and CAS that require interpersonal interaction. The librarian will still remain the technical person involved in the acquisition, organisation and retrieval of information. He will therefore be charged with management and access to the information resources. He will be responsible for packaging information into the computer, that is, develop databases, design websites, etc.

The librarian will be more or less an information consultant.
3. The schools of librarianship have a role to play to ensure that the library and the librarian are not marginalized in future. They will need to train their students for the future library. This will involve revising the existing curriculum, which is largely traditional. They will need to develop a curriculum that is in line with the technological changes taking place. There is need to revise this curriculum from time to time to keep pace with the dynamic information technologies.

5.5.2 Recommendations

In view of the above observations, the study recommends the following:

5.5.2.2 Information Technology in libraries

Because of the benefits accruing from IT use in libraries, every library in Kenya should strive towards IT use in its operations.

To aid in achieving this, the government should:

1. Wave or reduce taxation charged on imports on IT facilities affordable so as to make them affordable to institutions that may not have been able to afford them owing to high costs.

2. Improve the telecommunication infrastructure.

3. Ensure that there is proper power supply.

5.5.2.2 Changes brought by IT in information storage, retrieval and dissemination.

It is evident in this study that IT has brought demonstrable benefits in those libraries where it is being used. In order not to be left behind in such changes, each library should strategize itself in such a way that is receptive to changes that IT is bringing. For
instance, the library should equip itself with the necessary resources such as CD-ROM, software and hardware that are compatible with each other, integrated software, proper power supply, up-to-date computer accessories such as modems, and printers. It should also ensure that its staff are equipped with up to date IT skills.

5.5.2.3 The future position of the library and the librarian

If the library is to justify its existence in future, it should

1. Integrate the Internet and other technologies in all operations of the library.

2. Ensure professional and continuing education for the librarians to equip them to work effectively in the new technological dispensation.

3. Work hand in hand with IT providers to enhance information service provision.

4. Pull its resources together to invest in IT.

5. Keep in pace with modern IT information related developments in its operations.

6. Be assertive. The library should know its place and role in the institution as the centres of learning. It should therefore work for its integration in the institution's vision, mission, objectives and activities.

7. The library should provide enough resources to its users. For instance, it should also provide a sufficient number of computers, should subscribe to a sufficient number of relevant journals and it should employ enough and qualified personnel.

For the training institutions to help ensure that the library and the librarian are not marginalized in future, they should train their students for the future library. They should revise their curriculum, which is currently traditional. The curriculum should
be revised from time to time to keep pace with the emerging developments in the field.

They should also work together with libraries in drawing up the syllabi or the curriculum in order to ensure that the library reflects the current library needs.

The librarian in Kenya needs to be well informed of the technological changes taking place that affect his field, he should;

1. Embrace the new technology and train in IT skills.

2. Attend workshops, seminars, etc. on IT developments in order to get updated on IT skills and its use in libraries.

3. Read widely on the new technology.

4. Spearhead the campaign on library computerisation.

5. Carry out extensive research on IT use in libraries so that he may not be marginalized in future

6. Work toward networking in provision of library services for increased resource sharing nationally, regionally and internationally.
REFERENCES


Appendix. 1

LETTER SPECIFYING THE PURPOSE OF THE STUDY

KENYATTA UNIVERSITY,
LIBRARY AND INFORMATION SCIENCE DEPARTMENT.
P.O. BOX 43844,
NAIROBI.

19/01/001.

Dear Sir or Madam,

REF: RESEARCH PROJECT DATA COLLECTION

I’m a student at Kenyatta University in the department of library science. I’m carrying out a research project entitled,

“ The future of the Library in the Electronic age”

I kindly request you to assist me in data collection by filling in the attached questionnaire. Note that the information obtained will only be used for the purpose of the research.

I will appreciate your cooperation and assistance.

Thank you.

Yours faithfully,

JANE N WAMBUA
QUESTIONNAIRE FOR LIBRARIANS/LIBRARY STAFF

INSTRUCTIONS

1. Tick appropriately in the brackets or fill in the spaces provided.

2. Feel free to give more relevant information not covered in the questionnaire.

BACKGROUND INFORMATION

1.1 Name of institution

<table>
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<tbody>
<tr>
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<td>2. ILRI</td>
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1.2 Title of respondent

<table>
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<tr>
<th>Title of Librarian</th>
<th>[]</th>
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<tbody>
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<td>1. Chief librarian</td>
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<tr>
<td>2. Deputy librarian</td>
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<tr>
<td>3. Assistant librarian</td>
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<td>4. Library Assistant</td>
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<td>5. Other (specify)</td>
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</tbody>
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1.3 Type of library

<table>
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<th>Type of Library</th>
<th>[]</th>
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<tbody>
<tr>
<td>1. Academic library</td>
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<td>2. Special library</td>
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1.4 Is your library using Information Technology (IT) in its service to users?

<table>
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<tr>
<th>Answer</th>
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<tbody>
<tr>
<td>1. Yes</td>
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<td>2. No</td>
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</table>
1.5 If yes to question 1.4 above, which of the following IT facilities are available in your library.

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<tbody>
<tr>
<td>1. Online Public Catalogue (OPAC)</td>
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<tr>
<td>2. CD-ROM</td>
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<tr>
<td>3. Online databases</td>
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<tr>
<td>4. Internet-World Wide Web (WWW)</td>
<td></td>
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<tr>
<td>5. Internet-E-mail</td>
<td></td>
</tr>
<tr>
<td>6. Other (specify)</td>
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</tbody>
</table>

APPLICATION OF INFORMATION TECHNOLOGY (IT) IN THE LIBRARY

1.6 Do you have an integrated library software system?

1. Yes [ ]
2. No [ ]

1.7 If yes to the above, what is the library software that you are using?

_________________________________________________________________________

1.8 What other IT applications are available in your library?
1. CD-ROM databases
2. Online databases
3. Internet–Worldwide Web (WWW)
4. Internet–E-mail
5. OPAC
6. Other (specify)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CD-ROM databases</td>
<td></td>
</tr>
<tr>
<td>2. Online databases</td>
<td></td>
</tr>
<tr>
<td>3. Internet–Worldwide Web (WWW)</td>
<td></td>
</tr>
<tr>
<td>4. Internet–E-mail</td>
<td></td>
</tr>
<tr>
<td>5. OPAC</td>
<td></td>
</tr>
<tr>
<td>6. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

1.9 Are you connected to any information network?

1. Yes
2. No

2.0 If yes to 1.9 above, which information network type are connected to?

1. Local Area Network (LAN)
2. Wide Area Network (WAN)

2.1 Do your users know how to access information in the library using information networks?

1. Yes
2. No

2.2 If yes to 1.9 above, what do the users the information networking facilities for?

1. Literature searching
2. E-mail services
3. Other (specify)

2.4 How did your users get to know how to use the information networking facilities?

1. Through training [ ]
2. Through user education [ ]
3. Other (specify) ____________________________________________________________

2.5 Do you subscribe to electronic journals?

1. Yes [ ]
2. No [ ]

2.6 If yes to 2.5 above, which are the electronic journals that you subscribe to?

__________________________________________________________________________

__________________________________________________________________________

2.7 How do you compare the cost of subscribing to electronic journals to that of subscribing to print journals?

__________________________________________________________________________

__________________________________________________________________________

2.8 Which Journals do your users prefer using, the electronic or the print journals?

__________________________________________________________________________
2.9 From the following, tick against those Non Book materials you provide to your users

<table>
<thead>
<tr>
<th>Non Book Materials</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MicroFilms</td>
<td></td>
</tr>
<tr>
<td>2. Microfiche</td>
<td></td>
</tr>
<tr>
<td>3. Video cassettes</td>
<td></td>
</tr>
<tr>
<td>4. Photographs</td>
<td></td>
</tr>
<tr>
<td>5. Audio tapes</td>
<td></td>
</tr>
<tr>
<td>6. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

BENEFITS AND CHALLENGES BROUGHT BY INFORMATION TECHNOLOGY IN LIBRARIES

3.0 From your experience, would you say that IT has transformed the means of communication and information access?

1. Yes [ ]
2. No [ ]

3.1 If yes, in what areas has this transformation been seen?

<table>
<thead>
<tr>
<th>Transformation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communication and information access has become faster</td>
<td></td>
</tr>
<tr>
<td>2. Users can now have access to a variety of information resources</td>
<td></td>
</tr>
<tr>
<td>3. Users can now access information on a variety of subjects</td>
<td></td>
</tr>
<tr>
<td>4. Users can access information on a variety of formats</td>
<td></td>
</tr>
<tr>
<td>5. Users now refer to books less</td>
<td></td>
</tr>
<tr>
<td>6. The librarian's work has become easy</td>
<td></td>
</tr>
<tr>
<td>7. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

153
3.2 Has IT made it possible for resource sharing between your library and other libraries?

1. Yes [ ]
2. No [ ]
3. Not sure [ ]

3.3 If yes to the above question, please explain your answer

__________________________________________________________________________
__________________________________________________________________________

3.4 What role would you say information Technology has played on the acquisition process in your library?

1. The acquisition process has been made faster. [ ]
2. It has become possible to acquire a variety of information resources [ ]
3. Through the Internet, it has become possible to acquire electronic information resources such as electronic journals and online databases. [ ]
4. Other (specify) ____________________________________________________________
   _______________________________________________________________________

3.5 What positive contributions has the use of Information Technology made on general information service in your library?
1. Information access has become faster. [ ]

2. The information accessed from the Internet is current because it is continuously updated [ ]

3. Users have access to a variety of information in different formats and on different subjects. [ ]

4. Library networking and resource sharing has become possible. [ ]

5. Other (specify)

3.6 Are there other centres offering IT facilities in your institution?

1. Yes [ ]
2. No [ ]

3.7 If yes, which are these centres?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Computer labs [ ]</td>
</tr>
<tr>
<td>2.</td>
<td>Computer centres [ ]</td>
</tr>
<tr>
<td>3.</td>
<td>Cyber cafes [ ]</td>
</tr>
<tr>
<td>4.</td>
<td>Others (specify)</td>
</tr>
</tbody>
</table>

3.8 What services are offered in these centres?

1. Literature searching [ ]
2. E-mail service [ ]
3. Typing and printing services [ ]
4. Other (specify) ____________________________
   ____________________________
   ____________________________

155
3.9 Are these services?

1. Free of charge?  
2. Offered at a fee?

4.0 If these services are offered at a fee, how much is the fee?

4.1 Do your users also frequent these centres?

1. Yes  
2. No

4.2 If yes, do you think the users prefer getting the same services from the library to getting them from these other centres?

1. Yes  
2. No  
3. In some cases (please explain)

4.3 What would you say about your users concerning the information technology services offered in your library?

1. Very satisfied  
2. Satisfied  
3. Dissatisfied  
4. Very dissatisfied  
5. Indifferent
LIMITATIONS

4.4 What are the limitations in the use of information technology in libraries in Kenya today?

1. High costs
2. Power supply problems
3. Poor telecommunication Infrastructure
4. Lack of awareness among libraries of what IT facilities are available
5. Other (please specify)

4.5 If all or some of the above factors apply, what percentage would you allocate to each factor?

1. High costs
2. Power supply problems
3. Poor telecommunication infrastructure
4. Lack of awareness among libraries of what IT facilities are available
5. Others

4.6 Suggest possible recommendations that could help to enhance the use of IT in libraries in Kenya.
(Questions 4.7, 4.8, 4.9 and 5.0 to be answered by the library management only)

4.7 Have you experienced any shortcomings in the use of IT in your library?

1. Yes [ ]
2. No [ ]

4.8 If yes to the above, please identify these problems

<table>
<thead>
<tr>
<th>1. Very costly</th>
<th>[ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Power supply problems</td>
<td>[ ]</td>
</tr>
<tr>
<td>3. Indifference from librarians and library users</td>
<td>[ ]</td>
</tr>
<tr>
<td>4. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

4.9 What steps have you taken so far in order to avoid the problems you have identified?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
THE FUTURE

5.0 What are some of the future prospects of your library as regards the use of Information Technology?

1. To integrate Internet and other technologies in all operations of the library[ ]

2. Professional and continuing education for the librarians so as to equip them to work effectively in the new technological dispensation. [ ]

3. Interlinking all the library operations such as circulation, cataloguing, acquisitions and periodicals control to make information management easy[ ]

4. Other (please detail)

5.1 The concept of an electronic age has been widely talked about but has for a long time remained a dream. Do you think IT is making this now a dream come true?

1. Yes [ ]

2. No [ ]

5.2 If yes, please explain how?

5.3 With the coming of the electronic age, what do you think is going to be the future publishing direction?
1. It is going to be purely electronic based
2. It shall remain paper based
3. About 90% percentage is going to be electronic based
4. It shall be both paper based and electronic based
5. Other (specify)

5.4 Now that IT has made it possible for users to access information not only available within the library but also from their homes, offices, computer centres etc. do you think this is going to have an effect on the role of:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) The Library</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) The Librarian</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.5 For the answers you have given for question 5.4, please explain

1. The library

2. The librarian
5.6 Do you think the librarian in Kenya today needs to do something in order to cope with the IT developments taking place?

1. Yes [ ]
2. No [ ]

5.7 If the answer to the above is yes, please give suggestions?

__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________

5.8 In your opinion, what is the future of the library as we know it today in Kenya considering the role information technology is playing in general information storage and access?

__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________

5.9 How should the library strategize itself in order that it is not relegated/marginalized in future?

__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________

6.0 Is there anything that library-training institutions should do to help the future libraries? Please explain

__________________________________________________________________________________
__________________________________________________________________________________
Dear Sir or Madam,

REF: RESEARCH PROJECT DATA COLLECTION

I'm a student at Kenyatta University in the department of library science. I'm carrying out a research project entitled,

"The future of the Library in the Electronic age"

I kindly request you to assist me in data collection by filling in the attached questionnaire. Note that the information obtained will only be used for the purpose of the research.

I will appreciate your co-operation and assistance.

Thank you.

Yours faithfully,

JANE N WAMBUA.
QUESTIONNAIRE FOR LIBRARY USERS

INSTRUCTIONS
(a) Tick appropriately in the brackets
(b) Feel free to give any more relevant information not covered in the questionnaire

BACKGROUND INFORMATION

1.1 Name of library/institution
1. USIU [ ]
2. ILRI [ ]

1.2 Title of respondent
1. Student (undergraduate) [ ]
2. Student (graduate) [ ]
3. Academic staff [ ]
4. Researcher [ ]
5. Other (specify) [ ]

1.3 Do you visit the library?
1. Yes [ ]
2. No [ ]
1.4 If yes to 1.3 above, how often do you visit the library.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Once a day</td>
<td>[]</td>
</tr>
<tr>
<td>2. Twice a day</td>
<td>[]</td>
</tr>
<tr>
<td>3. Once a week</td>
<td>[]</td>
</tr>
<tr>
<td>4. Twice a week</td>
<td>[]</td>
</tr>
<tr>
<td>5. Any other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

INFORMATION TECHNOLOGY (IT) IN LIBRARIES

1.5 Are you aware of the following IT services?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Online Public Catalogue (OPAC)</td>
<td>[]</td>
</tr>
<tr>
<td>2. CD-ROM</td>
<td>[]</td>
</tr>
<tr>
<td>3. Online databases</td>
<td>[]</td>
</tr>
<tr>
<td>4. Internet-World Wide web (WWW)</td>
<td>[]</td>
</tr>
<tr>
<td>5. Internet-Electronic mail (E-mail)</td>
<td>[]</td>
</tr>
<tr>
<td>6. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

1.6 Please tick against those IT services that are available in your library

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. OPAC</td>
<td>[]</td>
</tr>
<tr>
<td>2. CD-ROM</td>
<td>[]</td>
</tr>
<tr>
<td>3. Online databases</td>
<td>[]</td>
</tr>
<tr>
<td>4. Internet-WWW</td>
<td>[]</td>
</tr>
<tr>
<td>5. Internet-E-mail</td>
<td>[]</td>
</tr>
<tr>
<td>6. Electronic journals</td>
<td>[]</td>
</tr>
<tr>
<td>7. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>
1.7 Have you used any of the above IT services?

1. Yes [ ]
2. No [ ]

1.8 If your answer above is yes, please tick against the service(s) you have used

<table>
<thead>
<tr>
<th>Service</th>
<th>[ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. OPAC</td>
<td></td>
</tr>
<tr>
<td>2. CD-ROM</td>
<td></td>
</tr>
<tr>
<td>3. Online databases</td>
<td></td>
</tr>
<tr>
<td>4. Internet-WWW</td>
<td></td>
</tr>
<tr>
<td>5. Internet-E-mail</td>
<td></td>
</tr>
<tr>
<td>6. Any other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

1.9 Which of the following IT services have you used elsewhere apart from the library?

<table>
<thead>
<tr>
<th>Service</th>
<th>[ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. OPAC</td>
<td></td>
</tr>
<tr>
<td>2. CD-ROM</td>
<td></td>
</tr>
<tr>
<td>3. Online databases</td>
<td></td>
</tr>
<tr>
<td>4. Internet-WWW</td>
<td></td>
</tr>
<tr>
<td>5. Internet-E-mail</td>
<td></td>
</tr>
<tr>
<td>6. Any other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

2.0 Where did you use this service(s)?

<table>
<thead>
<tr>
<th>Location</th>
<th>[ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Home</td>
<td></td>
</tr>
<tr>
<td>2. Office</td>
<td></td>
</tr>
<tr>
<td>3. Laboratory</td>
<td></td>
</tr>
<tr>
<td>4. Cyber café</td>
<td></td>
</tr>
<tr>
<td>5. Information centre</td>
<td></td>
</tr>
<tr>
<td>6. Computer centre</td>
<td></td>
</tr>
<tr>
<td>7. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>
2.1 Did you pay for the use of this service(s)?

1. Yes [ ]
2. No [ ]

2.2 How would you rate the services you receive from the above computer services in terms of speed of access?

1. Very fast [ ]
2. Fast [ ]
3. The same as searching for information from books [ ]
4. Other (specify) 

2.3 Which of the following Non Book Media facilities are available in your library?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Video tapes</td>
<td>[ ]</td>
</tr>
<tr>
<td>2. Audio tapes</td>
<td>[ ]</td>
</tr>
<tr>
<td>3. Films</td>
<td>[ ]</td>
</tr>
<tr>
<td>4. Photographs</td>
<td>[ ]</td>
</tr>
<tr>
<td>5. Slides</td>
<td>[ ]</td>
</tr>
<tr>
<td>6. Overhead projectors</td>
<td>[ ]</td>
</tr>
<tr>
<td>7. Any other (specify)</td>
<td></td>
</tr>
</tbody>
</table>
2.4 Which of these services do you make use of?

<table>
<thead>
<tr>
<th>Service</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Video tapes</td>
<td></td>
</tr>
<tr>
<td>2. Audio tapes</td>
<td></td>
</tr>
<tr>
<td>3. Films</td>
<td></td>
</tr>
<tr>
<td>4. Photographs</td>
<td></td>
</tr>
<tr>
<td>5. Slides</td>
<td></td>
</tr>
<tr>
<td>6. Overhead projectors</td>
<td></td>
</tr>
<tr>
<td>7. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

**BENEFITS AND CHALLENGES OF USE OF INFORMATION TECHNOLOGY (IT) IN LIBRARIES**

2.5 Have you used the Internet to access information?

1. Yes [ ]
2. No [ ]

2.6 If yes to 2.5 above, what kind of information do you access from the Internet?

<table>
<thead>
<tr>
<th>Information Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information on published Journals and Books in a specific field</td>
<td></td>
</tr>
<tr>
<td>2. Current information from Electronic newspapers</td>
<td></td>
</tr>
<tr>
<td>3. Entertainment/ leisure information</td>
<td></td>
</tr>
<tr>
<td>4. Information related to a specific study (research project)</td>
<td></td>
</tr>
<tr>
<td>5. Religious related information</td>
<td></td>
</tr>
<tr>
<td>6. Business related information</td>
<td></td>
</tr>
<tr>
<td>7. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>
2.7 Comparing the quality of information you receive from books and that you receive from the Internet, would you say that the information you receive from the Internet is of:

1. High quality [ ]
2. Low quality [ ]
3. The same quality [ ]
4. Other (specify) ________________________________________________________________
   ________________________________________________________________

2.8 Generally what benefit would you attribute to the use of the Internet in accessing information? (Tick against the appropriate choice or choices)

| 1. User friendly | [ ] |
| 2. Faster access | [ ] |
| 3. Access to a variety of information resources is made possible | [ ] |
| 4. Access to information in a variety of formats e.g. Audio, Print, Graphics etc. | [ ] |
| 5. Any other (specify) | |

2.9 Are there any disadvantages you would attribute to the Internet?

1. Yes [ ]
2. No [ ]

3.0 If yes to 2.9 above, mention some of these disadvantages.

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

168
3.1 What kind of improvement would you like to see from the Internet service?

1. The cost of accessing information from the Internet should be cut down [ ]
2. The cost involved in getting connected to the Internet should be reduced [ ]
3. Information on the Internet should be well organized [ ]
4. Other (specify)

3.2 Has the use of services like OPAC, CD-ROM, and Internet service affected the way you do your work?

1. Yes [ ]
2. No [ ]

3.3 If yes to 3.2 above, how has the use of these services affected the way you do your work?

1. Has made my work easy in terms search time [ ]
2. Has improved the quality of my work [ ]
3. Has slowed down the rate of my work [ ]
4. Has made it possible for me to access a variety of information resources [ ]
5. Any other (specify)

THE FUTURE

3.4 In your opinion, has the role of the traditional library as a custodian and provider of books changed in any way with the use of IT services?

1. Yes [ ]
2. No [ ]
3.5 If your answer to 3.4 above is yes, please tick against the right choice(s) form the following

1. The library now store not only books but also other forms of information resources [ ]
2. The library users can now access information from the Internet without the help of the librarian [ ]
3. Library users can now get the same kind of information they would get from the library from elsewhere [ ]
4. The library is no longer a custodian of information but a disseminator of information [ ]
5. Any other (specify)

3.6 Do you think that in the years to come you will still need to visit the library in search of information?

1. Yes [ ]
2. No [ ]
3. Not sure [ ]
4. Any other (specify)__________________________________________________________

1.7 Please explain your answer for 3.6 above

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
3.8 What do you perceive as the nature of the library we are going to have in the future?

1. Information is going to be available on the Internet so we will not need the physical library [ ]
2. The Internet and the physical library are going to supplement each other [ ]
3. The physical library is only going to be useful as a storehouse of books [ ]
4. Any other (specify)

3.9 Are you satisfied with the current library service and resources offered in your library?

1. Yes
2. No

4.0 If your answer to 3.9 above is No, please specify the reasons for your dissatisfaction:

________________________________________________________________________
________________________________________________________________________

4.1 If your answer to 3.9 above is No, what positive changes would you want to see in the library?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

171