JIMMA UNIVERSITY

COLLEGE OF NATURAL SCIENCES

DEPARTMENT OF INFORMATION SCIENCE

Assessing the Impacts and Benefits of Using Electronic Resources in Ethiopian Public Higher Learning Institutions

By:

Girum Kebede

September 2014

JIMMA, ETHIOPIA

Assessing the Impacts and Benefits of Using Electronic Resources in Ethiopian Public Higher Learning Institutions

By:

Girum Kebede

ADVISOR: Getachew Bayissa

CO-ADVISOR: Worku Jimma

A Thesis Submitted to the College of Natural Sciences of Jimma University in Partial Fulfillment of the Requirements for the Degree of Master of Science in Electronic and Digital Resource Management

September 2014

JIMMA, ETHIOPIA

Assessing the Impacts and Benefits of Using Electronic Resources in Ethiopian Public Higher Learning Institutions

By: Girum Kebede

A Thesis Submitted to the College of Natural Sciences of Jimma University in Partial Fulfillment of the Requirements for the Degree of Master of Science in Electronic and Digital Resource Management.

Approved by Board of Examiners	**Signature**	**Date**
External examiner		
_____	_____	_____
Internal examiner		
_____	_____	_____
Advisors		
_____	_____	_____
_____	_____	_____
Department Head		
_____	_____	_____

Acknowledgement

First I would like to express my heartfelt thank to my Advisors Mr. Getachew Bayissa and Mr Worku Jimma for their continuous support, friendly approach and invaluable comments. They spent their precious time in commenting my work and showing me the right directions that I found very important for the accomplishment of my thesis.

My greatest gratitude is extended to the community of Department of Information Science, Jimma University, whose contribution is involved in one way or the other. I would also like to thank my employer Jimma University ICT office for allotting budget to cover all the cost of my MSc study.

I also would like to thank the staffs of Jimma University, Addis Ababa University and Mizan Teppi University who help me in distributing and collecting questionnaires. I would also thank those University library directors and ICT technicians who were willing for the interview.

Finally, I would like to express my sincere thanks to Ato Girum Ketema for encouraging and supporting me in every way. I also thank my classmates for being with me whenever in need and for their continuous encouragement during my stay in the university. Finally, I am grateful for those who are not mentioned in name but who helped me much.

Girum Kebede

September 2014

Table of Contents

Table of content Page
Acknowledgement iv
Table of Contents v
List of figure vii
List of Table viii
List of abbreviation……ix
Abstract x
INTRODUCTION 1
1.1.1 Electronic resources in Ethiopian acadmic institution 4
1.2. Statement of the problem 4
1.3. Objectives of the study 6
1.3.1. General objective 6
1.3.2. Specific objectives 7
1.4. Research question 7
1.5. Significance of the study 8
CHAPTER TWO 9
LITERATURE REVIEW 9
2.1. Defintion of electronic resource 9
2.2. Use of electronic resource 10
2.3. Electronic information rources 13
2.4. Advantage of e-resources 13
2.5. Disadvanatge of e-resources 14
2.6. Brife histroy of the internat 15
2.7. Electroni mail 16
2.8. Electronic jornal 16
2.9. Online database 17
2.10. CD-ROM database 17
2.11.Electronic resource utilization in acadmic liberary 17
2.12. Benfit of electronic resource 20
2.13. Electroni resource in developed cantry 21
2.14. Electronic resource in developing cantry 22
2.15. Electronic resource in ethiopia 24
2.16. Role of ict in education 27
2.17. Conceptual Framwork of the study 29
CHAPTER THREE 31
RESEARCH DESIGN AND METHODOLOGY 31
3.1. Introduction 31
3.2. Research design 31

3.3. Description of the study sites....32
3.4. Study population 33
3.5. Inclusion and exclusion criteria.... 34
3.6. Sampling method.... 34
3.7. Sample size determination 35
3.8. Data collection.... 37
3.9. Data collection procedure....38
3.10. Pre-test of data collection instrument....39
3.11. Data quality control....40
3.12. Data analysis, presentation and interpretation....40
3.13. Ethical consideration 40
CHAPTER FOUR....42
RESULTS AND DISCUSSIONS 42
4.1. Results....42
4.1.1. Response rate and socio-demographic information.... 44
4.1.2 Quantitive respone rate 44
4.1.2.1. Electronic resource use practice 46
4.1.2.2. Use of e-resource service.... 47
4.1.2.3. Use of e-resource servic by instractor....49
4.1.2.4. Status of universty on e-resource provistion....50
4.1.2.5. The advantage and benfit of using e-resource....52
4.1.2.6 The impact of using e-resource on acadmics.... 54
4.1.2.7. Uusage of social network application.... 56
4.1.2.8. Resource availability 57
4.1.2.9. Access to use e-resource....61
4.1.2.10. Summary of using e-resource in the universty....62
4.1.3. Qualitative data result....65
4.2. Discussion 67
CHAPTER FIVE 77
CONCLUSION AND RECOMMENDATION 77
5.1. Conclusion.... 77
5.2. Recommendation.... 80
References.... 84
Appendixes 87

List of Figure

Figure 2.1 Conceptual Framework of the Study 32
Figure 4.1 Usage of social network pplication 58
Figure 4.2: Ferquency of use of e-resource 66

List of Tables

Table 3.1.:The total population of the study from academic staffs and students 36
Table 4.1: Number of distributed and collected questioners…….44
Table 4.2 Respondents socio-demographic information..... 45
Table 4.3: E-resource usage 46
Table 4.4: Factors for e-resource use in the universty 48
Table 4.5, Use of e-resource service in liberary..... 49
Table 4.6: Use of e-resource service by instractor……..51
Table 4.7, Stsaus of universtyon e-resource provistion 52
Table 4.8 The advantage and benfite of using e-resource..... 54
Table 4.9: The impact of using e-resource on acadmic..... 56
Table 4.10: Summary provistion of resource..... 59
Table 4.11: Anova table of resource availiabel among the three universty 60
Table 4.11.1: Summary anova table of resource availiabel among the three universty.... 62
Table 4.12: Acess to use e-resource 63
Table 4.13: Ferquency of use of e-resource..... 66

List of Abbreviation

AAU-Addis Ababa University

BLCMP -Birmingham Library Co-operative Maintenance Project)

CD-ROM -Compact Disk – Read only memory

EPHLI-Ethiopian Public Higher Learning Institution

EICTDA- Ethiopian Information Communication Technology Development Agency

ENISA- European Network and Information Security Agency

ER-electronic resource

DLF- Digital Library Federation

IDRC- International Development Research Center

ILS- Integrated Library System

IAAS-Infrastructure as a Service

ICT – Information Communication Technology

ILS-Integrated Library System

IT – Information Technology

JU-Jimma University

MOE-Ministry of Education

MTU-Mizan Teppi University

NIST-National Institute of Standards and Technology

OPAC-Online Public Access Catalog

PADISNet -Pan African Documentation and Information Service Network

PC: Personal Computer

PDA: Personal Data Access

UNECA -United Nation Economic Commission for Africa

Abstract

Electronic resources are becoming an integral part of the modern life and of the educational scene, especially the high education scene. Technology imposes its own impact on different sectors. University is one of these sectors. The collections of universities hard copy have been integrated with electronic resources. The services are also provided through network infrastructure remotely. The users of information resources access the resources from wherever and whenever they are interested to do so. These resources required additional infrastructure and skill of the Universities to provide the service and to use the resources. The aim of this research is to assess the impacts and benefits of using electronic resource in Ethiopian Public Higher Learning Institutions. The methodology employed to conduct this study was survey research design and the respondents, drawn from three EPHLI universities, (i.e., Jimma University, Addis Ababa and Mizan Tepi University) comprised of librarians, ICT professionals, students and staffs. Simple random sampling method was used to select samples from study population and a purposive sampling method was used to select study areas and samples for interview. Data for the study was collected through questionnaire, semi-standardized face-to-face interview and observation. The result of the study revealed that, 70.0% have agreed good computer skill to use e-resources and also 73.0% prefer and use different electronic information resources but 81.7% of do not have any training how to use electronic information resources. And also 81.8% agreed electronic resources support teaching learning process. There is no equal distribution of e-resource among university. Awareness creation and information literacy skill should be provided for academic staffs to improve the usability of electronic information resources. The capacity and bandwidth of Internet, equal distribution of e-resource among university should be improved and also ICT man power to overcome the problem of managing e-resources.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Over the past decade, the proliferation of digital products and changing modes of access have made managing electronic resources a complicated and arduous task. The twentieth century was shaped by sweeping changes in communication technologies. The emergence and use of information technology is the century's most significant development affecting scholarly communication. The application of computers to information processing has brought several products and services to the scenes. Consequently, the academic community has undergone tremendous changes during these years, assuming new dimensions influenced by technology-driven applications. Over the last several years a significant transformation has been noticed in collection development policies and practices.

Electronic resources (ER) can be defined as those electronic information resources and services that user's access electronically via a computing network from inside the library or remote to the library (Ibrahim, 2004).Internet can be used for efficient retrieval and meeting information needs. This is very important for university libraries since most of them call for more and more research work. This important fact is convincing many libraries to move towards digital e-resources, which are found to be less expensive and more useful for easy access. This is especially helpful to distant learners who have limited time to access the libraries from outside by dial-up access to commonly available electronic resources, mainly CDROM, OPACs and internet, which are replacing the print media.

Past studies have shown that people searching for information prefer to use Google rather than to visit the library. To combat growing concern about the demise of the library, university libraries

must demonstrate that their investment in electronic collections is worthwhile. George *et al.* (2006) concluded that even though graduate students heavily use internet resources, the university library remains a key element in their research process. Tenopir's (2003) summary of research studies indicated that electronic library resources were both used and favored by professors and students alike, and they perceived the electronic format as convenient and time saving.

Commenting on the advantages of electronic resources, Dadzie (2007) writes that electronic resources are invaluable research tools that complement the print – based resources in a traditional library setting. Their advantages, according to her include: access to information that might be restricted to the user due to geographical location or finances, access to more current information, and provision of extensive links to additional resources related contents. This rapid emergence and development of electronic information technologies therefore makes it possible to envision radically different ways of organizing the collections and services the library has traditionally provided.

Print medium is increasingly giving way to the electronic form of materials (Sharma, 2009). Ani (2008) quoting Tsakonas and Papatheodorou (2006), states that "the transition from print to electronic medium apart from resulting in a growth of electronic information, has provided users with new tools and applications for information seeking and retrieval. Electronic resources are invaluable research tools that complement the print-based resources in a traditional library setting.

The remarkable growth of electronic information in the last few decades has changed the scenario and has solved the problem of space. In this digital era digitized information is available on CDs, audio cassettes, video cassettes etc., as well as on the internet. This property, which

Daniel Atkins calls digital coherence, allows all the objects in a digital library – sounds, images, texts, and everything else – to be treated in essentially the same way. The information technology has changed the complexion of the libraries in a big way.

In the electronic world highway, three things are stressed:

- Awareness of information
- Awareness of technology and
- Awareness of needs

The awareness of electronic resources gives the breadth of vision; awareness of technology gives the power to manifest the vision; and awareness of needs gives the insight to use professional skills and talents to a greater effect. Electronic resources play a vital role in the field of Science and Social studies. These days, people rely more on electronic access rather than on printed documents which has made it a valuable tool for information users. Users have become more familiar with these tools and started using them regularly.

One of the major developments in libraries and information system in the past two decades is the advanced spread of electronic information sources, services and networks mainly as a result of development in information and communication technology. Oketunji (2008) submits that information explosion coupled with recent developments in information and communication technology, has resulted in the proliferation of electronic information resources. Electronic information resources have gained ground around the globe; it affects every facet of human endeavor. The importance of electronic resources cannot be over emphasized, in the recent times; it has radically changed the activities of academic libraries and research activities in all Universities and Research Institutions. Researchers are working regularly with internet resources and search engines, and using e-mail as a normal form of communication. E-resources have

brought radical changes in the way information is gathered, stored, organized, accessed, retrieved and consumed in all libraries of the world especially academic libraries. Many academic libraries are shifting from print to electronic sources.

1.1.1 Electronic Resources in Ethiopia Academic Institutions

In recent years, there have been a number of changes in the higher education sector in Ethiopia and in particular, academic institutions. The emergence of electronic information resources has tremendously transformed information handling and management in Ethiopia academic environments. These dramatic changes include the way in which information is provided to the University Communities. Some inadequacies in the development provision and utilization of electronic resources had been identified in a number of academic institutions. A number of studies have been made with a view to proffering solutions to problems encountered in the development of electronic information resources. However, little or no efforts have been recorded in the identification of influence and impact of electronic resources on productivity of lecturers and student in University of Ethiopia. This is the gap which this research intends to assess. The aim of study is to assess the impact and benefit of using electronic resources on academic productivity of lecturers and research scholars. Research scholars in this study refer to students and research assistants in University of Ethiopia. Hence, this study is focused on the electronic resources provided by the Ethiopian institution.

1.2 Statement of the problem

The central purpose of libraries is to provide information services that are useful and accessible to the users. With the current developments in ICT, libraries are provided with options to providing services in electronic format. Academic library is one example that offers electronic resources to the users. Today's academic libraries provide students with access to a wide range of

electronic information resources (Dugdale, 1999). Academic libraries have to monitor the services by conducting a study in order to ensure the quality of services provided. The study conducted will lead to better performance of services offered Many of them have made a significant amount of investment on providing services through electronic information resources and other computer-based technologies so that the users can gain access to information and its related information effectively. ERs are significant investment in many libraries and they must ensure that the resources provide them with a good return on the investment (Fecko, 1997). The necessity of digital library, institutional repository, library automation, OPAC, database resources, journal subscription and web 2.0 applications in all universities is paramount. Currently, Ethiopian library development is at an infant stage and not more than 5 universities out of 33 started working on building IT based library services. The reasons for such a scenario to occur could be, among others, the lack of qualified professionals, infrastructure and economic conditions, the rest of the university libraries are less capable to develop IT based library system. Library resources available in different universities vary. Data resources of various universities are relatively independent, building redundant projects is thus the case, which has resulted in manpower shortage, financial resource constraints and wastage of resources and as a consequence led to inefficient and ineffective utilization of the limited resources of the country.

Today libraries in the world have changed their way of managing resources from print journal purchasing models to database subscription and electronic journal purchasing models. It is required modernize libraries that can respond more quickly to service needs by allowing the library to scale its technology resources, employ pay on demand resource model, and provide IT infrastructure on subscription model that could be difficult to acquire and manage otherwise

Building and sustaining an electronic library at each institution requires qualified librarians with the required skills to manage and maintain the technology infrastructure required at each university. However, there is immense scarcity of professional digital librarians in Ethiopia and electronic library building requires specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities (Waters, 2010).

Academic institutions in Ethiopia are gradually shifting resources from print to digital collection in order to serve their institutions better. E- Resources are constantly influencing the way in which researchers in the university communities go about their research activities. The internet, databases and the World Wide Web help them to overcome geographical limitations associated with the print media. Not only that, the time lag between production, publication and delivery of print media has been drastically reduced. It is obvious, that print medium is increasingly giving way to the electronic form of materials. The question one should ask do e- resources have any effect on the research activities in universities and research institutions.

So far, no study has been conducted to measure the use and usefulness of e-resources in Ethiopian higher institution libraries and assess user satisfaction in the use of such services. Therefore, this research was initiated with the following objectives.

1.3 Objective:

1.3.1 General objectives

The main objective of the study is to assess the impacts and benefits of using electronic resource in Ethiopian Public Higher Learning Institution

1.3.2 **Specific objectives**

- To assess the positive and negative impacts of using e-resources on teaching learning process
- To assess the benefits of e-resources in Ethiopian Public Higher Learning Institution
- To assess the advantages of e-resources over conventional sources of information
- To assess difficulties faced by users while accessing and using electronic resources
- To examine the factors which inhibit the use of electronic resources
- To assess the familiarity and frequency of the use of different types of electronic resources by the community of Ethiopian Public Higher Learning Institution

1.4 Research questions

In order to achieve the objectives of the study following research questions were attempted to be answered

1. What are the factors that determine the use and preference of type of library resources in Ethiopian Public Higher Learning Institution?
2. Are the methods used in EPHLI to deliver electronic resources for academic community good enough?
3. What relationship exists between the facilities and support that academic institutions provide and the ' use of electronic resources in EPHLI?
4. What benefits do communities of Ethiopian Public Higher Learning Institution get by using electronic resources?
5. What are the impacts of the use of e-resources in Ethiopian Public Higher Learning Institution?

1.5 Significance of the study

Information technology plays vital role in academic institution i.e. for collection, disrupting, storage, organization, processing, and analysis of information. Academic institutions in Ethiopia are facing many challenges. The emergence of e-publications, digital libraries, internet usage, web tools applications for libraries, consortium practices leads to further developments of library and the services they give to their users

This research thus looked at the current trends in the use of electronic resources of Ethiopian Public Higher Learning Institution. Particular emphasis was given to understanding the changes that are occurring in the electronic dissemination of scholarly information and how academic communities should manage these changes.

It also provides an opportunity to focus on the quality and accessibility of the electronic publication flowing through the cycle and the communities, who both create and use the information. Hence, It add value on the knowledge of using electronic resources .because now a day s a number of electronics resources such as, research paper, lecture note, journals are produces by students, staff and researcher but they lack of knowledge how to disseminate this knowledge. It enables researchers in higher institution how to access research produced elsewhere and disseminate and share their research findings, both locally and globally, hence encouragement knowledge sharing and collaboration. The study investigates the specific benefits of open access for academic staff and researchers.

CHAPTER TWO

LITERATURE REVIEW

2.1. Definition of Electronic Resources

Electronic resources or Internet-based electronic resources can also be known as "e-sources" (Zhang, 2001). There are various definitions of electronic resources (ER). ER can be defined to include resources that are available via Web browsers, FTP, gopher, telnet, mailing list, e-mail or other network tools or protocols (Zhang, 2001). ER also can be defined as those electronic information resources and services that user's access electronically via a computing network from inside the library or remote to the library (Ibrahim, 2004).

E-resources are defined as those electronic information resources and services that users access electronically via computing network from inside the library or remotely outside the library (BASHORUN, et al., 2011). An electronic information resource is a resource which requires computer access or any electronic product that delivers a collection of data, be it text referring to full text bases, electronic journals, image collections, other multimedia products and numerical, graphical or time based, as a commercially available title that has been published with an aim to being marketed. These may be delivered on CD-ROM, on tape, via Internet and so on. Over the past few years, a number of techniques and related standards have been developed which allow documents to be created and distributed in electronic form. Hence to cope with the present situation, libraries are shifting towards new media, namely electronic resources for the collection developments that the demands of users are better fulfilled. The e-resources on magnetic and optical media have a vast impact on the collections of universities libraries. These are more useful due to inherent capabilities for manipulation and searching, providing information access

in cheaper to acquiring information resources, saving in storage and maintenance etc. and sometimes the electronic form is the only alternative (Bajpai, et al., 2009).

The advent of information and communication technology (ICT) has brought about drastic changes in the information system. Information in electronic format was created with the advent of the computer. Ojedokun (2007) described electronic formats of information sources as computer technology media in which information is retrieved. Thus, to make effective use of electronic resources one must be versatile in the usage of computer and available search engines. He further gave examples of information sources in electronic formats as follows: Online Catalogue, also known as Online Public Access Catalogue, Online Proprietary databases, Compact Disk – Read only memory (CD-ROM) and Internet. According to AACR Revision of 2002 and 2003, update Electronic resources defined "Material (data and /or programs) encoded for manipulation by a computerized device. This material may require the use of a peripheral directly connected to a computerized device (e.g. CD-ROM drive) or a connection to a computer network (e.g. the Internet)."High level skills are vital in the use of electronic based information resources.

2.2. Use of Electronic Resources

Libraries, information and documentation centers in Ethiopia have various forms and packages of e-resources in institutions of higher learning, research institutions, companies, industries and other similar organizations. The importance of electronic resources for general communication, information retrieval and instructional delivery to support teaching and research activities in tertiary educational institutions is acknowledged worldwide. A number of relevant studies have been carried out on the use of e-resources by lecturers, research scholars and students worldwide. General user opinion towards the use of electronic resources, in particular CD-ROM, has been

positive, with students enjoying using these sources and finding relatively few problems while using them (Ray and Day, 1998).

A number of studies in the recent past were carried out to find out the usage of electronic resources in different types of libraries all over the world. Some of the surveys in the context of the students are reviewed here. Kelly and Orr (2003) initiated a study by mailing questionnaire to part time distant learning graduate and undergraduate students located within continental United States. They investigated awareness and use of and perceived needs for physical libraries, delivery materials, instructional and promotional services, resources and technologies, access the extent of students' use of electronic resources. The findings show that national trends demonstrate nontraditional, predominantly part time student usage patterns have changed and now they favor the use of electronic resources particularly Internet. According to the study, physical library use is significantly higher among those who take the majority of their courses face-to-face. Moreover, results indicated that library efforts are reaching online students and the students are aware of the library resources and use them for their research.

Waldman (2003) conducted a study to know what factors encourage students to seek out information in the library setting in his paper titled 'freshmen’s Use of Library Electronic Resources and Self efficacy' at Breach college library, the City University of New York'. The findings show that students who visit the library more frequently had higher self efficacy scores than those who reported using the library less often. Students who found the library electronic resources easy to use had higher self-efficacy scores as compared to those who found the electronic resources difficult to use and students who report being highly motivated to learn about the library's electronic resources have higher self-efficacy scores when compared to those who are motivated to learn.

Dadzie (2005) investigated the use of electronic resources by students and faculty of Ashesi University, Ghana. He also made an attempt to know the level of use and the type of information accessed by the effectiveness of the library's communication tools for information research in the paper titled 'Electronic Resources; Access and Use at Ashesi University College'. A questionnaire- based survey was used and the findings showed that general computer access was high and also the usage for information access was high due to the university's state-of-the-art infrastructure. Usage of some Internet resources was also very high while the usage of scholarly databases was quite low. The low patronage was attributed to inadequate information about the existence of electronic library resources. Dillip and Panda (2009) carried out a study on the use of e-resources in Business School libraries of Orissa (India). The authors critically examined the availability of e-resources and quantum of their use in Business School libraries of Orissa and the crucial role played by the information professionals in providing electronic information services to users through the findings based on responses. This study found that Internet-based e-resources are being well used compared with CD-ROM databases, premier web search options like Google and Yahoo! are the most frequently used search engines, while the other searching options are less used and availability of some key online databases are exclusively confined to only a selected few Business School libraries of the State.

Majid and Tan (2002) emphasized that the amazing technological advancements have opened new horizons for information creation, duplication, storage, access, distribution and presentation. The pace at which information sources are being produced and converted into electronic form is tremendous.

2.3. Electronic Information Resources

According to Shuling (2007), electronic information has gradually become a major resource in every university library. The emergence of electronic information resources, simply referred to as electronic resources, has tremendously transformed information handling and management in academic environments and in University libraries in particular. Ellis and Oldman (2005) noted that through the use of electronic resources, researchers and students; nowadays have access to global information resources, particularly the Internet for their scholarly intercourse.

Libraries need to be vanguards for technology transfer from the developed world to the developing economies of Africa; to meet these expectations African university libraries must provide a link between local researchers, scholars and their counter parts in other parts of the world. Utilization of online information resources is the way of achieving this objective. According to Tsakonas et al. (2006) electronic information resources are information resources provided in electronic form, and these include resources available on the Internet such as e-books e-journals, online database, CD-ROM databases and other computer –based electronic networks, among others.

2.4. Advantage of E-resources

According to Bajpai (2009) the reasons for actually embarking on the purchasing of electronic resources are generally accepted because of the ease of usability, readability, affordability and accessibility.

The following are the advantages of e-resources over the print media:

Multi-access: A network product can provide multiple points of access at multiple points in time (24 hours a day, 7 days a week) and to multiple simultaneous users.

Speed: an electronic resource is a lot quicker to browse or search, to extract information from, and to integrate that information into other material and to cross-search or reference between different publications.

Functionality: e-resource will allow the user to approach the publications to analyze its content in new ways by clicking the mouse on search mode.

Content: the e-resources can contain a vast amount of information, but more importantly the material can consist of mixed media i.e. images, video, audio animation which could not be replaced in print.

Apart from the above some other advantages of e-resources may include: international reach, unlimited capabilities, reduced cost, convenience, search ability and linking (Bajpai, et al. 2009).

2.5. Disadvantage of E-Resources

Anything which have advantages also has its own disadvantages. Just like anything e-resource has also its own disadvantage. Norman and Wittenberg (2003) mentioned some of the disadvantages of e-resources. These include:-

1. There is no quality control mechanism to help parcel out the reliable from unreliable information. Scholars indicated that this is particularly a problem when they are researching a new or unfamiliar topic in which they don`t have expertise necessary to make judgments about the reliability of the information or the resources. This is also problematic for students who do not have the experience or skills necessary to make these judgments
2. Overload of information. Because of the large amount of materials on the Internet, many scholars feel that they are overloaded with information. Because the large amount of information available, the users are never fully satisfied that they have covered all the

possibilities- they are consumed by the fear that they didn`t get all the information that is available.

3. Change in work habits. Changes in work habits include reading from a computer screen, and the physical discomfort of eye strain and hunched posture that accompanies usage of electronic information resource.

The electronic resources available in a library play prominent role in facilitating access to the required information to the user are an expedient manner. Furthermore, one need not go to the library to make use of print formats as the digital resources can be made use of by any user through online access via networks or authentication methods at any time by comfortably, now web based electronic resources have become most popular tools in academic research (Dhanavandan, et al., 2012).

2.6. Brief History of the Internet

All of the online resources available to users, and others, require some type of computer network to allow access to data contained on other computers. The network may be small and connect only computers in one local area or it may be vast, connecting computers around the world. The ability to access data and communicate with other computers around the world requires the use of the largest worldwide network, the Internet (Hebda, Czar, & Mascara, 1999). In 1993 there were 130 Web sites, by 1999 there were over four million (Zakon, 1999), thus the time of diffusion of the Web has been relatively short (Zakon, 1999). With the Internet's vast network of resources, it is possible to search literature databases outside our own institution, participate in computer- mediated-communication, as well as send to and receive electronic mail from colleagues around the world or even next door.

2.7. Electronic Mail (E-mail)

E-mail allows networked computer users to transmit messages to one or more persons. Delivery can be almost instantaneous, usually taking seconds or minutes to send a message to any part of the globe (Anthony, 1997; Hebda, Czar, &, Mascara, 1998). One of the main advantages of e-mail, unlike a fax, is the ability to edit the message and to send attachments, allowing for collaborative work (Anthony, 1997; Hebda, Czar, &, Mascara, 1998). One of the disadvantages of e-mail is the interpretation of messages without voice inflection. Unlike telephone conversation, e-mail eliminates the additional information that may be communicated through voice cues. Reasons for not using e-mail included lack of face-to-face communication, the high volume of messages, and concerns over security (Hughes, 1998; Hebda, Czar, &, Mascara, 1998)

2.8. Electronic Journals

With the advent of the Internet, researchers and academics have recognized the capabilities of the information and communication technologies as efficient means to share results and to get around barriers by full transfer of intellectual property rights from the author to the publisher, it is also a means of improving the slow turn-over of traditional publishing (Correia and Neto, 2006).

Electronic journals relatively provide efficient access to information and, thus they are easy to distribute to library patrons than traditional print; in the financial stringent environment of higher education system. Electronic journals have become a medium which is cheaper than the traditional printed journals (Ellis and Oldman, 2005). According to Rowley (2006) electronic journals take two different forms: journals that are published in print form, available in digital form and electronic journals which do not necessarily need a publisher, and which can be

managed by an editor and the scholarly community. Both types may have a significant impact on scholarly communication and in the way knowledge is created and disseminated.

2.9. Online databases

The most effective way to provide access to electronic books/journals in University libraries is through subscription to online databases which can be accessed through the Internet. Online databases are a collection of electronic information sources (e-journals/e-books) by publishers from various fields and disciplines (Afolabi**,** 2007). Some of these databases are provided free of charge to libraries in developing countries by their publishers or vendors.

2.10. CD-ROM databases

CD-ROM databases allow users access to relevant databases without robust Internet connectivity in libraries. It is therefore cost effective than online databases as information could be accessed off-line without paying for telecommunications fee (Afolabi, 2007). Besides, CD-ROM databases are of immense value over print if the system is networked, as patrons at their terminals could access information without coming to the library. The information revolution brought forth by advances in information and communication technology has enabled universities and colleges around the world to take advantage of these developments. New modes of teaching, learning and accessing information have emerged as a result of Internet and World Wide Web (Darkwa et al 2007)**.** CD-ROM databases are important tools for identifying the bibliographic details of potentially useful documents and ensure easy access to large volumes of literature for research.

2.11. Electronic Resources Utilization in Academic Libraries

Academic libraries are an integral part of universities and have a critical role to play in supporting the core mission of the university, namely teaching, learning and research. However,

according to Tiefel (2004) most library users are unaware of the quality and variety of information available. This author pointed out that students are often satisfied with materials that an experienced librarian would find inadequate and /or inappropriate. It was identified that discipline has a major influence on usage patterns and preferences, and that faculty members in science tend to use the Internet more intensively than faculty members in the humanities or social sciences (Lazinger*et al*., 1997; Bar-llan*et al*., 2003). Age also plays an important role in usage; the younger the student and faculty members are, the more they use electronic sources (Bar-llan et al, 2003). It has also been reported that men are heavier users of the Internet and make most use of the more complicated services compared to females (Busselle et al., 1999; Teo, 2001; Chong, 2002). On the other hand Bar-lla et al., (2003) reported that gender and academic rank have only a minor influence on the usage of e- sources and the Internet.

In spite of these limitations, e-resources are favored by users around the globe. Sukula (2008) asserts that the amount and variety of information content in electronic form is growing and it is expanding at high rate. Some people believe that all information will eventually be electronically accessed. This is affirmed by Ajayi&Akinniyi (2009) who argued that the advantage posed by the Internet service ensured that explosion of information is not a waste because the technology has created easy access to vast information all over the world. E-resources have been contributing greatly to research activities and many researchers have commended the advantages of e-resources over other formats of information. Tenopir (2010) reported that faculty members benefit maximally form e-resources available to them. Many of them were of the opinion that e-resources have made it considerably easier to locate the material they need for their work, serve as an essential research tool, time saver conveniences, increase work quality and many more are the benefits enjoyed by using e-resources.

Studies on usage of other electronic resources such as library OPACs, e-books, and subject gateway projects have revealed difference in use. Waldman (2003) reported high usage of the library's OPAC by students at City University of New York. Falak (2003) reported the rapid growth and use of e-books in schools colleges and universities in developing countries. Ashcroft and Watts (2004) also mentioned the potential advantages of e-books including easier access, speedy publications space-saving and lower costs. Various studies have also been carried out on the use of electronic resources by students, and research staff of institutions of higher learning. Most of these studies reported high usage of Internet resources (De Vicente *et al* 2004; Falk, 2003). High usage was `attributed to a number of factors including the freely available access, the ease of use and its currency. The ability to find and retrieve information effectively is a transferable skill useful for future life and for enabling the positive and successful use of the electronic resources for students whilst at university (Tella et al. 2007). Therefore, libraries must reach a position where the acquisition of information skills is acknowledged as one of the key objectives for every student entering the university.

According to Levey (2001) information access isn't necessarily the problem but careful utilization is. This is because users do not always understand which information resources are most appropriate for their needs. Users need skills to make comparisons between paper, CD-Rom and electronic resources. Zaki (1991) pointed out that the poor library use background by students in using library facilities had led them to carry this problem with them to Universities and higher institutions. Agaba (2003) carried out a study on e-resources usage at Makerere University; the results of this study indicated low usage.

2.12. Benefits of Electronic Resources

Electronic information resources have many functions and benefits which can be of immense use to students in schools and particularly more so in research institutions. Once a user is connected to Internet such user can link up with any part of the world for whatever purpose the user has in mind (Osunrinde, Adekiya and Adyemo, 2002). There is a need to equip end-users with skills such as information literacy skills, information retrieval skills, computer skills among others as a strategy to promote e-resources usage especially among students in Academic libraries such as Mbarara University library, Nigeria for effective utilization of e-resources.

Electronic information resources offers today's student's new opportunities that were not available to previous generations. Liew et al (2000) argued that while reading an e-journal is not the same as reading a printed issue, many students now acknowledge that electronic documents offer users advanced features and novel forms of functionality beyond those possible in printed form. As argued by Swain and Panda (2009), the library users' attitude to information is gradually shifting from the printed document to e-resources. Singh (2009) argued that ICTs have brought a tremendous change in nature, boundaries and structure of information.

It is generally agreed that many factors do influence attitudes. Brophy (1993); Okello-Obura 2010) noted that the advantages of electronic resources over printed ones include: speed, ease of use, ability to search multiple files at the same time and ability to access documents from outside the library among others. According to Dadzie (2005) electronic resources are invaluable research tools that complement the printed ones that are based in the traditional library. These advantages include access to information restricted to the user due to geographical location or finances and provision of extensive links to additional resources or related content. However, knowledge of computers and retrieval techniques is needed to search these resources effectively

and this has a bearing towards their attitude towards e-resources. Waldman (2003) asserted that students with high self-efficacy regarding computers would be more likely to explore new technologies, software or databases. Tella and Tella (2003 reported that self-efficacy has a significant relationship with academic achievement. In a related study of library instructions and self-efficacy, A study done by Ren (2005) also showed a positive correlation between students' self-efficacy and the frequency in the use of library electronic resources.

2.13. Electronic Information Resources in Developed Countries

In developed countries resource-sharing networking was started long back. For instance, the growth of networks in the United States can be traced from the mid of 1960. USA is the birthplace of library networking and by now libraries in each state is networked to local, regional and national network. Resource Sharing works in UK is also well established. The best example is Birmingham Library Co-operative Maintenance Project (BLCMP) in Birmingham, has 13 million bibliographic records of books, serials, music etc. in its database and its catalogues get a hit rate of above 90 per cent with more than 60 libraries comprising public libraries, college libraries, university libraries, national and special libraries. In Australia the resource sharing tools have grown from catalogue cards to national database with the contributions of many older and large libraries. The Swedish Model for resource sharing is called the Consortium Model. This model is developed only for six major science and technologies libraries in Sweden (Kaul 2001).

Over the last two decades, much of the developed world has been transformed by what are now termed Information and Communication Technologies (ICT). These technologies exert an impact on most aspects of our lives –in economic activities, education, entertainment, communication, travel, etc. They have also been inextricably linked with economic property and power, as through media such as Internet. The technologies have, to a large extent, been developed in, and

for the cultural and social norms of a small number of developed countries in Western Europe and North America as well as few more in East and South East Asia, and Australia. According to Srikantaiah and Xiaoying (1998) from the number of hosts available in the world 56% were in the USA, 26% in Europe,16% in Canada and Latin America, 12% in Asia and the Middle East, and the remaining 1% were in African countries. The G-7 countries took about 80% of total nets connected with the Internet, and the number of nets in 55 developing contries in Asia, Africa and Latin America amounted to only 5%. The timing of connection to the Internet is significant, while most developed countries obtained their connections to the Internet between 1988 and 1990, developing countries began around 1994-95. Even now many developing countries do not have Internet facilities.

2.14. Electronic Information resources in Developing countries

The participation of many developing countries in the global information society remains insignificant. This is attributable to many causes, including perceived incompatibilities between cultures and technologies, an idealistic preference for self-reliance, and simple lack of economic or human resources to acquire and utilize the technology (Davison, et al., 2000).

Poor countries are those endowed with little economic capital, the people there are much less likely to be able to access ICTs, to know how to use them, to benefit from usage, and to participate in embedding institutions. Developing countries are not only economically excluded, but also deprived of political power and cultural skills needed for active participation in the information society (Fuchs and Horak, 2008).

Srikantaiah and Xiaoying (1998) said developing countries have a long tradition of oral culture; therefore, awareness of information sources in written form tends to be minimal. While national information policy in developing countries concentrates on trade, international relations, national

security and technology, very little attention has been paid to accessing information electronically through the Internet and to deriving benefit. Developing countries, in order to achieve faster economic growth, should include in their official documents high-priority plans for implementing electronic information delivery system.

There are large disparities on Internet access between the affluent nations at the core of the Internet-based global network on the one hand, and the poor countries at the periphery which lack the skills, resources, and infrastructure to log on in the information era on the other. For instance, Italy has the lowest rate of Internet penetration among the developed countries reviewed in the study. Yet, Italy`s rate is seven times as high as China`s and nine times as high as Mexico`s. The average Internet penetration among the developed countries was 30 percent in 2001, ten times as high as that in developing nations. Therefore, it seems that without intervention, the global digital divide will take a long time to close (Chen and Wellman, 2004).

Telecommunication policies, infrastructures and education are prerequisites for marginalized communities to participate in the information age. High costs, English language dominance, the lack of relevant content, and the lack of technological support are barrier for disadvantaged communities using computers and the Internet (Chen and Wellman, 2004).

The digital divide concerns not only material access but also skills and usage patterns. Material access is a necessary but not sufficient pre-condition for skills access and usage access. As most African countries lack and are deprived of basic economic, social, educational, and technological resources that result in a lack of material Internet access, one can assume that this also results in a lack of digital skills and meaningful Internet usage (Fuchs and Horak, 2008).

Personal computer and Internet penetration rates are different by region. In North America, there are 61.1computers per 100 people, whereas there are only 0.5 computers per 100 people in South

Asia. Computer penetration rates in Sub Saharan Africa are also strikingly low with only 1.0 personal computer per 100 people. Other regions have higher penetration rates, but none of these is as large as one-third of the North American rate. Even in Europe and Central Asia, there exist only 18.1 personal computers per 100 people. In North America, roughly one half of the population uses the Internet. In contrast, slightly more than one half of one percent of the population uses the Internet in South Asia and Sub-Saharan Africa. Internet use is higher in Europe and Central Asia with 16.5 users per 100 people, but very low in other regions of the world. Internet penetration rates in East Asia and the Pacific, Latin America and the Caribbean, and the Middle East and Africa are only 6.9, 5.0 and 2.4 per 100 people, respectively. The penetration rate in the United States, for example, is nearly 550 times larger than the penetration rate in Ethiopia (Chinn and Fairlie, 2007).

2.15. Electronic Information Resources in Ethiopia

The application of computers, and the development and awareness of mechanization, is closely related to the introduction of computers in Ethiopia by foreign suppliers. The introduction of IBM products dates back to 1962. The first IBM numerical accounting machine was introduced that year was model 1421/812 and a very slow printer was attached to it. Programming was done using wiring panel, which needed a qualified engineer. Moreover, in 1963, the IBM introduced a semi-mechanical accounting machine, model 407, at the Economic Commission for Africa (ECA). Progress was made by introducing an IBM computer, model 1440, which was an auto code. One of the institutions that installed this computer was Ethiopian Electric Light and Power Authority. Although the exact date is not known, it was between 1965 and 1970 that an electronic data-processing system, an IBM model 360/20 in which a punch card system was installed in Ethiopia. It had a memory capacity of 8KB up to 16KB. A transition from card to tape-disk

system was made in the 1970s with the introduction of system 3/10. This system involved a monolithic capacity ranging from 32KB up to 64KB. The magnetic tape reading speed was equivalent to 1000 cards per minute as compared with 250 cards per minute of system 360/20. The major software language was Report Program Generator. It was the longest used computer in Ethiopia and was in operation in some organizations until 1986. As a result of competition between suppliers in Ethiopia, changes in the technology were brought to the attention of users. Demand for more efficient system began to be felt. To this end, IBM introduced system 34, 36 and model 4361 between 1981 and1986, a transition from a card system to fully magnetic system (Kebede, 1994).

In 1960`s the mainframe computers were introduced for the first time in Africa witnessed the advent of information technology in Ethiopia. Despite being installed in the important sectors of military, defense, finance, telecom, electricity & power, and railways, the mainframes had no interactive boundaries within the sectors. Later, microcomputers spread widely in the country either by direct purchase or through donor development aid. Like its predecessor, the initial use of microcomputers was characterized by inadequate literacy and patchy understanding of the technology by potential users. A centralized approach to building information and communication technologies in Ethiopia was first proposed by donor agencies such as UNSECO and IDRC (International Development Research Center) as soon as microcomputers were introduced to the country. In 1986 national computing and information center was also established. However, the intended goals were not realized by the centre due to high control by the military government of the time, inadequate resources, high turnover, and shortage of skilled manpower and insufficiency of information technology by decision makers. After the change of

government in 1991 the efforts were resumed with regard to promoting the awareness and growth of computers (Yoo, 2003).

Even though the introduction of Information and Communication Technology in Ethiopia passed more than four decades, its application was below the average of sub-Saharan countries. According to (EICTDA) Ethiopian Information Communication Technology Development Agency (2007), the ICT sector in Ethiopia is at an embryonic stage. The ICT sector performance of Ethiopia in 2004 in terms of access, quality, affordability, institutional efficiency and sustainability was significantly lower than the average for Sub Saharan African countries. For example, the number of telephone main lines per 1,000 people in Ethiopia was 7 against 17 in SSA (Sub Sahara Africa). Similarly, in Ethiopia, merely one person per 1,000 people used Internet in contrast to 15 Internet users in SSA. The same holds true in terms of the availability of personal computers. In Ethiopia there were only 2 personal computers for 1,000 people compared to 12 in SSA.

The availability of the Internet is the lowest in Ethiopia compared to other countries. The Internet subscription has seen substantial growth between 2007 and 2009. The number of Internet subscribers stands at 71,059, representing about 0.09% of the population. While Internet access has improved with mobile broadband and the availability of cyber cafés throughout major towns, the unreliability of the network has been the major setback to improve usage. It is estimated that about 500,000 Ethiopians (0.6% of the population) use the Internet, which is one of the lowest rate in the world (Adam, 2010). Adam also said that Ethiopia is starting the development of its communications sector from a lower base and it still lags very much behind other countries in the region in almost all ICT indices.

The use of the Internet in Ethiopia began in 1993 when the UNECA (United Nation Economic Commission for Africa) (whose headquarters are in Addis Ababa) established a store-and-forward e-mail service called PADISNet (Pan African Documentation and Information Service Network) which connected daily via direct dial calls to Green Net`s Internet gateway in London. Because no other services were available, the facility was heavily used by international organizations and NGOs, but also by some academics, individuals and private companies. At its peak the service had about 1200 users (ITU, 2002).

Notwithstanding improvements in recent years, the telecommunication network in Ethiopia is still among the least developed in the world: with only 324`729 fixed lines in service in 2001, teledensity reached only 0.54 percent, despite the 20 percent growth realized in the last two years. However, there is a large difference among urban and rural areas, with about 60% of telephones concentrated in the capital city, accounting for less than the three percent of the total population (ITU, 2002).

Internet and Information and Communication Technology in developing countries higher education institutions is often seen as a luxury. This has far reaching effects on teachers, learners and educational institutions in these countries, which often include a lack of basic ICT infrastructure and limited or no support for the training of teachers and learners in the use digital online information sources (SEWALE, 2012). Ethiopia is one of these developing countries

2.16. Roles of ICTs in Education

ICT is increasingly becoming a more and more powerful tool for education and economic development. Unwin (2009) contends that "ICT can be a catalyst by providing tools which teachers use to improve teaching and by giving learners access to electronic media that make concepts clearer and more accessible". Thus, ICT is used for capacity development and citizen

empowerment. Ultimately, ICT can enhance educational opportunities and outcomes for students, including students with intellectual disabilities (Anderson, 2009). As much as I agree with the literature it has always becomes a challenge to most learners as they are not able to access the computers as some university could not afford them while others are locked up in computer labs in university.

According to Gwang-Jo Kim (2009), ICT in Education can serve the following purposes:

- Restructuring education system,
- Diversifying teaching-learning methods and practices,
- Engaging all stakeholders of education and adapt rapidly to changes in society and the environment, and
- Enhancing education efficiency, effectiveness, and productivity.

Esque (2009) sees three key investment components in long term economic growth. She believes that:

1. Investment in knowledge leads to sustained economic growth,
2. Knowledge economy framework, and
3. Educational reforms to build relevant skills. Song et al (2009) think that ICT in Education has three main goals:
    1) Individual development,
    2) Education reform, and
    3) Social and Economic growth.

The introduction of ICT in the Ethiopian university education system would call for a redefinition of the role of teachers. With ICT, teachers can no longer be “the transmitters of knowledge” but rather “the facilitators” of the learning process. Tinio (2009) notes that “As

learning shifts from the "teacher-centered model" to a "learner-centered model", the teacher becomes less the sole voice of authority and more the facilitator, mentor and coach from "sage on stage" to "guide on the side". The teacher's primary task becomes to teach the students how to ask questions and pose problems, formulate hypotheses, locate information and then critically assess the information found in relation to the problems posed". This may be easier said than done because of the nature of culturally-specific traditions that have characterized teaching and learning practices for years in the Ethiopia. In Ethiopia Teachers often view their role as "provider of knowledge" and regard students as empty vessels to be filled.

Clearly, classroom practices that simply embellish traditional modes of direct instruction with ICT tools have been repeatedly labeled as ineffective (Le Baron and McDonough, 2009). ICT must hence be fully integrated into the curriculum. Lin (2008) cited by Le Baron and McDonough (2009) describes the integration of ICT across the curriculum as critical to learning how technology is productively applied in real-life situations. A holistic transformation in teaching perspective is thus expected from a teacher-centered strategy of instruction toward student-centeredness. This is achievable but can be hard in the context of lack of basic school supplies and facilities (textbooks, chairs, computers, and so forth).Consequently, the key role of ICT for development lies in its ability to handle and communicate information (Torero and Braun, 2006). It should be noted that there is convincing evidence of a link between good ICT provision in education and economic growth.

2.17 Conceptual Framework of the study

The researcher develops this conceptual framework that is used as a base for impact and benefits of e-resource practice in EPHLI where the theoretical aspects are studied through literature review.

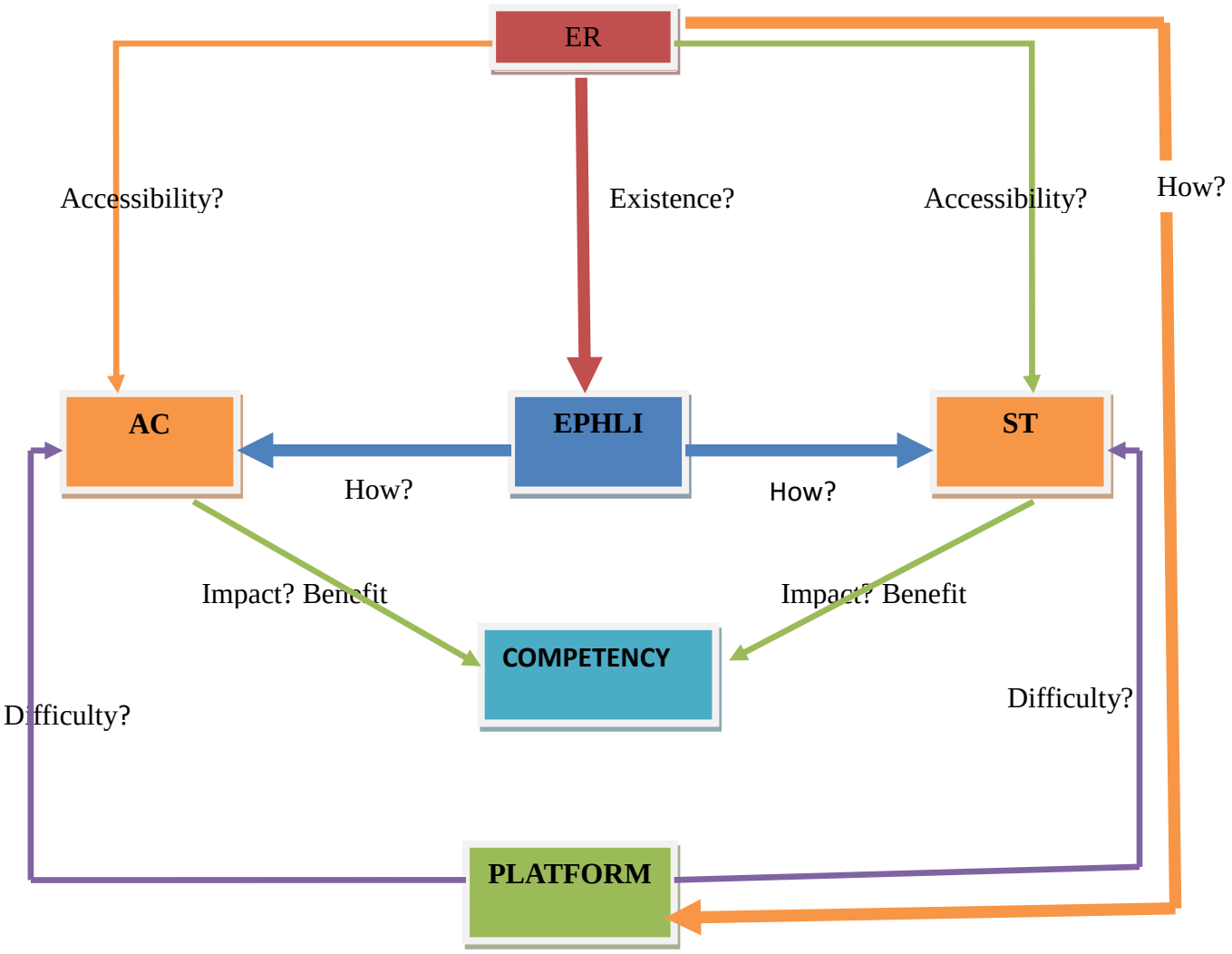


Figure 2: Conceptual Framework of the Study

EPHLI-Ethiopian Higher Learning Institutions

ER-Electronic resources

ST-Students

AS-Academic Staff

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focuses on the methodological procedures that were used in the study. It deals with the description of the methods applied when carrying out the research. The main items of concern include research design, sample design procedures, data collection instruments, pilot study, data collection procedures, and data analysis techniques.

3.2 Research Design

This study was conducted through a cross sectional survey design. The study was concerned with investigating how e-resources can be used to enhance e-resources practices of public universities with the view of providing a possible recommendation for better use of e-resources. It was specifically intended to access the use of e-resources among public universities and their usage differences such issues are best investigated using a survey design. Survey design enabled the researcher to collect in depth information on views, opinions, practices, and impact of e-resource use in public universities from the respondents. The design generally entailed use of standardized questions to investigate selected study samples to analyze and discover occurrences. However, the data collected using survey research design may be affected by the characteristics of the respondents (for example their memory, knowledge, experience, motivation, and personality) but these may be insignificant compared to its contribution to this study.

Qualitative and quantitative approaches were also used to collect and analyze data. The reason for using both qualitative and quantitative approaches was to improve the quality of research by ensuring that conclusions arrived at were more likely to be correct and accepted as such.

Additionally, by employing the two approaches, the researcher was able to compensate for inherent weaknesses in each approach.

Qualitative approach is a process of enquiry that draws data from the context in which events occur, in an attempt to describe these occurrences, as a means of determining the process in which events are embedded and the perspectives of the respondents, using induction to drive possible explanation based on observed phenomena. The ultimate goal of qualitative research is to understand those being studied from their perspective, from their point of view. Quantitative approach, on the other hand, focuses more on numerical or statistical data. It uses numerical representations to quantify occurrences. Quantitative approach looks for patterns in events, normative behavior and for causal relationships among variables.

3.3. Description of the Study Sites

There are 33 universities established in different parts of Ethiopia that have been authorized by the ministry of education. Those universities are classified in to 3 categories based on their establishment period. Ten were relatively older and categorized in first categories, 11 were established somewhat later and categorized in 2nd generation and 12 were newly established and categorized in third generation which is in the process of developing E-resources practice and also management and skilled professionals. The use of e-resources in thus universities was directly proportional with development in categories. The 1st and 2nd categorized universities were somewhat experienced on e- resource management systems and relatively advanced on the use. Therefore, in this study one university from each generation i.e. 1st, 2nd and 3rd category respectively Jimma University (JU), Addis Ababa University (AAU) and Mizan Teppi University

(MTU) were selected purposively based on their level of having e-resource management system and their proximity to study sponsoring institution, which is Jimma University.

Jimma University was established in December 1999 by the amalgamation of Jimma college of Agriculture (found in 1952) and Jimma Institute of Health sciences (established in 1983). Jimma University is located 352 km south west of Addis Ababa at Jimma town with an area of 409 hectares. It has four campuses, namely Jimma university main campus, Jimma University College of Agriculture and Veterinary Medicine, College of Business and Economics and Kito Furdisa (Jimma University Institute of Technology). It has not less than 6 library branches. Jimma University has more than 100 undergraduate programs, 30 master's degree programs and 3 PhD programs. These programs are offered in different disciplines including Medicine, Engineering, Agriculture, Business, Social and Natural Sciences (JU website, 2013). And Addis Ababa University (AAU), which was established in 1950 as the University College of Addis Ababa (UCAA), is the oldest and the largest higher learning and research institution in Ethiopia. Since its inception, the University has been the leading center in teaching-learning, research and community services. Currently, the University runs 70 undergraduate and 293 graduate programs (72PhD and 221 Masters), and various specializations in Health Sciences. Mizan-Tepi University, located in Mizan Teferi and Tepi towns of SNNPR state of Ethiopia is one among the 13 new universities established in the country in the last decade. It is situated 565 Kilometers south west of Addis Ababa, the capital city of Ethiopia.

3.4. Study Population

The respondents of the present study included library staff, academic staff, undergraduates (graduating class), post-graduate students and IT technicians of the selected universities. The researcher believed that these respondents were well suited for the study and would give in-depth

information and provide better and comprehensive information on e-resource use in their university. The total population of the study is presented in table 1.1.

Table 3.1.: The total population of the study from academic staffs and students

No	University	Undergraduate (graduating class)	postgraduate	Academic Staff profile	Total
1	AAU	4167	2586	2330	9083
2	JU	3756	1290	1210	6256
3	MTU	1680	0	570	2250
Total		9603	3876	4110	17589

Source: Ministry of education statistics annual abstract. November, 2013

3.5. Inclusion and exclusion criteria

3.5.1 Inclusion criteria

The users that were considered as the population of this research are graduating class from Undergraduate regular students, all regular postgraduate students , all academic staffs and library director, Libertarians and IT technicians who knows the current challenges on e-resource system development were included in the study. Because these users are actual users those who actually using the E-resources regardless of whether they derived advantage from it or not.

3.5.2 Exclusion criteria

Population does not include undergraduate (which is not graduating class) regular students and administrative staff.

3.6. Sampling method

Purposive and simple random sampling techniques were employed to select the study sample. Purposive sampling refers to targeting a group of respondents believed to be reliable or useful for the study (Robson, 2002). It is mainly used to collect focused information from typical and

useful cases. In this study, purposive sampling was used to select the study sites library directors and IT technicians for interview that the researcher believed were resourceful for the study.

Simple random sampling technique was used to select samples from students, academic staffs, librarians and IT technicians. A simple random sample is obtained by choosing elementary units in such a way that each unit in the population has an equal chance of being selected. For sample which select through simple random sampling researcher were get list of department and student list from registrar and staff list from human resource management office then proportion for each department were calculated and lottery method were used to select samples from each department.

3.7. Sample size determination

The sample size was calculated using a single population proportional formula.

$$n = \frac{z\left(\frac{\alpha}{2}\right) 2 * P(1-p)}{d^2}$$

(Kothari, 2004)

Where

- **n**= the desirable calculated sample size
- **Z** $(\propto/2)$=1.96 (95% confidence level for two side)
- **p**= proportion of population and barriers (50%)
- **d=** degree of accuracy desired setting at (5%)

Therefore the value of **n** was calculated as follows

$$\mathbf{n_o = \frac{(1.96)^2 * 0.5(1-0.5)}{(0.05)^2} = 384}$$

$$nf = \frac{no}{1+{}^{no}/_{N}}$$ Where,

nf = the desired sample size when population is less than 10000

n = the desired sample size when population is more than 10000

N = the estimate of population in each university.

Use this formula

$$n = \frac{nf * N\text{sub}}{Ntotal}$$ For N_{sub} greater than 10000

$$n = \frac{no * Nsub}{Ntotal},$$ For N_{sub} less than 10000

The total population identified for this study from selected universities is 17589. From this total number of population 9603 are undergraduate (graduating class) students, 3876 are postgraduate and 4110 are staffs. Therefore the total sample size calculated for the study was Three hundred eighty three (383). Among this total number of population 25 respondents were selected from ICT technicians and librarians, 333 samples from students and staffs. Because of the population size for each population category were less than 10000, the following formula can be used.

$$n = \frac{no * Nsub}{Ntotal},$$ For N_{sub} less than 10000

Accordingly the sample size formula the sample size the sample proportion is as follow

The Sample size for AAU:-

$$\text{n(AAU gc)} = \frac{384 * 4167}{17589} = 91$$

$$\text{n(AAUpg)} = \frac{384 * 2586}{17589} = 56$$

$$\text{n(AAU sf)} = \frac{384 * 2330}{17589} = 51$$

For AAU the total number of population is 198

The Sample size for JU:-

$$n(JUgc) = \frac{384*3756}{17589} = 82$$

$$n(JUpg) = \frac{384*1290}{17589} = 28$$

$$n(JUsf) = \frac{384*1210}{17589} = 26$$

For JU the total number of population is 136

The Sample size for MTU:-

$$n(MTUgc) = \frac{384*1680}{17589} = 37$$

$$n(MTUpg) = \frac{384*0}{17589} = 0$$

$$n(MTUsf) = \frac{384*570}{17589} = 12$$

For MTU the total number of population is 49

3.8. Data Collection

The methods used to collect data for this study were questionnaire, interview and observations. From different categories of each data collection methods fixed alternative questionnaire method was used to collect data from the students, academic staffs, librarians and IT technicians in the university whereas semi-standardized face-to-face interview method was used and also detailed observation checklist was prepared for the availability of e-resource services at each study site.

The questionnaires included several types of questions: nominal, dichotomous and likert type items. In nominal-dichotomous items the researcher asked the respondents to categorize them

according to their place (university), educational status or work position. Because these questions do not tell us about how much of a quality a participants has but instead only whether the person has a given quality, this question yield nominal data. Dichotomous questions that allow only two responses (usually yes or no) also give nominal data because they ask whether a person has a given quality. Likert – type items were used by researcher to ask the respondents to respond to statements by choosing "strongly disagree" (scored a"1"), "disagree" (scored a "2"), "neutral" (scored a"3"), agree (scored a"4") and "strongly agree" (scored a"5"). Generally fixed alternative questions were used by the researcher to identify how strongly respondents believe in a certain position and how much of a certain behavior the position did.

Among different types of interviews, the semi-standardized face-to-face interview method was used to collect data that could not be directly observed. The semi-standardized interview has some structure to it, but the wording of the questions was flexible, the level of the language may be modified, and the interview may choose to answer questions and to provide further explanation if requested. Respondents have a greater ability to express their opinions in their own words when using this type of interview structure.

3.9. Data Collection Procedure

The data for this research was collected using an interview, observation and questionnaire. The questionnaires were created using suitable questions modified from related research and individual questions formulated by the researcher and approved by the advisors. To collect data from the respondents the researcher got official letter from the Department of Information Science, Jimma University requesting for assistance from institutions (departments) of all study site of the study. Then the researcher submitted the letter to the academic vice presidents (AVPs) of the study site to get permission to conduct the survey. The AVP forwarded the letter to all

concerned bodies by approving the study can be done. After that the researcher went to the registrar and human resource management of the study institutions to find out list of departments, students and staffs respectively. In addition class schedule was also taken from the departments to know class rooms and to get all students in class rooms.

Following, sample proportion for each department was calculated and the questionnaire was distributed to the students and staffs by using random sampling technique. Lottery system was used to pick a sample from each class. For academic staffs the researcher distributed questionnaires at 11:30-12:30 am and 4:30pm-5:30pm because this is a time to get most staffs in their office.

3.10. Pre-test of data collection instrument

The purpose of a pre-test exercise was to test reliability and validity of the data collection instruments. Reliability is the extent to which a procedure yields the same answer time after time. In testing reliability, the researcher was interested in knowing if the instrument brings consistency in the research. Validity is the degree to which the researcher collects data that reflects the true picture of the phenomenon being studied. In measuring the validity, the researcher tested whether the instruments collect credible data.

Prior to final data collection, a pilot study was done to test the questionnaire. It was geared towards establishing whether the questions were clear, appropriate, and if there were other questions that could be asked. It also helped in testing the language and content of the questions, and the length and approach of the interviews.

Modifications were then made appropriately on the basis of the findings of the pre-test. 10% of the total study sample was used for the pre-test exercise. Mugenda and Mugenda (2003), argue that at least a tenth of the total population is adequate for a pre-test. Purposive sampling

technique was used to identify pre-test subjects. The pre-test was done in a neutral location that was not used in the actual field work (Edwin et.al, 2011).

3.11. Data Quality Control

A brief orientation was given to the data collectors. The questionnaire was done at first time and necessary adjustments done based on the feedback. The completeness and consistency was also checked at the site by the researcher. The missing data completeness and consistence were checked before data analysis. This increases the validity of the research.

3.12. Data Analysis, Presentation and Interpretation

Data analysis is the process of bringing order, structure and meaning to the mass of collected data (Gorman and Clayton, 1997). After the required amount of data was received from the field, it was reviewed for any inconsistencies, organized and then analyzed.

Data analysis statistical software, SPSS version 20 was used, data was analyzed using both inferential and descriptive statistics. Categorizing the data, codes were developed based on the collected data then coded materials were placed under the identified themes. After that interpretation of the data was done and a summary report developed identifying the major themes and associations between them. Percentages, charts, tables and One-Way-ANOVA used to present the finding.

3.13. Ethical consideration

The proposed study findings should benefit and cause no harm to the participants. Privacy and confidentiality were maintained at all times, all findings portrayed in a confidential manner and no personal or identifiable information were recorded or printed in the study. No name was recorded during the interviewing process. Ethical issues may arise at any point during any study

regardless of the rigorous planning. Therefore it is important that possible ethical issues were identified, prevented, and reviewed as best as possible prior to, during and after the study. Ethical principles provide direction to the possible issues not answers.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Results

4.1.1. Response Rate and socio-demographic information

Table 4.1 shows the total number questionnaires distributed and collected from Jimma, Addis Ababa and Miza Tepi Universities.

Table 4.1 Number of distributed and collected questionnaire

No.	**Name of the university**	**Number of Questioners**		
		Distributed	**Collected**	**Percentage (%)**
1.	AAU	196	175	89.3%
2.	JU	137	125	91.24%
3.	MTU	50	45	90%
Total		383	345	90.07%

In general, the total number of distributed questionnaires was 383, out of which 345 were filled and returned. These numbers shows that 90.07 % of the questionnaires were filled and returned. The entire 345 questionnaires were filled properly and found appropriate for the analysis of this particular h study.

Respondents were requested to provide their socio-demographic information on their gender, age, academic rank.

Table 4.2 below, shows that majority of the study participants in terms of gender 250 (72.5%) were males and 95 (27.5%) were females.

According to the data obtained as depicted in Table 4.2 below, the age range of the study participants was 262(75.9%) for 20 – 30 , 68(19.7%) for 31-40, 12(3.5%) for 41-50 and 3(0.9 %) for 51-60.

According to Table 4.2, the majority 191 (55.4%) of the respondents have Bsc/BA degrees, followed by Msc/MA degrees holders, 151 (43.8%). The rest have PhD 3 (0.9%).

As depicted in Table 4.2, below, the majority 265 (76.8%) of the respondents were students, and 80 (23.2 %) of the respondents were academic staffs.

Table 4.2 Respondent's socio-demographic information

Respondent's socio-demographic information		Frequency	Percentage %
Respondents University	AAU	175	50.7%
	JU	125	36.2%
	MTU	45	13.0%
Respondents Gender	Male	250	72.5%
	Female	95	27.5%
Respondents Age	20-30	262	75.9%
	30-40	68	19.7%
	40-50	12	3.5%
	50-60	3	0.9%
	>61	0	0.0%
Respondents Academic Rank	Diploma	0	0.0%
	Bsc/BA	191	55.4%
	Msc/MA	151	43.8%
	PHD	3	0.9%
	MD	0	0.0%
	DVM	0	0.0%
	Other	0	0.0%
Respondents Position	student	265	76.8%
	Academics staff	80	23.2%

4.1.2. Quantitative study result

The responses for the likert scale data that was collected for this study were analyzed by using mean. According to Kenate.D and Gojeh et al., (2013) taking a decision on the respondents ranking of the variables, the mean of responses were guided by the scale 1.0-1.49 very low, 1.5-2.49 low, 2.5-3.49 medium, 3.5-4.49 high and 4.5-4.99 very high.

4.1.2.1 Electronic Resources Use Practices

One of the mechanisms to examine e-resources use practice in the university is examining the extent of services use. There are different questions and issues raised to know users use of e-resources.

Table 4.3 Electronic Resource Use Practices (E-resource usage)

Items	U.R	SDA	DA	UD	A	SA	X	S D	Dec.
use e-resources in day to day activity	JU	11(8.8%)	28(22.4%)	16(12.8%)	42(33.6%)	28(22.4%)	3.69	1.29	A
	AAU	10(5.7%)	24(13.7%)	15(8.6%)	81(46.3%)	45(25.7%)	3.7	1.16	A
	MTU	13(28.9%)	16(35.6%)	7(15.6%)	7(15.6%)	2(4.4%)	2.3	1.18	DA
using electronic resources support teaching learning process	JU	7(5.6%)	4(3.2%)	12(9.6%)	37(29.6%)	65(52.0%)	4.19	1.10	SA
	AAU	10(5.7%)	6(3.4%)	6(3.4%)	56(32.0%)	97(55.4%)	4.28	1.08	SA
	MTU	5(11.1%)	8(17.8%)	5(11.1%)	10(22.2%)	17(37.8%)	3.58	1.44	SA
hesitate to use e- resource when they are available	JU	8(6.4%)	15(12.0%)	27(21.6%)	46(36.8%)	29 (23.2%)	3.89	1.13	A
	AAU	10(5.7%)	10(5.7%)	24(13.7%)	95(54.3%)	36(20.6%)	4.08	1.05	A
	MTU	11(25.0%)	11(25.0%)	13(28.8%)	12(27.3%)	7(15.9%)	3.33	1.35	UD
electronic resources helps to do my assignments/research	JU	7(5.6%)	19(15.2%)	13(10.4%)	56(44.8%)	30(24.0%)	3.66	1.16	A
	AAU	5(2.9%)	12(6.9%)	25(14.3%)	75(42.9%)	58(33.1%)	3.97	1.01	A
	MTU	6(13.6%)	15(34.1%)	5(11.4%)	9(20.5%)	9(20.5%)	3.00	1.39	DA
Dealing with web resources saves time and effort	JU	4(3.2%)	15(12.0%)	211(6.8%)	56(44.8%)	29(23.2%)	3.73	1.05	A
	AAU	6(3.4%)	15(8.6%)	21(12.0%)	71(40.6%)	62(35.4%)	3.96	1.06	A
	MTU	6(13.6%)	15(34.1%)	5(11.4%)	6(13.6%)	12(27.3%)	3.07	1.47	DA
courses in the university prepare me well to use electronic resources	JU	12(9.6%)	15(12.0%)	26(20.8%)	51(40.8%)	21(16.8%)	3.43	1.19	A
	AAU	28(16.0%)	29(16.6%)	48(27.4%)	41(23.4%)	29(16.6%)	3.08	1.31	UD
	MTU	7(16.3%)	19(44.2%)	11(25.6%)	4(9.3%)	2(4.7%)	2.42	1.03	DA

SA(5)= strongly agree, A(4)=agree, UD(3)= undecided, DA(2)= disagree, SDA(1)=strongly disagree

Table 4.3, Shows the descriptive statistics on the status of electronic resource use practices in the Ethiopian public Higher Institutions. The researcher asked the respondents to rate the questions on the base of the five Likert scale. To analyze the results the researcher considered the percentage corresponding to the mean (X) and the standard deviation (SD) of the scale for analysis respectively. The respondents strongly agree and agree that they use e-resources in day to day activity in the university constitutes from AAU (25.7%, 46.3%), JU (22.4%, 33.6%), from MTU (35.6%, 28.9%) of respondents disagreed and strongly disagreed. And also respondents strongly agreed and agreed on using electronic resources support teaching learning process, hesitate to use e- resource when they are available, rely on electronic resources to do assignments/research, Dealing with web resources saves time and effort, AAU (55.4%, 32.0%), JU (52.0%, 29.6%), MTU (37.8%, 2229%), AAU (54.3%, 20.6%), JU (36.8%, 23.2%), MTU (27.3%, 15.9%), AAU (46.9%, 20.6%), JU (44.8%, 14.4%), AAU (46.9%, 25.1%), JU (26.4, 36.0%), MTU (40.0%, 11.1%) respectively.

To find out the students perceptions about the use of e-resources in their respective environments, they were asked to give their opinion about the usage of e-resources for their personal use. The results presented in Table 4.3 shows that most of response agreed for the questions related with use of e-resources in day to day activity with mean values 3.69 for JU and3.7 for AAU, hesitate to use e- resource when they are available with mean values JU 3.9, AAU 4.1, and dealing with web resources saves time and effort with mean values JU 3.73, AAU 3.96, and MTU 3.07 respectively. From this, we can say that users were highly interested on using e-resources.

Table 4.4 Factors for e-resource use in the university

Item	R.S	SDA	DA	UD	A	SA	X	SD	Dec.
Computer skill to use e-resources	JU	9(7.2%)	18(14.4%	15(12.0%)	55(44.0%)	28(22.4%)	3.60	1.2	A
	AAU	9(5.1%)	14(8.0%)	14(8.0%)	93(53.1%)	45(25.7%)	3.86	1.1	A
	MTU	8(18.2%	14(31.8%	4(9.1%)	12(27.3%)	6(13.6%)	3.00	1.4	DA
Computers and the Internet availability	JU	6(4.8%)	8(6.4%)	17(13.6%)	53(42.4%)	41(32.8%)	3.92	1.1	A
	AAU	12(6.9%	17(9.7%0	22(12.6%)	63(36.0%)	61(34.9%)	3.82	1.2	A
	MTU	10(22.7%	20(45.5%	6(13.6%)	6(13.6%)	2(4.5%)	2.32	1.1	DA
Wireless access	JU	6(4.8%)	3(2.4%)	4(3.2%)	47(37.6%)	64(51.2%)	4.61	1.7	SA
	AAU	15(8.6%)	12(96.9%)	26(14.9%)	74(42.3%)	48(27.4%)	3.73	1.2	A
	MTU	20(44.4%	14(31.1%	3(6.7%)	5(11.1%)	3(6.7%)	2.04	1.3	SDA
Availability of e-resource and services	JU	10(8.0%)	13(10.4%	20(16.0%)	52(41.6%)	29(23.2%)	4.02	1.5	A
	AAU	20(11.4%	25(14.3%	40(22.9%)	62(35.4%)	28(16.0%)	3.3	1.2	A
	MTU	13(28.9%	14(31.1%	11(24.4%)	4(8.9%)	3(6.7%)	2.3	1.2	DA

SA(5)= strongly agree, A(4)=agree, UD(3)= undecided, DA(2)= disagree, SDA(1)=strongly disagree

Table 4.4, Shows the descriptive statistics on the status of factors for e-resources use in the Ethiopian public Higher Institutions. The researcher asked the respondents to rate the questions on the base of the five Likert scale. To analyze the results the researcher considered the percentage corresponding to the mean (X) and the standard deviation (SD) of the scale for analysis respectively. The respondents strongly agreed and agreed that they use computer skill to use e- resources in the university constitutes from AAU (53.1%, 25.7%), JU (44.0%, 22.4%), from MTU (31.8%) of respondents disagreed and also respondents strongly agreed and agreed on Computers and the Internet availability, Wireless access, Availability of e-resources and services, respectively for the three universities were AAU (34.9%, 36.0%), JU (32.8%, 42.4%), AAU (27.4%, 42.3%), JU (37.6%, 51.2%), AAU (35.4%, 16.0%), JU (23.2%, 41.6%),in case of MTU (45.5%,31.1%,31.1%). .

Questions to determine the factors affect users use of e-resources were asked to respondents of the three universities. Accordingly respondents from JU and AAU indicated that computer skill to use e- resources were high with mean values JU 3.6 and AAU 3.86 respectively which indicates majority of respondents from this university were not faced with problems on accessing e-resources due to computer literacy problem. Respondents from JU and AAU indicated agreed on the adequacy of computers and internet but for MTU they disagreed with mean value for JU=3.9, AAU=3.8 and MTU= 2.3 respectively.

4.1.2.2 Use of e-resource services in library

Mechanism for understanding the use of e-resource services in library in the universities was posed to the respondents, in order to identify the difference between service provisions of libraries among universities. In this phase, respondents were asked questions regarding e-resource services provided in their respective universities like getting needed resources, access and offered necessary resource etc. The summary of the responses for those questions is presented in table 4.5.

Table 4.5 Use of e-resource services in library

Item	R.U	SDA	DA	UD	A	SA	X	SD	Dec
needed information in the library's electronic resources	JU	6(4.8%)	13(10.4%)	29(23.2%)	52(41.6%)	25(20.0%)	3.6	1.1	A
	AAU	25(14.3%)	24(13.7%)	43(24.6%)	53(30.3%)	30(17.1%)	3.2	1.3	A
	MTU	18(40.0%)	20(44.4%)	4(8.9%)	3(6.7%)	0(0.0%)	1.8	0.9	DA
access e- resources in the library from outside university	JU	12(9.6%)	19(15.2%)	31(24.8%)	44(35.2%)	19(15.2%)	3.3	1.2	A
	AAU	23(13.1%)	36(20.6%)	29(16.6%)	64(36.6%)	23(13.1%)	3.2	1.3	A
	MTU	23(51.1%)	18(40.0%)	2(4.4%)	1(2.2%)	1(2.2%)	1.6	0.7	SDA
University Library offers e- resources related to the subject for learning	JU	11(8.8%)	15(12.0%)	30(24.0%)	43(34.4%)	26(20.8%)	3.5	1.2	A
	AAU	23(13.1%)	35(20.0%)	41(23.4%)	51(29.1%)	25(14.3%)	3.1	1.3	A
	MTU	10(23.3%)	20(46.5%)	7(16.3%)	5(11.6%)	1(2.3%)	2.2	1.0	DA

E- journals provided by the university's library	JU	9(7.2%)	24(19.2%)	31(24.8%)	40(32.0%)	21(16.8)	3.3	1.2	A
	AAU	30(17.2%)	30(17.2%)	45(25.9%)	42(24.1%)	27(15.5)	3.0	1.3	UD
	MTU	11(25.0%)	18(40.9%)	8(18.2%)	5(11.4%)	2(4.5%)	2.3	1.1	DA

SA(5)= strongly agree, A(4)=agree, UD(3)= undecided, DA(2)= disagree, SDA(1)=strongly disagree

Table 4.5, Shows the descriptive statistics on the use of e-resource services in Ethiopian public Higher Institutions library. The researcher asked the respondents to rate the questions on the base of the five Likert scale. To analyze the results the researcher considered the percentage corresponding to the mean (X) and the standard deviation (SD) of the scale for analysis respectively. The respondents strongly agreed and agreed that find needed information in the library's electronic resources in the university constitutes from AAU (30.3%, 17.1%), JU (41.6%, 20.0%), from MTU (44.4%, 40.0%) of respondents strongly disagreed and disagreed. And also respondents strongly agreed and agreed on access e- resources in the library from outside the university, University Library offers e- resources related to the subject for learning, AAU (36.6%, 13.1%), JU (35.2%, 15.2%), AAU (29.1%, 14.3%), JU (34.4%, 20.8%), in case of MTU (51.1%,40.0%,), (46.5%,23.3%,), strongly disagreed and disagreed.

As shown in table 4.5 the response rate for use of e-resource services in MTU library was less. It was found that 3.6 and 3.2 mean values from JU & AAU answered find needed information in the library's electronic resources in their university library respectively. On the other hand 3.3 & 3.2 mean value from JU and AAU respond access electronic re-sources in the library from outside the university respectively. Regarding to the University Library offers electronic resources suitable for learning 3.6 and 3.8 mean values from JU and AAU respectively. Concerning to E- journals provided by the university's library contribute to my achievements mean values 3.3 and 3.0 answered e-resources in the library contribute to their achievement for

both JU and AAU correspondingly. From the result it can be observed that universities e-library service provision is differ from one university to other.

4.1.2.3 Use of e-resource services by instructor

Table 4.6 Use of e-resource services by instructor

Item	R.S	SDA	DA	UD	A	SA	X	SD	Dec
use of e- resources depends on the requirement of the instructor	JU	9(7.4%)	19(15.6%	24(19.7%)	44(36.1%)	26(21.3%	3.5	1.2	A
	AAU	16(11.8%	21(15.4%	30(22.1%)	46(33.8%)	23(16.9%	3.3	1.3	A
	MTU	6(14.0%)	14(32.6%	9(20.9%)	12(27.9%)	2(4.7%)	2.8	1.2	DA
E- resources constitute essential part of the courses	JU	0(0.0%)	12(9.6%)	16(12.8%)	64(51.2%)	33(26.4%	3.9	0.9	A
	AAU	4(2.3%)	16(9.1%)	21(12.0%)	74(42.3%)	60(34.3%	4.0	1.0	A
	MTU	7(16.7%)	8(19.0%)	8(19.0%)	13(31.0%)	6(14.3%)	3.0	1.3	A
The instructor's include e-resource	JU	8(7.9%)	10(9.9%0	19(18.8%)	47(46.5%)	17(16.8%	3.5	1.1	A
	AAU	13(9.6%)	21(15.4%	24(17.6%)	57(41.9%)	21(15.4%	3.4	1.2	A
	MTU	15(44.1%	9(26.5%)	9(26.5%)	1(2.9%)	0(0.0%)	1.9	1.0	DA
The instructor's support my use of electronic resource	JU	14(13.9%	14(13.9%	15(14.9%)	41(40.6%)	17(16.8%	3.3	1.3	A
	AAU	15(11.0%	33(24.3%	20(14.7%)	51(37.5%)	17(12.5%	3.1	1.2	A
	MTU	6(18.8%)	11(34.4%	9(28.1%)	5(15.6%)	1(3.1%)	2.5	1.1	DA

SA(5)= strongly agree, A(4)=agree, UD(3)= undecided, DA(2)= disagree, SDA(1)=strongly disagree

Table 4.6, Shows the descriptive statistics on the Use of e-resource services by instructor in the Ethiopian public Higher Institutions. The researcher asked the respondents to rate the questions on the base of the five Likert scale. To analyze the results the researcher considered the percentage corresponding to the mean (X) and the standard deviation (SD) of the scale for analysis respectively. The respondents strongly agreed and agreed that use of e- resources depends on the requirement of the instructor in the university constitutes from AAU (16.9%, 33.8%), JU (21.3%, 36.1%), from MTU (32.6%) of respondents disagreed. And also respondents strongly agreed and agreed on E- resources constitute essential part of the courses, The

instructor's include e-resources, The instructor's support my use of electronic resources, AAU (34.3%, 42.3%), JU (26.4%, 51.2%), MTU(14.3%, 31.0%) AAU (15.4%, 41.9%), JU (16.8%, 46.5%), AAU (12.5%, 37.5%), JU (16.8%, 40.6%), in case of the other, the instructor's include e-resources, the instructor's support my use of electronic resources, MTU (44.1%, 26.5%), (18.8%, 34.4%) strongly disagreed and disagreed on the items.

4.1.2.4 Status of university on e-resource provision

One of the mechanisms to determine efficiency of university is examining the extent of availability of e-resources. There are different questions and issues raised to know e-resources provided in the university. Respondents from JU and AAU indicated that majority of services were provided in their universities. Whereas respondents from MTU said provision of e-library services were not available. Comparison on provision of e-resource among the three universities is presented in table 4.7.

Table 4.7 Status of university on e-resource provision

Item	R.U	SDA	DA	UD	A	SA	X	S D	Dec.
University selects, organize and disseminate e-resource based on users' need	JU	14(11.2%)	14(11.2%)	32(25.6%)	41(32.8%)	24(19.2%)	3.4	1.2	A
	AAU	51(29.1%)	43(24.6%)	38(21.7%)	32(18.3%)	11(6.3%)	2.3	1.3	SDA
	MTU	23(51.1%)	13(28.9%)	9(20.0%)	0(0.0%)	0(0.0%)	1.2	0.8	SDA
E-resource management in University helps to get relevant documents	JU	9(7.2%)	16(12.8%)	20(16.0%)	48(38.4%)	31(24.8%)	3.9	1.8	A
	AAU	30(17.1%)	44(25.1%)	40(22.9%)	49(28.0%)	12(6.9%)	2.8	1.2	A
	MTU	29(65.9%)	13(29.5%)	2(4.5%)	0(0.0%)	0(0.0%)	1.4	0.6	SDA
University has an e-resource management system	JU	11(8.8%)	11(8.8%)	26(20.8%)	51(40.8%)	26(20.8%)	2.9	1.2	A
	AAU	21(12.0%)	47(26.9%)	35(20.0%)	58(33.1%)	14(8.0%)	3.6	1.2	A
	MTU	21(47.7%)	17(38.6%)	4(9.1%)	2(4.5%)	0(0.0%)	1.7	0.8	DA
There is collaboration with, or share e-resources with another institution	JU	10(8.0%)	11(8.8%)	43(34.4%)	38(30.4%)	23(18.4%)	3.4	1.1	UD
	AAU	25(14.3%)	24(13.7%)	86(49.1%)	31(17.7%)	9(5.1%)	2.7	1.0	UD
	MTU	19(42.2%)	17(37.8%)	9(20.0%)	0(0.0%)	0(0.0%)	1.8	0.8	SDA
There is digital archives	JU	11(8.8%)	14(11.2%)	49(39.2%)	33(26.4%)	18(14.4%)	3.3	1.1	UD
	AAU	18(10.3%)	29(16.6%)	68(38.9%	47(26.9%)	13(7.4%)	3.1	1.8	UD

	MTU	25(55.6%)	15(33.3%)	5(11.1%)	0(0.0%)	0(0.0%)	1.6	0.7	SDA
open source applications for e-resource management	JU	3(2.4%)	14(11.2%)	45(36.0%)	41(32.8%)	22(17.6%)	3.5	1.0	UD
	AAU	24(13.7%)	38(21.7%)	57(32.6%)	43(24.6%)	13(7.4%)	2.9	1.1	UD
	MTU	23(53.5%)	13(30.2%)	7(16.3%)	0(0.0%)	0(0.0%)	1.6	0.8	SDA

SA(5)= strongly agree, A(4)=agree, UD(3)= undecided, DA(2)= disagree, SDA(1)=strongly disagree

Table 4.7, Shows the descriptive statistics on the Status of university on e-resource provision in the Ethiopian public Higher Institutions. The researcher asked the respondents to rate the questions on the base of the five Likert scale. To analyze the results the researcher considered the percentage corresponding to the mean (X) and the standard deviation (SD) of the scale for analysis respectively. For example the respondents strongly disagree and disagree that University selects, organize and disseminate e-resources based on users' needs from AAU (29.1%, 24.6%), MTU (51.1%, 28.9%), from JU (32.8%) of respondents agreed. And also respondents strongly agreed and agreed on E-resources management in University helps to get relevant documents to my work, AAU (28.0%, 6.9%), JU (38.4%, 24.8%), From MTU (65.9%, 29.5%) were strongly disagree and disagree. University has an e-resources management system in case of AAU (33.1%, 8.0%), JU (40.8%, 20.8%) strongly agreed and agreed from MTU (47.7%, 38.6%) strongly disagreed and disagreed. in case of the other, There is collaboration with, or share e-resources with another institution, There is digital archives, open source applications for e-resource management, all of the respondent from all university strongly disagreed and disagreed some of the respondents are undecided.

As depicted in table 4.7, variation on the availability and provision of University selects, organize and disseminate e-resources based on users' need, e-resource management in University helps to get relevant documents to my work, University has an e-resource management system,

there is collaboration with, or share e-resources with another institution and there is digital archives observed among universities. Accordingly, University selects, organize and disseminate e-resources based on users' need MTU (M=1.2, SD= 0.8), JU (M=3.4, SD=1.2) and AAU (M=2.3, SD=1.3), e-resource management in University helps to get relevant documents to my work MTU (M=1.4, SD= 0.6), JU (M=3.9, SD=1.8) and AAU (M=2.8, SD=1.2) and University has an e-resource management system MTU (M=1.7, SD= 0.8), JU (M=2.9, SD=1.2) and AAU (M=3.6, SD=1.2). From this it can be said that there were no balanced e-resource provision with in universities thus communities in less e-resource distributed universities were highly disadvantageous.

4.1.2.5 The Advantage and Benefits of Using Electronic Resources

One of the mechanisms to understand the feeling of users about the benefit they gain from e-resources based on their previous experience, questions were asked on some general benefit of e-resources. More numbers of respondents said its benefit is very high except for most MTU university. The response is summarized in table 4.8 below:

Table 4.8 the Advantage and Benefits of Using Electronic Resources

Items	**U.R**	**SDA**	**DA**	**UD**	**A**	**SA**	**X**	**S D**	**Dec.**
It takes less time to get more information	JU	6 (33.3%)	3 (16.7%)	11(29.7%)	45(33.3%)	60 (43.8%)	4.6	1.03	SA
	AAU	6(33.3%)	11(61.1%)	20(54.1%)	78(57.8%)	60 (43.8%)	4.0	1.01	A
	MTU	6 (33.3%)	4 (22.2%)	6 (16.2%)	12 (8.9%)	17 (12.4%)	3.6	1.4	SDA
Searching for e-resources can increase my ability on creativity of new things	JU	0 (0.0%)	8 (24.2%)	21(35.6%)	51(34.2%)	45 (48.9%)	4.06	0.88	SA
	AAU	7(58.3%)	15(45.5%)	22(37.3%)	87(58.4%)	44(47.8%)	3.8	1.03	A
	MTU	5 (41.7%)	10(30.3%)	16(27.1%)	11 (7.4%)	3(3.3%)	2.9	1.09	SDA
Cost for keeping printed material is high relative to electronic forms	JU	6 (46.2%)	12(34.3%)	21 (38.9%)	54 (40.3%)	32 (29.6%)	3.7	1.08	SDA
	AAU	3 (23.1%)	14 40.0%)	26(48.1%)	67(50.0%)	65 (60.2%)	4.01	.99	SA
	MTU	4(30.8%)	9(25.7%)	7(13.0%)	13(9.7%)	11(10.2%)	3.4	1.3	SDA
Easy to accessed by more than one user at a time	JU	6 (37.5%)	7 (29.2%)	26(38.2%)	46(36.5%)	40 (36.0%)	3.8	1.08	SA
	AAU	6 (37.5%)	8 (93.3%)	36(52.9%)	62(49.2%)	63 (56.8%)	4.53	1.03	SA

	MTU	4 (25.0%)	9 (37.5%)	6 (8.8%)	18 14.3%)	8 (7.2%)	3.3	1.24	DA
Users do not have to wait	JU	2(22.2%)	9(25.7%)	25(46.3%)	51(34.5%)	38 (38.4%)	3.9	.96	UD
for days or weeks to get	AAU	4 (44.4%)	17(48.6%)	21(38.9%)	79(53.4%)	54(54.5%)	3.9	1.01	SA
the books they want to read	MTU	3(33.3%)	9 (25.7%)	8 (14.8%)	18(12.2%)	7 (7.1%)	3.37	1.17	SDA
To get updated information	JU	4(28.6%)	7(36.8%)	14(45.2%)	63(36.4%)	37(34.6%)	3.97	.96	UD
	AAU	2(14.3%)	5(26.3%)	14(45.2%)	95(54.9%)	59(55.1%)	4.16	.78	SA
	MTU	8(57.1%)	7 (36.8%)	3(9.7%)	15(8.7%)	11 (10.3%)	3.65	1.47	SDA

SA(5)= strongly agree, A(4)=agree, UD(3)= undecided, DA(2)= disagree, SDA(1)=strongly disagree

Table 4.8, Shows the descriptive statistics on the Advantage and Benefits of Using Electronic Resources in the Ethiopian public Higher Institutions. The researcher asked the respondents to rate the questions on the base of the five Likert scale. To analyze the results the researcher considered the percentage corresponding to the mean (X) and the standard deviation (SD) of the scale for analysis respectively. The respondents strongly agreed and agreed that it takes less time to get more information, from AAU (57.8%, 43.8%), JU (43.8%, 33.3%), from MTU (33.3%) of respondents were strongly disagreed. And also respondents strongly agreed and agreed on searching for e-resources can increase my ability on creativity of new things, AAU (58.4%, 47.8%), JU (48.9%, 34.2%), From MTU (41.7%, 30.3%) strongly disagreed and disagreed. Cost for keeping printed material is high relative to electronic forms, AAU (60.2%, 50.0%), JU (40.3%, 29.8%) strongly agreed and agreed from MTU (30.8%, 25.7%) strongly disagreed and disagreed .Easy to accessed by more than one user at a time, AAU (56.8%, 49.2%), JU (36.5%, 36.0%) strongly agreed and agreed from MTU (37.5%, 25.0%) strongly disagreed and disagreed. Users do not have to wait for days or weeks to get the books they want to read, in case of AAU (54.5%, 53.4%), JU (38.4%, 34.5%) strongly agreed and agreed from MTU (33.3%, 25.7%) strongly disagreed and disagreed. To get updated information, in case of AAU (55.1%, 54.9%),

JU (36.4%, 34.6%) strongly agreed and agreed from MTU (57.1%, 36.8%) strongly disagreed and disagreed.

The respondents were asked different questions with respect to the benefit of using e-resources. The result as presented in Table 4.8 shows that most of the respondents agreed that e-resources takes less time to get more information with Mean value of JU and AAU 4.6 and 4.0 respectively. The second most response scale of the benefits was searching for e-resources can increase my ability on creativity of new things, and cost for keeping printed material is high relative to electronic forms. Accordingly, the mean value was 4.6, 3.8 and 2.9, 3.7 for JU and 4.01 for AAU respectively. Whereas To get updated information the mean value of MTU were less than JU and AAU, which is 3.97 for JU, 4.16 for AAU, 3.65 for MTU.

4.1.2.6 The Impact of Using E-resources on Academics

In order to understand the impacts for using e-resources on academics, respondents were asked questions to scale their level of using e-resources. The purpose was to find out that how e-resources benefit their university. Respondents highly agreed on the benefit of e-resources use. Summaries of the respondents response is presented in table 4.9 below

Table 4.9 The Impact of Using E-resources on Academics

Items	U.R	SDA	DA	UD	A	SA	X	S D	Dec.
E-resource increase quality of education	JU	2 (22.2%)	8 (40.0%)	15(39.5%)	48(32.2%)	52(40.3%)	4.1	1.0	SA
	AAU	3 (33.3%)	7 (35.0%)	19 (50.0%)	79(53.0%)	67 (51.9%)	4.1	0.8	A
	MTU	4 (44.4%)	5 (25.0%)	4(10.5%)	22 (14.8%)	6 (7.8%)	3.6	1.2	SDA
E-resources broken down barriers of communication from anywhere in the world	JU	10(58.8%	12 (41.4%)	14 (32.6%)	53 (36.1%)	36 (33.3%)	3.7	1.2	SDA
	AAU	4 (23.5%)	7 (24.1%)	24 (55.8%)	76 (51.7%)	64 (59.3%)	4.1	0.9	SA
	MTU	3 (17.6%)	10 (34.5%)	5 (11.6%)	18 (12.2%)	8 (7.4%)	3.4	1.2	DA
Multiple electronic learning resources improve students' academic performance	JU	3 (33.3%)	7(28.0%)	22 (51.2%)	53 (32.5%)	40(38.5%)	3.9	1.0	UD
	AAU	5 (55.6%)	7 (28.0%)	17 (39.5%)	88 (54.0%)	58 (55.8%)	4.1	1.0	SA
	MTU	1 (11.1%)	11 (44.0%)	4 (9.3%)	22 (13.5%)	6 (5.8%)	3.5	1.1	DA

Students used a wide range of online resources to increase quality of education	JU	2(40.0%)	11 (26.2%)	26(45.6%)	51 (34.5%)	35 (38.0%)	3.8	1.0	UD
	AAU	1 (20.0%)	20(47.6%)	24(42.1%)	77(52.0%)	53(57.6%)	3.9	1.0	SA
	MTU	2 (40.0%)	11(26.2%)	7(12.3%)	20(13.5%)	4(4.3%)	3.3	1.1	SDA
Quality of research improved	JU	1(6.7%)	10(25.6%)	18 (34.6%)	56(37.8%)	39(43.8%)	3.9	1.0	SA
	AAU	12(80.0%	19(48.7%)	27 (51.9%)	74 (50.0%)	43 (48.3%)	3.6	1.2	A
	MTU	2(13.3%)	10(25.6%)	7(13.5%)	18(12.2%)	7 (7.9%)	3.4	1.1	DA
E-resources offer the opportunity to access up-to-date research reports	JU	1(25.0%)	5 (26.3%)	22(42.3%)	58(38.7%)	39 (32.8%)	4.0	0.9	A
	AAU	1 (25.0%)	7 (36.8%)	25 (48.1%)	72(48.0%)	70 (58.8%)	4.2	0.9	SA
	MTU	2 (50.0%)	7 (36.8%)	5 (9.6%)	20 (13.3%)	10 (8.4%)	3.6	1.1	SDA

SA(5)= strongly agree, A(4)=agree, UD(3)= undecided, DA(2)= disagree, SDA(1)=strongly disagree

Table 4.9, Shows the descriptive statistics on the Impact of Using E-resources on Academics in the Ethiopian public Higher Institutions. The researcher asked the respondents to rate the questions on the base of the five Likert scale. To analyze the results the researcher considered the percentage corresponding to the mean (X) and the standard deviation (SD) of the scale for analysis respectively. The respondents strongly agreed and agreed that E-resource increase quality of education, from AAU (51.9%, 53.0%), JU (40.3%, 32.2%), from MTU (44.4%, 25.0%) of the respondents strongly- disagreed and disagreed. And also respondents strongly agreed and agreed on E-resources broken down barriers of communication from anywhere in the world, AAU (59.3%, 51.7%), from JU (58.8%, 41.4%) strongly disagreed and disagreed, From MTU (34.5%) disagreed. Multiple electronic learning resources improve students' academic performance, AAU (55.8%, 54.0%) strongly agreed and agreed, JU (51.2%) undecided from MTU (44.0%, 11.1%) strongly disagreed and disagreed. Students used a wide range of online resources as it increase quality of education, AAU (57.6%, 52.0%), from JU (45.6%) were undecided from MTU (40.0%, 26.2%) strongly disagreed and disagree. Quality of research improved, in case of AAU (50.0%, 48.3%), JU (43.8%, 37.8%) strongly agreed and agreed from MTU (25.6%) disagreed. E-resources offer the opportunity to access up-to-date research reports and knowledge globally, in case of AAU (58.8%, 48.8%), JU (38.7%, 32.8%) strongly agreed and agreed from MTU (50.0%, 36.8%) strongly disagreed and disagreed.

Table 4.9 shows that respondents scale of measurement values reasons to use e-resources in their academic career. Accordingly respondents agreed for e-resource can increase quality of

education with mean values for JU (4.1) AAU (4.1) and MTU(3.6), broken down barriers of communication from anywhere in the world with mean values for JU (3.7) AAU (4.1) and MTU(3.5), improve students' academic performance with mean values for JU (3.9) AAU (4.07) and MTU(3.47), Quality of research improved with mean values for JU (3.9) AAU (3.6) and MTU(3.4), and offer the opportunity to access up-to-date research reports and knowledge globally with mean values for JU (4.03) AAU (4.16) and MTU(3.6) respectively. From the result it is clear that MTU were less benefited from e-resources use.

4.1.2.7 Usage of Social Network applications

In order to determine the user's experience of using social networks, questions were asked, though majority of user have been using different communication tools and some other services knowingly or unknowingly. The response is summarized in Figure 4.1 below:

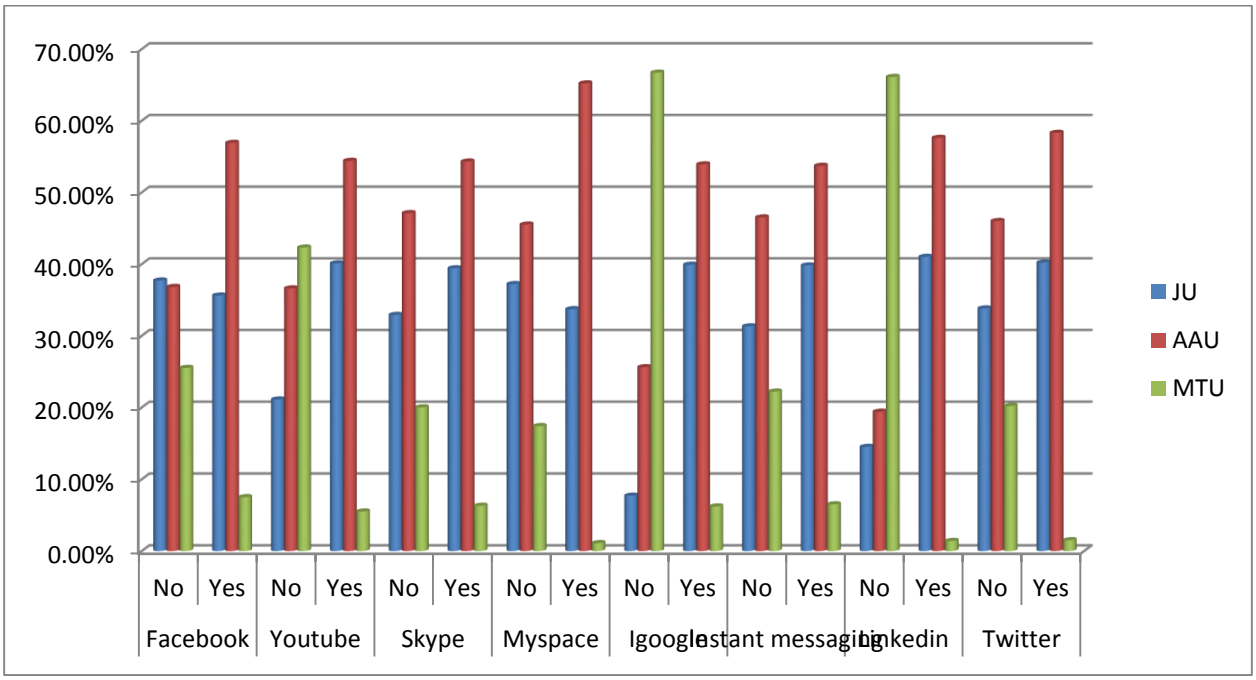


Figure 4.1 Usage of Social Network applications

As shown in Figure 4.1, a majority of users use from AAU use face books (58.8%) and YouTube (57.3%), Skype (55%), MySpace (64%), JU use face books (36%) and YouTube (39%), Skype (37%), MySpace (33%), and MTU use face books (7%) and YouTube (6%), Skype (5%), MySpace (13%) . This indicates that users who have had the experience of using the above services from the Internet have already experienced. So it is no difficult to share e-resources if established and as users were also experienced to use social communication tools, so possibilities to communicate patrons is not difficult through social medium.

4.1.2.8 Resource availability

One of the mechanisms to determine efficiency of e-resource is examining the extent of availability of services. There are different questions and issues raised to know services provided in the university. Respondents from JU and AAU indicated that majority of services were provided in their universities. Whereas respondents from MTU said provision of resource were not available. Though comparison on the provision among the three universities with regard to different resource is presented in table 4.10 and the result of ANOVA for mean differences is presented in table 4.11.

Table 4.10: Summary of provision of E-resources

Resource	Respondent university	Mean	Std. Deviation
Internet	JU	1.6	0.7
	AAU	1.7	0.7
	MTU	2.9	0.8
CD-ROM Databases	JU	2.8	0.9
	AAU	2.8	0.9
	MTU	3.6	0.5
Local Intranet	JU	2.2	0.9
	AAU	2.0	0.9

	MTU	3.5	0.6
Institutional Repository	JU	2.8	0.9
	AAU	2.8	1.0
	MTU	3.6	0.7
Digital Library	JU	3.0	1.0
	AAU	2.8	1.07
	MTU	3.8	0.4
Multimedia Library	JU	3.2	0.9
	AAU	2.9	1.1
	MTU	3.6	0.6

From the table 4.10, we can observe that the universities which have highest mean value were good in their service availability relative to each other. Variation on the availability and resource provision of Internet, CD-ROM Databases, Local Intranet, Institutional Repository, Digital Library and Multimedia Library was observed among universities. Accordingly, Internet MTU (M=2.9, SD= 0.8), JU (M=1.6, SD=0.7) and AAU (M=1.7, SD=0.7), CD-ROM Databases MTU (M=3.6, SD= 0.5), JU (M=2.8, SD=0.9) and AAU (M=2.8, SD=0.9) Institutional Repository MTU (M=3.6, SD= 0.7), JU (M=2.8, SD=0.9) and AAU (M=2.8, SD=1.0). From this it can be concluded that there were no balanced service provision between universities thus communities in less resource distributed universities were highly disadvantageous.

Table 4.11, ANOVA table of E-resources availability among the three universities

Dependent Variable	(I) Respondents University	(J) Respondents University	Mean Difference (I-J)	Std. Error	Sig.
Internet	JU	AAU	-.06629	.09136	1.000
		MTU	-1.30756*	.13562	.000
	AAU	JU	.06629	.09136	1.000
		MTU	-1.24127*	.13039	.000
	MTU	JU	1.30756*	.13562	.000
		AAU	1.24127*	.13039	.000
CD-ROM Databases	JU	AAU	.05029	.10579	1.000
		MTU	-.78844*	.15705	.000
	AAU	JU	-.05029	.10579	1.000
		MTU	-.83873*	.15100	.000
	MTU	JU	.78844*	.15705	.000
		AAU	.83873*	.15100	.000
Local Intranet	JU	AAU	.27429*	.10768	.034
		MTU	-1.29778*	.15986	.000
	AAU	JU	-.27429*	.10768	.034
		MTU	-1.57206*	.15369	.000
	MTU	JU	1.29778*	.15986	.000
		AAU	1.57206*	.15369	.000
Institutional Repository	JU	AAU	.06857	.11750	1.000
		MTU	-.76444*	.17443	.000
	AAU	JU	-.06857	.11750	1.000
		MTU	-.83302*	.16770	.000
	MTU	JU	.76444*	.17443	.000
		AAU	.83302*	.16770	.000
Digital Library	JU	AAU	.13257	.11769	.782
		MTU	-.79418*	.17617	.000
	AAU	JU	-.13257	.11769	.782
		MTU	-.92675*	.16949	.000
	MTU	JU	.79418*	.17617	.000
		AAU	.92675*	.16949	.000
		MTU	-.37244	.17898	.115

Table 4.11.1**:** Summary ANOVA table of E-resource availability among the three universities measurement surveyed in the study (see the above table for details)

E-resources availability	Significant values between universities					
	JU		AAU		MTU	
	AAU	MTU	JU	MTU	JU	AAU
Internet	1.000	.000*	1.000	.000*	.000*	.000*
CD-ROM Databases	1.000	.000*	1.000	.000*	.000*	.000*
Local Intranet	.034*	.000*	.034*	.000*	.000*	.000*
Institutional Repository	1.000	.000*	1.000	.000*	.000*	.000*
Digital Library	.782	.000*	.782	.000*	.000*	.000*
Multimedia Library	.020*	.115	.020*	.000*	.115	.000*

Note: The * symbol represents there is a significant difference between groups

In table 4.11.1.A. above a one-way ANOVA was conducted to examine whether there were statistically significant differences among different university on use of E-resources availability. The results revealed statistically significant differences for provision of enough E-resources availability Accordingly, Internet MTU (M=2.9, SD= 0.8), JU (M=1.6, SD=0.7) and AAU (M=1.7, SD=0.7), CD-ROM Databases MTU (M=3.6, SD= 0.5), JU (M=2.8, SD=0.9) and AAU (M=2.8, SD=0.9) Institutional Repository MTU (M=3.6, SD= 0.7), JU (M=2.8, SD=0.9) and AAU (M=2.8, SD=1.0). JU and AAU reported significantly better provision of services and resources compared with MTU. There were also other significant differences between services provision between universities. From the result it can be observed that the services and resource provision in university were different.

Further, respondents' perception about E-resources availability measurement showed statistically significant differences for most of the variables. Accordingly, Internet and CD-ROM Databases resources in MTU is statistically significant lower than Jimma and Addis Ababa Universities

($p<0.05$). Local Intranets were significantly different within each university. Digital Library in MTU significantly lowers than JU & AAU. And also Institutional Repository in MTU significantly lowers than JU & AAU, Similarly the Multimedia Library in JU statistically significantly different from AAU & MTU ($P<0.05$). As to the currently available e-library systems there were not well organized and standardized. From table 4.11.1 we can conclude that there is service and resource differences among universities specially universities which were recently developed or MTU has less resource than others.

4.1.2.9 Access to use e-resources

One of the mechanisms to examine access to use e-resources in the university is examining the extent of services and their functionality with the satisfaction level of users from the system. There are different questions and issues raised to know availability of quality services and resources.

Table 4.12 Access to use e-resources

	Respondents university	Mean	Std. Deviation
I have access to a computer in my institution	JU	1.8	1.0
	AAU	1.8	1.0
	MTU	0.7	1.1
I have access to broadband Internet in my institution	JU	1.7	1.2
	AAU	1.5	0.8
	MTU	0.8	0.9
I have access to wireless Internet in my institution	JU	2.8	1.2
	AAU	3.1	2.5
	MTU	3.6	0.7
I have access digital libraries in my institution	JU	2.7	1.1
	AAU	2.5	1.2
	MTU	3.8	0.4
I have access to institutional repositories in my	JU	2.7	1.2

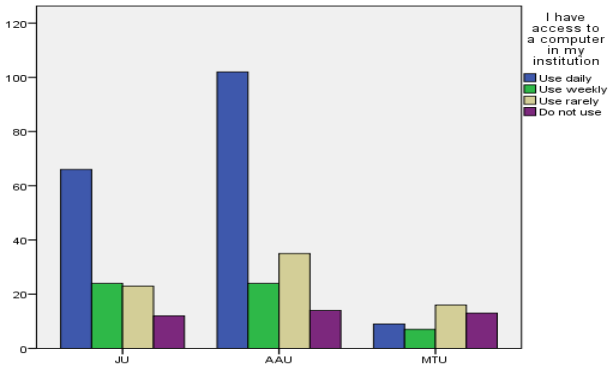
institution	AAU	3.0	0.97
	MTU	3.6	0.7
I use anti plagiarism software	JU	3.2	1.95
	AAU	2.95	0.9
	MTU	3.8	0.4
I use social communication networks	JU	2.8	1.1
	AAU	2.6	1.1
	MTU	3.7	0.6
	Total	2.8	1.1

To find out the students perceptions about the access of services in their respective university, they were asked to give their opinion about the provision of services. The results presented in Table 4.12 show that most of response were low. Respondents were asked whether access to a computer in their institution about 1.8, 1.8 and 0.7 respectively from JU, AAU and MTU, access to broadband Internet response with the mean value JU (1.5), AAU (1.7) and MTU (0.8). From this, the researcher concluded that MTU is less access of services and resource whereas AAU and JU are good in accessibility.

4.1.2.10 summary of using e-resource in the university

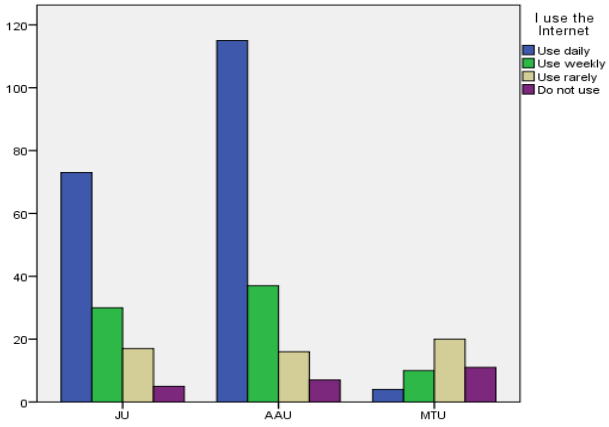
Computer access in the institution

	Use daily	Use weekly	Use rarely	Do not use
JU	66(52.8 %)	24(19.2 %)	23(18.4%)	12(9.6 %)
AAU	102(58. 3%)	24(13.7 %)	35(20.0%)	14(8.0 %)
MTU	9(20.0 %)	7(15.6 %)	16(35.6%)	13(28.9 %)



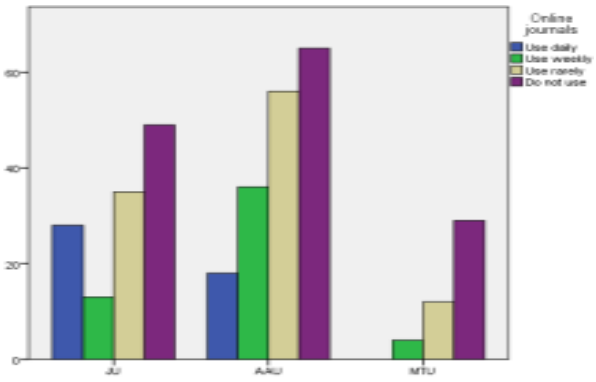
Use of Internet

	Use daily	Use weekly	Use rarely	Do not use
JU	73(58.4%)	30(24.0%)	17(13.6%)	5(4.0%)
AAU	115(65.7%)	37(21.1%)	16(9.1%)	7(4.0%)
MTU	4(8.9%)	10(22.2%)	20(44.4%)	11(24.4%)



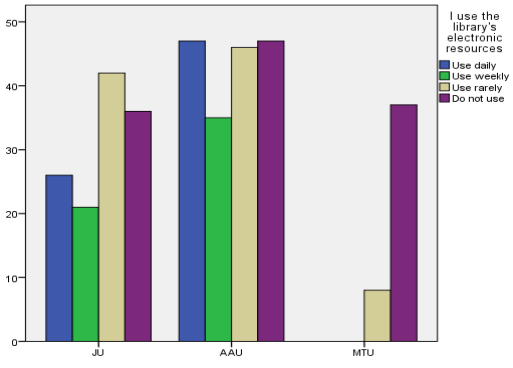
Online journals

	Use daily	Use weekly	Use rarely	Do not use
JU	28(22.4%)	13(10.4%)	35(28.0%)	49(39.2%)
AAU	18(10.3%)	36(20.6%)	56(32.0%)	65(37.1%)
MTU	0(0.0%)	4(8.9%)	12(26.7%)	29(64.4%)



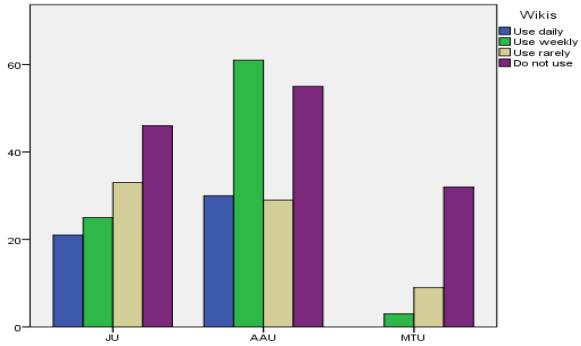
Library's electronic resources

	Use daily	Use weekly	Use rarely	Do not use
JU	26(20.8%)	21(16.8%)	42(33.6%	36(28.8%)
AAU	47(26.9%)	35(20.0%)	46(26.3%	47(26.9%)
MTU	0(0.0%	0(0.0%	8(17.8)	37(82.0%)



Wikis

	Use daily	Use weekly	Use rarely	Do not use
JU	21(16.8 %)	25(20.0 %)	33(26.4 %)	46(36.8%)
AAU	30(17.1 %)	61(34.9 %)	29(16.6 %)	55(31.4%)
MTU	0(0.0%	3(6.8%	9(20.5%	32(72.7%



Video conferencing

	Use daily	Use weekly	Use rarely	Do not use
JU	10(8.0 %)	18(14.4 %)	23(18.4%)	74(59.2 %)
AAU	10(5.7 %)	12(6.9)	3(721.1)	116(66.3 %
MTU	0(0.0 %)	1(2.3%)	3(6.8%)	40(90.9 %)

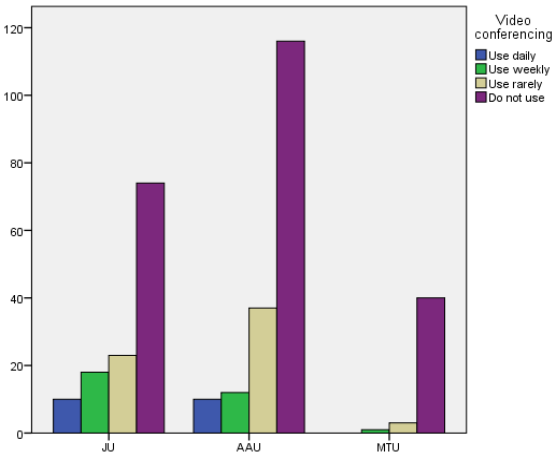


Table 4.13 Frequency of use of e-resource

Figure 4.2 Frequency of use of e-resource

Frequency of use is an important measurement concerning how electronic information resources are used by the respondents for their information need from the three universities. Different users have different use frequency. In this study use frequency of the respondents are indicated in the Table 4.13 or Figure 4.13. JU (58.4%) AAU(65.7%) and JU(58.4) AAU(65.7%) respondents used Computer access in the institution and Use of Internet daily in case of MTU(35.6%)(44.4%) were Use rarely ; From JU (39.2%) AAU 37.1% MTU (64.4%), AAU (26.9%) MTU (82.0%) JU (33.6%), JU (36.8%) AAU (31.4%) MTU (72.7%), JU (59.2%) AAU (66.3%) MTU (90.9%)

respondents did not use; Online journals, Library's electronic resources, Wikis, Video conferencing at all. However, majority of the respondents accessed electronic information resources daily from Internet from the two universities that means from JU and AAU. This indicates that the interest of the users inclined toward electronic information resources for their information needs, that why majority of the respondents used electronic information resources daily mostly from the two universities that means from JU and AAU. From MTU there is a big problem on the use of the internet because of there is no any infrastructure depending of the result.

4.1.3 Qualitative data result

The researcher also carried out interviews with the three university library staffs and IT technicians from the three universities. It was clear that the entire university used internet service for providing services for their users. There is a big different comparing to MTU. Respondents from JU and AAU indicated that the computers available in the university were sufficient. In addition the respondents from JU and AAU said the university had wireless network. So the academic staffs and students access Internet any were inside the university. Respondents from the AAU said even though they have the internet connection its speed is very less. Both Jimma and Addis Ababa universities have got digital library, e-database, and subscribed journals with less numbers of collections that helps the users to access e-information. However the respondents from MTU indicated that there is no any ICT services/ e-library system and also the internet is not given to the students as much as they want. It shows that there is a big different in the distribution of internet facility for academic staff and students among the university.

ICT also used in bibliographic description of resources in the two universities but not in MTU. Both JU and AAU had automated library system that only performs a cataloging function. Respondents indicated that this library automation system was functioned only locally which is not possible to use it outside the university. Due to power and some technical familiarity the system was not always function. In case of MTU there is no library automation.

In order to cooperate with publisher's universities do not have their own communication system rather than using web mails like Gmail and yahoo. All universities indicated that they do not subscribe to e-journals by themselves due to high cost of subscription. They were subscribed through the help of other oversea supporters like, UNSCO, World Bank and WHO.

On the extent of developing e-resource all respondents from the three universities indicated that cost budget was very high. Even due to the high cost of electronic resource. Universities were investing a lot of budget for power and internet bandwidth consumption by the university users. Also maintenance, IT equipment and human labor costs were the major area university invest their budget.

The other interviewee is IT technicians from the three universities. They indicated that most of the staffs and students have no awareness about electronic information resources. They also argued that even those staffs and students that have awareness about electronic information resources did not differentiate electronic information resources accessed through search engine and electronic information resources accessed through the university website. They indicated that a few staffs and students come to office to get assistance how to access and retrieve electronic information resources. According to the service provider from JU and AAU they have already started to provide training and awareness creation for the staffs about electronic information resources even if it is in infant stage. Some get consult for electronic information resource

service provider to get assistance and those staffs that come for consultation to the library have been very interested with electronic information resources. When we come to MTU University there is no skilled man power and also there is no any infrastructure for the use of the internet.

One of the big challenges faced by university ICT office in application of IT based services respondents gave several challenges that impeded successful application of e-resource services. All respondents cited less ICT budget, high cost of IT equipments, less skilled man power on this area, lack of IT infrastructures and less support from high officials were the major problems.

4.2 Discussion

This section of the chapter discusses about the major finding of the analyses of data collected through questionnaires and interview.

Table 4.2 indicates that demographic status of respondents in terms of age, education qualification. The Table indicates that more than 75.9% of the respondents were less than 30 years old and majority of the respondents 98% have educational qualification of master and bachelor degree. These indicated that majority of the respondents were active and have enough experience for their activities. The disproportionate distribution of resources and services with in public universities in Ethiopia needs to have necessitated change in the way of use of e-resources. University ICT are now required to embrace these changes and manage the resources and services in the best way that satisfies the users that they serve.

On the basis of the result obtained, it is clear that most of the respondents from all universities possess excellent computer skill as per their own assessment. Regarding provision and availability of various e-resource services, the opinion of users (students and academic staffs) and librarians and IT technicians response of individual universities were differs. Services on internet, digital libraries, library automation, open URL resolver, university website and e-

journal provided in Addis Ababa University and Jimma University seems similar. Internet use and band width distribution among all universities were varied. However the responses for provision of services in Mizan-Teppi University were quite less than services in JU and AAU.

Similar findings indicated by Okiki (2011) slow connection and electricity breakdown problems are stated as the most encountered problems by the respondents. Singh and Devi (2009) indicate erratic power supply and subscription issues. Mostafa (2013) show slow network connection is a major problem faced by the respondents.

In table 4.3 it is found that the Academic staffs and students of University of Ethiopia frequently use electronic information resources, which is similar to Egberongbe (2011) and Sharma (2009) who indicated that respondents usually access electronic resources. On the other hand Gakibayo and Okello- Obura (2013) shows that students use electronic information resources once in a month. Mostafa (2013) indicates that the respondents access electronic resources only when they find it necessary. Nicholas (2000) on the other hand found that, 58 percent of the student journalists used internet very frequently, 24 per cent sometimes, 15 percent occasionally and 3 percent never.

Table 4.4 indicates that the majority of academic staffs and students at the JU, AAU and MTU University have different computer skills that include word-processing, Internet and e-mail, database management, power point and web page design. This is very encouraging. Ray and Day (1998); Oduwole and Sowole (2006) note that “if students are aware that the skills required for using electronic resources are not insular, and, provide them with valuable transferable lifelong skills, skills, which employers will be looking for, they may be more likely to learn how to use them”.

University ICT are a hub of knowledge and information services in their institutions and are usually established along with their institutions as an integral part (Mirza and Mahmood 2009). This hub requires modern technology today. Modern technology has advanced greatly. With this advancement, the information needs of the university users have also changed (Chen and Wu 2009). The massive impact of ICT on the librarianship profession has changed the way librarians and support staffs do their jobs and interact with users and colleagues (Oduwole and Sowole 2006). The question of knowing how to use a computer will remain a challenge to most students and academic staffs in developing countries like Ethiopia whilst access is a problem (Okello-Obura and Magara 2008). It is only when someone knows to use a computer that they can learn how to access e-resources. Electronic resources and the new models of education have generated an even greater need for reference and instruction (Thachill 2008). Okello-Obura and Magara (2008) argue that learning basic computer skills and applications is increasingly necessary to function in today's workplace or to pursue personal interests in an electronic environment. This knowledge gives university users a practical understanding about how their computers and printers operate, how to troubleshoot problems, how to locate an Internet web site, and a host of other technology-based skills that help a library user to be more successful in the technological world (Lawson 2005). For the effective use of electronic resources, computer use and information literacy skills are essential (Kinengyere 2007). An analysis of the findings

When we analyses Table 4.8, the benefits of using e-resources, we find that, access to a wide range of information, faster access to information, access to current up-to date information, Easier access to information and improvement of academic performance constitute the benefits of accessing e-resources by EPHLI academic staffs and students. Dickinson (1994) earlier argued that electronic resources greatly increase access to information.

Computer skills are basic requirement, for any users of electronic resource to use the resource. Because electronic resources are accessed through electronic devices such as: computer and e-resources reader. Okello-Obura and Ikoja-Odongo (2010) supports that, library users cannot access e-resources without adequate computer skills. As a result, this study indicated that more than 92% of the respondents from AAU and JU have medium and expert level of computer skills compare to the other MTU less computer skill. The result indicated that the academic staffs and students have basic computer skills. Any users, who have basic computer skills, should have at least the skill of some application software. Consequently, the data indicated that the respondents have better familiarity with application software such as Microsoft word, Microsoft excel, power point and etc. The result of this study indicated that the respondents have basic computer skills. These basic skills help the respondents to accept electronic information resource access orientation and training easily, if orientation and training were prepared and provided by the concerned body to develop the access skill of the users. As it was argued by Gakibayo there is need to equip end-users with skills such as information literacy skills, information retrieval skills, computer skills among others as a strategy to promote e-resource usage as access skill is the second prerequisite for the users to access electronic information resources.

The majority of the academic staffs and students have the awareness of existence of electronic resources, but the ways they got this awareness were different. Majority of the respondents got awareness by their colleagues and the other few respondents got through their own browsing. Only around one third of the respondents have informed the existence of electronic information resources by library orientation. Madhusudhan (2010) also indicated that on his research entitled `Use of electronic resources by research scholars of Kurukshetra University`; 78% learned through guidance from their teachers/friends/colleagues, followed by self-interest 46%, by trial

and error method 38% of the research scholars 30% have learnt the skills through guidance from library staffs. Both research works indicate that almost the same percent of respondents have got the information through library orientation. These results indicated that rather than making the electronic information resource available for the academic staffs and students, the universities did not work effectively and efficiently on awareness creation of the users of electronic resource to use the resources and satisfy their information needs.

As indicated in the Table 4.12 the majority of the respondents preferred electronic resources for their information need. This indicates that the interest of information resources of the users changed from printed format of information resources to electronic resources. The reason why they preferred electronic resource is that these resources are portable to use, they do not require the users to go to the specific place to access information resources, they are accessed from remote whenever and wherever the users are interested to access the information. It is also possible to access multiple file at the same time, so fast to get up to date information and save the time of the users. This was also emphasized by Okello-Obura & Ikoja-Odongo (2010) cited in Brophy 1993, electronic resources are speed to access, easy to use, ability to search multiple files at the same time and ability to access documents from outside the library. Even if electronic information has these and another advantage that force the users to use electronic information resources, they did not have the required information literacy skill and training to access these resources.

From table 4.13; Most of the respondents 80% use of internet, computer in the intuitions to access electronic information resources daily from JU and AAU from MTU most of the respondents do not use Internet or computer because there is no such infrastructure. 70% of the respondents use library e-resources rarely, online journals, wikis, video conferencing, 18%

occasionally and 16% two or three times a week. Nicholas (2000) on the other hand found that, 58 percent of the student journalists used internet very frequently, 24 per cent sometimes, 15 percent occasionally and 3 percent never. The result indicates that the respondents from JU and AAU in this research is somewhat high than the MTU respondents. For the overall the use of e-resources is less this is because of lack of orientation and training.

Majority of the respondents accessed electronic information resources from their office or lab or from its own laptop. It is also supports of the findings of Ray and Day (1998) they found that, 91% of respondents acknowledged access to a networked computer via university and also that more Internet access is from work place than from home. This indicates that the respondents have access facilities in their office or lab but on the other hand they have no appropriate places in the library with full facility for the academic staffs and students to access electronic information resources. The interview conducted with the head of the library from AAU and JU, also assured that they have not enough computers and not prepared a place for the academic staffs and students to access electronic information resources in the library from MTU there is no any infrastructure regarding to the use of e-resource materials in the library. Because of this very small number of respondents accessed electronic information resources in the library. There is a knowledge gap between students from JU and AAU, compare to MTU because of the less or there is no ICT infrastructure on the MTU universe students doesn't get any new information like JU and AAU .

In addition to this, more than 81% of the respondents did not have any training about how to access electronic information resources. As a result those respondents, who did not have any training to use the resources from their previous experience, assisted by their colleagues and respective departments and some of the respondent's access these resources through try and

error. From the two universities that means from JU and AAU the head of the library and some IT technicians said that they are planning to provide training in the future for few academic staffs. They also added that even if the university tries to arrange training for few academic staffs, most of the staffs are not volunteer to participate on the training. This seems that (1) they did not arrange the appropriate time for training. (2) They did not announce very well about the advantages of training on the use of electronic information resource. In general, this indicates that rather than making resources available and fulfill the facility for the academic staffs and students in their office or lab, the University did not give much attention about the accessibility of the resource.

The use of e-resource services and frequency usage of service difference in university among respondents from each EPHLI was different as explained under the table 4.13. Main source of using e-resource services by respondents is outside other oversea database (library) and international initiatives database, which may be due to ineffective service, less information resources and quality of services of their universities website. It is quite interesting to note that the majority of respondent's satisfaction level on sufficiency of subscribed journals, e-databases, e-information resources and easily accessibility of services were low and the existing digital libraries and institutional repositories don't satisfy their information needs in general.

As indicated in the Figure 4.1and Table 4.10; majority of the respondents access e-mail and search engine like yahoo, Google etc… the least accessed electronic resource is electronic database and OPAC (Online Public Access Catalogue) from AAU and JU. This also indicates that electronic information resources accessed through the university website are underutilized.

(2007), who found that of the academics who were current users of national and international computer networks, over 90 percent used them for e-mail. The study revealed that both lecturers

and students acknowledged the usefulness and importance of e-resources to research and productivity.

The respondents also have problems to access electronic resources. These problems include lack of experience, difficult to find relevant information, too much information retrieved, lack of computer and information retrieval skills, slow speed of Internet and frequent power interruption. All respondents have one or more of these problems, but majority of the respondents have the difficulty in finding relevant information, lack of computer and information retrieval skills and lack of experience. This indicates that even if from JU and AAU more electronic databases were accessed through the universities website, small number of academic staffs and students accessed these resources. So, the information resources accessible through the University website are underutilized.

Even though electronic resources were not utilized efficiently and effectively, Tables 4.13.and 4.14. Indicate that majority of the respondents were satisfied with electronic resources infrastructures and electronic resources. Ibrahim (2004) argued that most of the respondents were satisfied (57.6%) or somewhat satisfied (23.2%) with the e-resources the deanship provided. In this research very satisfied respondents were 14.51% and satisfied respondents were 41.93%. Ibrahim (2004) mentioned lack of awareness of electronic resources, lack of time to access and too many passwords to remember. Users need skills to make comparisons between paper, CD-ROM and electronic resources. This indicates that the satisfaction level of respondents in this research is less than the satisfaction level of respondents in Ibrahim`s research. Comments given by respondents also indicate that they emphasized what were in the questionnaires. Some of the respondents said that they did not have any orientation about the resources, and others also said

that they did not have any training on accessing electronic resources and still some others also said that some of ICT professions were not volunteer to assist the staffs.

Majority of faculty members and students at Ethiopian Public Higher Learning Institution claim to have either a very good or excellent ability in dealing with computer systems. Many make use of a wide range of electronic services for personal purposes, and highly value all types of e-resources in developing their personal knowledge. However, whilst almost all faculty members and students acknowledge using Internet-based e-resources and services for personal purposes, their use of electronic databases to fulfill their professional information needs in teaching and research appears more limited. Some of the results from this initial survey show that information provided by e-resources is recognized as making a difference to the work of some of the University's faculty members and students. However, as the researcher expected from their personal observations before undertaking the survey, databases and other e-resources provided by the Universities were not generally well utilized by faculty members and students. There is clearly a need for Ethiopian Public Higher Learning Institution Library and also ICT office to promote its resources collection to faculty member and students, to demonstrate the benefits that can be derived in supporting their teaching and research activities, and to provide more orientation courses and guidance for them about how to use different types of e-resources.

As mentioned earlier, Ethiopian Public Higher Learning Institution from the two universities that means AAU and JU provides for all faculty members and students with free access to its electronic resources, besides its traditional printed collection. The Universities already subscribes specialized electronic databases, good band width but the results of this survey suggest that the Universities ICT infrastructure and Library's databases and electronic publications do not yet meet the needs of all academic disciplines and students in the Universities. There is a need for

the Universities ICT and Library to carry out further research, in cooperation with the Colleges, to identify electronic material that would meet more of the faculty members and students for teaching and research information needs. Given the variety of subjects that are taught within the Colleges, the investigation would need to be wide ranging. Some consideration would also need to be given to different academic level of the material required by faculty and students in the Foundation Program.

Most faculty members encourage their students to use e-resources in preparing their reports and papers, believing that most students at the Universities do not have problem in dealing with the Internet. The main problems that students face in using e-resources are the language barrier, poor search skills and the lack of assistance in dealing with e-resources. Because electronic publishing in common langue for example Amharic is not yet as common as in English and other European languages, the university ICT and Library faces a major challenge to identify and make available electronic information resources in common langue(native langue) that are of sufficient quality to be used to support the students' academic work. The University will also need to provide training courses for new students who need to develop or enrich their knowledge of the Library's databases and other Internet resources to enhance their search skills, and to enhance their learning.

CHAPTER FIVE

Conclusion and Recommendation

This chapter deals with the conclusion and recommendation part of the study according to the survey conducted.

5.1. Conclusion

This study showed that the uses of e-resources are very common among the Lecturers and students of University of JU, AAU compared to MTU. It also showed that majority of Academic staffs and students were dependent on e-resources to get desired and relevant information. But there is a big gap between universities newer university were less compare to the old ones on the distribution of Internet and bandwidth to access ER. Moreover, infrastructure and training, programmes are essential for better use of electronic resources campus-wide. It is evident from the analysis that the availability of e-resources on the universities is almost sufficient for all the existing disciplines but that the infrastructure to use the resources is not adequate and is actually hindering the ability to meet the requirements of users. The use of electronic resources had tremendous impact on the academic performance of the Academic staffs and students of public University; however, there was need for them to acquire more skills in the use of electronic resources.

The trend in using ER among the academic staffs and students where found common. Academic staffs and students were well aware with their educational needs. They fulfill their needs by the use of ER on daily basis. Students use web resources, e-books and e-prints but the use of e-journals, e-theses, and databases is found comparatively low. Erratic power supply and slow connection are found as the major barriers in getting access to the ER for Academic staffs and students. The reason of these problems is might be the place from where the Academic staffs and

students. Usually use ER, majority of Academic staffs and students access ER from: Lab, office PCs, where they find slow server and electricity breakdown problems.

It is also found that Academic staffs and students use ER for their class assignments, lecture note and to update themselves and some of them are also involved in research. Although a number of Academic staffs and students use basic searching to find their desired and relevant information but they are highly satisfied with the retrieved information.

This paper also confirms that a large number of e-resources are made available in universities. This study reveals that, a majority of the users of EPHLI use e-resources for their learning purpose. It was found that, e-resources materials in EPHLI are available and users are generally satisfied with these materials. Although EPHLI lacks of infrastructure facilities, the existing e-resources can fulfill user needs.

Results of this survey also discovered the opinion about advantages and disadvantages about ER. Academic staffs and students are satisfied because according to them ER are easily accessible, helpful for their studies, time saving and provides updated information on a single server just a click away. But everyone have different perceptions so some Academic staffs and students thinks exact opposite of these advantages and they stated that information on ER is not authentic, it is time consuming, it has limited information and ER is a major cause of eye sightedness, laziness and less usage of printed material.

The data indicate that the university library did not prepare electronic information resource access place in the library with full facility for the academic staffs and students. In addition to this, electronic resource access place, electronic resource access assistant that helps the academic staffs and students to access and use electronic information resource is not assigned for the academic staffs and students. At the same time the university ICT and library did not provide

orientation about the existence of electronic resource accessed through the university website, rather majority of the academic staffs and students informed the existence of electronic information resource through different means. These indicate that the university organization did not give attention for the accessibility and usability of the resource rather than making different resources available through the university website.

Even if the accessibility of electronic information resource accessed through the university website is low, majority of the academic staffs and students access information resource accessed and freely available through search engine which are not reliable and some of these resource have no authority. Majority of the respondents have good attitude about the information resource and infrastructure of the university, as a result they prefer electronic resource and access resource daily.

All academic staffs and students have one or more problems to access the information resource. These problems can be classified into two: one is related with the skills of the academic staffs and students to access the information resource and the other related with infrastructure. The problems related with skills indicate and emphasize the lack of training and orientation about the electronic information resource to retrieve their relevant information. That is why the access of electronic information resource accessed through the university website is low. The second problem is related with slow speed of Internet or bandwidth and interruption of power supply.

Based on the findings of this study, the researcher concluded that the use of electronic resources had tremendous impact on the academic performance of the students of Ethiopian higher University; however, there was need for them to acquire more skills in the use of electronic resources.

5.2. Recommendation

Based on the findings of this research, the researcher strongly agrees on the need of the following In order to improve the facilities and services for effective use of electronic resources, and usage status of the academic staffs and students in Ethiopian higher University the following recommendation can be made.

- Majority of the academic staffs and students have better computer and application software skills and some of the respondents have a beginner computer skill. But they don't have information literacy skills so; the university should prepare and provide consistent information literacy skill for the academic staffs to make the resources accessible and usable for the information needs of the academic staffs and students.
- Electronic information resources are recent and new event in our country. The same is true in higher education institutions. The academic staffs and students of the university are new for these resources; therefore, the university needs to develop the access skill for the staffs and students. The university should provide extensive and consistent electronic resource retrieval training in order that the academic staffs and students can access and use electronic resources.
- User training is essential for the better use of electronic resources in the university since a good number of users are searching electronic literature on their own.
- Lecturers should insist on students using e-resources. Encouragement via academic staff should be explored to promote the usefulness of electronic resources to students. If academic staffs were to promote electronic resources by providing references for students to locate, this may increase the number of students acquiring the necessary information

retrieval skills. Lecturers are crucial in the promotion of electronic information resources. Coursework/assignments attached to the use of electronic resources should be evolved. This will compel students to use electronic resources further.

- Before and after the electronic resources subscription, survey on users should be done at regular interval. Library and ICT office should also receive information and suggestions from the faculty members and the students, which need to subscribe or not;
- Bandwidth of internet connection must be increased in EPHLI universities. Faster internet access should be offered to minimize download time.
- Librarian' skills on e-resources searching and retrieval should be improved. Libraries are changing, and there has been a paradigm shift in services offered throughout the world. Library-centered services are changing to user-centered. It may be necessary for EPHLI library staff to receive training themselves in customer care and e-resources use in order to provide training more effectively.
- University libraries and ICT office should intensify their awareness campaigns concerning the availability of electronic resources. The use of e-mail alert system, text messages and prizes for those who use a lot of e-resources should be considered by the University Library as methods of promotion. Phone short message services should be integrated into library e-resources services provision for awareness services for e-resources.
- The library should employ more effective strategies such as using e-mail alert messages, text messages and prizes as a method of promoting use of the university's electronic resources. The present strategies of use of departmental notice boards and e-mails from

the library have not done much to attract users to the library. Library staff visits to faculties to promote e-resources should be encouraged.

- Majority of the academic staffs and students are satisfied with infrastructure and electronic information resource from JU and AAU, but still there are some academic staffs and students who are not satisfied with infrastructure and information resource. To satisfy the needs and level of all the academic staffs and students, the university should improve the capacity of the Internet or check if there is any access out of the objective of the university that consume the capacity of the Internet and degrade the access speed of the users.
- Majority of the academic staffs and students prefer electronic information resource and access it daily for their information need. This is good for the institution itself, because it is difficult for the university to satisfy the information need of increasing number of academic staffs and students with hardcopy information format. In contrast, current and up-to-date information are available in electronic format. So
- Also there is a big different on the distribution of internet band width within the university this is the big challenge for the academic staff and students to get updated information which are found in the new university .There is also knowledge gap between teachers and students from MTU and the other university because of shortage of electronic resource. To change this ministry of education office of Information Communication Technology should give attention with this respect so that all students in every public university in the country get similar services.
- Finally, nowadays it is clear that most information resources are produced in electronic format. To equip higher educational institutions with information resource, electronic

information resources have no alternatives. To provide full services of these resources further research should be conducted on over all electronic information resource services and management, utility and facility of the electronic information resource in higher educational institutions in Ethiopia.

References

Ali, Naushad (2005). The use of electronic resources at IIT Delhi Library: a study of search behaviors. The Electronic Library , 23 (6), 691-700.

Alan, R. (2005). Electronic resource management: transition from in-house to in-house/vendor approach. *The Serials Librarian, 47*(4), 17-25.

Bergman, B.J. (2005). Looking at electronic resources librarians. Is there gender equity within this emerging specialty? *New Library World, 106*(1210/1211), 116-127.

Chang, S. (2003). The DLF electronic resource management initiative. *OCLC Systems & Services, 19*(2), 45-47.

Collins, M. (April, 2005). Electronic resource management systems: understanding the players and how to make the right choice for your library. *Serials Review, 31,* 125-140.

Crawford, J. C. & Daye, A. (2000). A survey of the use of electronic services at Glasgow Caledonia University Library. The Electronic library, 18 (4), 255-265.

Chua, D.K.H., Tyagi, A. (2001) "Process-Paramater-Interface Model for Lean Design Management". *Proc. 9th Annual Conference International Group for Lean Construction, Singapore*, pp.1-12

Chang, S. (2003). The DLF electronic resource management initiative. *OCLC Systems & Services, 19*(2), 45-47.

Collins, M. (April, 2005). Electronic resource management systems: understanding the players and how to make the right choice for your library. *Serials Review, 31,* 125-140.

Dadzie, Perpetua S. (2005). Electronic resources: access and usage at AshesiUniversity College, campus-wide information systems, 22 (5), 290-297.

Edwards, C.E., Day J.M. & Walton, G. (1995). IMPACT project: the impact on people of Electronic libraries. Aslib Proceedings, 47 (9), 203-208.

Eleoranta, E., Hameri, A., Lati, M. (2001) "Improved Project Management through Improved Document Management". *Computers in Industry,* Elsevier, 45, pp. 231-243.

Eqbal M. and Khan A.S., Use of Electronic Journals by the Research Scholars of Faculty of Science and Faculty of Engineering, in *NACLIN*, 309-319 **(2007)**

Farb, S.E., and Riggio, A. (2004). Medium or message? A new look at standards, structures, and schemata for managing electronic resources. *Library Hi Tech, 22*(2), 144-152.

Fong, Y.S., and Wicht, H. (2005). Software for managing licenses and compliance. *Journal of Library Administration, 42*(3/4), 143-161.

Grover, D., and Fons, T. (2004). The Innovative electronic resource management system: a development partnership. *Serials Review, 30*(2), 110-116.

Jewell, T.D. (2005). Electronic resource management: the quest for systems and standards. *The Serials Librarian, 48*(1/2), 137-163.

Kennedy, M.R. (2004). Dreams of perfect programs: managing the acquisition of electronic resources. *Library Collections, Acquisitions, & Technical Services, 28*(4), 449-458.

Kelly, Kimberly B. & Gloria J. (2003). Trends in distant student use of electronicresources: a survey. College and Research Libraries , 64 (3), 176-190.

Kumar, Arun, (2009). Use and usage of electronic resources in Business Schools inIndia: FIIB. International Conference on Academic Libraries, 46, 573-578.

Madhusudan M, Use of UGC Infonet E-journals by Research Scholars and Students of University of Delhi, *Delhi Library Hi Tech*, **26(3)** 369-386

Mittal, A. (2012). Changing role of librarians and information professionals in electronic information environment. Lucknow Librarian, 29 (1-4), pp.21-24.

Medeiros, N. (2006). Electronic resources management: an update. *OCLC Systems & Services, 21*(2), 92-94.

Miller, R.H. (2000). Electronic resources and academic libraries, 1980-2000: ahistorical perspective. Library Trends, 48 (4), 645-670

Monopli, M., Nicholas, D., Georgiou, P. & Korfiati, M. (2002). A user oriented evaluation of digital libraries: a case study 'the electronic journals' services of the library and information service of the University of Petra, Greece. AslibProceedings , 54 (2), 103-117.

Morris, K., and Larson, B. (2006). Revolution or revelation? Acquisitions for the digital library. *The Acquisitions Librarian, 18*(35/36), 97-105.

Naaryana P. and Goudar I.R.N., E-Resources Management Through Portal: A Case Study of Technical Information Center, in *International Conference on Knowledge Management*, 1-19 **(2005)**

Naidu G.H.S., Rajput P. and Motiyani K., Use of Electronic Resources and Services in University Libraries: A Study of DAVV Central Library, Indore. in *NACLIN*, 309-319 **(2007)**

Naqvi S.H., Use of Electronic Resources at Jamia Millia Islamia (A Central University): A Case Study, in *NACLIN*, 320-324**(2007)**

Navjyoti, A Snapshot of E-Journals' Adopters (Research Scholars) of Guru Nanak Dev University, in *NACLIN*, 432-442 **(2007)**

Rao, Y. Srinivasa & Choudhury, B.K. (2009). Availability of electronic resources atNIT libraries in India: a study. International Conference on Academic Libraries, 630-635. Retrieved from http://crl.du.ac.in/ical09/papers/index_files/ical-106_68_169_2_RV.pdf

Ray, K. & Day, J. (1998). Student attitudes towards electronic information resources. Information Research, 4 (2), 1-32. Rogers, S. A. (2001). Electronic journal usage at Ohio State University. College and Research Libraries , 62 (1), 25-34.

Sadeh, T., and Ellingsen, M. (2005). Electronic resource management systems: the need and the realization. *New Library World, 106*(5), 208-218.

Sadia, H. (2011). The use and impact of electronic resources at the University of Lagos. Library Philosophy and Practice, 472. Retrieved fromhttp://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1490&context=libphilprc

Appendix A

Jimma University

College of Natural Sciences

Department of Information Sciences

Questionnaire for students, academics staff

Dear respondent,

This questionnaire is aimed at collecting information for MSc thesis research with the main objective of Assess the impacts and benefits of using electronic resources in Ethiopia Higher institutions. Kindly respond to the questions as honestly as possible as your response will be treated with utmost confidentiality. All responses will be used purely for academic purposes for a successful completion of the study.

Thank you for participating in this survey about the e-resources used by your institution. For the survey, we have chosen to look at the widest meaning of e-resources –that is any computer or electronic based technology that is used by your institution to help with learning, teaching, and student support. So, to achieve the goal of the research, getting genuine information on the current situation of the e-resource is vital. Hence you are kindly requested to give genuine answer for the questions presented below.

The information gathered will be used only for the research purpose. No part of the information will be given for third party or will be used for other purposes. For further explanation or any question related to the study, please do not hesitate to contact me at the following address:

Name: **Girum Kebede**

Phone No: **+251917000028**

E-mail address: **girum.kebede@ju.edu.et or girumk6@gmail.com**

Section A: Socio-demographic information

For each of the following questions, please indicate your response by a tick **(√)** in the appropriate box.

1. Name of your Institution……

2. Genders: Male ☐ Female ☐
3. Age range: 20-30 ☐ 30-40 ☐ 40-50 ☐
50-60 ☐ >=61 ☐

4. What is your department?.....

5. What is your highest qualification?

Diploma ☐ BSc ☐ MSc ☐
Ph.D ☐ MD ☐ DVM ☐
Other…….

6. Which university community do you belong to?

Student's ☐ academics staff ☐

7. Pleas select your academic rank by a tick **(√)** in the appropriate table section.

Academic staff	tick **(√)**	**Student**	tick**(√)**
Graduate Assistant		Undergraduate Graduating Class	
Assistant Lecturer		Graduate Student	
Lecturer			
Associate Professor			
Professor			

Other, please specify ……..

Section B: Electronic Resource Use Practices

1. Please indicate the extent to which you agree or disagree with each of the following statements regarding use of electronic resource.

1= strongly disagree, 2 = disagree, 3 = Undecided or Neural 4 =, agree 5 = strongly agree

No	Statement	1	2	3	4	5
1	I have good computer skilled to use e- resources and I always save e-resources on computers there for it is easy for me to use the electronic resources					
2	I am using e-resources in day to day activity					
3	I am Confident on accessing e-resources and I know how to access e-resources					
4	I have no difficulty to search for e-resources and browsing websites					
5	I upload e-resources on web site or Internet and I download and use e-resources from website or Internet					
6	I use the Internet daily to access e-resources					
7	I use Wi-Fi to access e-resources					
8	I think that using electronic resources support teaching learning process					
9	I don't hesitate to use e- resource when they are available					
10	for me, using electronic resources are easier than paper resources					
11	my computer skills help me to use electronic resources					
13	I rely on electronic resources to do my assignments/research					
14	my use of electronic resources depends on the requirements of the instructor					
15	Electronic resources constitute an essential part of my courses					
16	My instructors include electronic resources in the courses' syllabuses.					
17	The instructor's support enhance my use of electronic resources					
18	The availability of computer and Internet in the university enhances my use of electronic resources					
19	Electronic journals provided by the university's library contribute to my achievements					
20	courses in the university prepare me well to use electronic resources					
21	For me, computers and the Internet are substitute to traditional resources					
22	Computers and the Internet are available at the university					
23	University Library offers electronic resources suitable for my learning					
24	The Web is full of scientific re-sources needed to my learning/research					
25	Sometimes I access electronic re-sources in the library from outside the university					
26	Dealing with web resources saves time and effort					
27	For me, using electronic resources is an economic burden					
28	I can find the information I need for my papers through the Internet					
29	I can find the information I need for my papers through the library's electronic resources					

2. Please indicate the extent to which you agree or disagree with each of the following statements regarding Current electronic resource Practices in your institution

1= strongly disagree, 2 = disagree, 3 = Undecided or Neural 4 =, agree 5 = strongly agree

No	Statement	1	2	3	4	5
1	My University selects, organize and disseminate electronic resources based on users' need					
2	There is e-resource management in my University, which helps me to get electronic documents relevant to my work					
3	My University has an e-resource management system to provide its information to the university communities					
4	My University use open source applications for e-resource management					
5	In my University, I can access relevant electronic documents to my work stored in customized open source software					
6	In my University there is Wi-Fi Internet connection					
7	There is collaboration with, or share e-resources with another institution					
8	There is digital archives					

Section C: The Advantage and Benefits of Using Electronic Resources

1. Please indicate the extent to which you agree or disagree with each of the following statements regarding the advantage and benefits of using e-resources.

1= strongly disagree, 2 = disagree, 3 = Undecided or Neural, 4 =, agree 5 = strongly agree

	Statement	**1**	**2**	**3**	**4**	**5**
1	One takes less time to get more information					
2	It is ease to bowering for online e-resources					
3	Searching for e-resources can increase my ability on creativity of new things.					
4	Within short period of time I can get what I want because of e-resource					
5	Because of e-resource my communication skill is increased					
6	The increase in cost for keeping printed material makes electronic forms more attractive from an economic viewpoint.					
7	They have the ability to be accessed by more than one user at a time.					
8	There is no copy Wright issue when using e-resource					
9	E-books help to move the library into the new century of digital Library and virtual library capability, cheaper, space saving, and availability, remote access, full text search capability, as well as copying and pasting.					
10	Easy access to information resources					
11	Never lost or damaged this means that e-books are not physical items which					

	can be lost of physically damaged as they physically cannot break as they are electronic resources.					
12	E-resources is more interactive than hard copies/printed materials					
13	Users do not have to wait for days or weeks to get the books they want to read and instead l have access the electronic form					
14	Low Security risks as they cannot be stolen compared to printed document					
15	Because of e-resource simply to get many researchers					
16	To get updated information					
17	In terms of retrieval and usage, e-books are relatively simple to retrieve, convenient for resource sharing, and have lower compatibility requirements.					
18	e-resource can increase the ability of group discussion					
19	Happy when using e-resources					
20	It makes easier to use technology					
21	Using e-resource to minimize communication cost					

Section D: The Impact of Using E-resources on Academics

1. Please indicate the extent to which you agree or disagree with each of the following statements regarding the impacts of using e-resources.

1= strongly disagree, 2 = disagree, 3 = Undecided or Neural, 4 =, agree 5 = strongly agree

	Statement	**1**	**2**	**3**	**4**	**5**
1	E-resource increase quality of education					
2	Teachers have changed their teaching styles					
3	E-resources have broken down barriers of communication access from anywhere in the world					
4	E-resources offer the opportunity to access up-to-date research reports and knowledge globally in topics as diverse as science and technology.					
5	For Internet resources to be used effectively, students and scholars are having to develop a set of new skills					
6	All types of information are available on the internet, from the common and domestic to highly technical ones this will decrease quality of education.					
7	All types of information are available on the internet, from the common and domestic to highly technical ones this will increase quality of education.					
8	The web and the internet have made the world a global village there for it is advantage on academic environment					
9	Searching answer for assignment can decrease the quality of education, skills in evaluating the quality of students, and skills in using discussion.					
10	Use of IT has highly improved their productivity and creativity in academic institution					

11	Multiple electronic learning resources improve students' academic performance					
12	Students used a wide range of online resources there for it increase quality of education					
13	Quality of research improved					
14	Quantity of research output increased					
15	Students performance increased					
16	Staff performance increased					
17	Decision making improved					
18	Searching for e-resources is wastes a lot of time					

Section E: Usage of Social Network applications

1. Use of the following applications to access electronic resources regularly

No		Agree	Disagree	Don't know
1	Facebook			
2	Youtube			
3	Skype			
4	Myspace			
5	Igoogle			
6	Instant messaging			
7	Linkedin			
8	Twitter			

Section F. Availability/Functionality of E-resource

The operational measurement for this section of the questionnaire ranges as follows:

RAF= readily available and functional AF=Available and functional

ANF=Available but not functional NA=Not available

1. Please indicate the availability and functionality of effective/efficient use of these resources in your library:

No		RAF	AF	ANF	NA
1	CD-ROM resources				
2	Electronic databases				
3	E resource laboratory				
4	e-books				
5	Multimedia resources				
6	Electronic Journals				
7	Professional Library staff				

8	Audio-visual resources				
9	Internet connectivity				
10	Printers				
11	Computer servers				
12	Work stations (personal computers)				
13	Copiers				
14	Laptops				

1. I experience any difficulty in using any of the library's resources?

Agree ☐ Disagree ☐ Don't know ☐

2. If Agree, please briefly state the difficulty (ies)

…….

…….

2. Please indicate your level of access to electronic information resources:

Electronic Resources	Level of access			
	Unlimited access	Accessible whenever needed	Rarely accessible	Not accessible
Internet				
CD-ROM Databases				
Local Intranet				
Institutional Repository				
Digital Library				
Multimedia Library				

3. Please indicate your level of engagement with the following:

Statement	Use daily	Use weekly	Use rarely	Do not use
I have access to a computer in my institution				
I use the Internet				
Online journals				
I use the library's electronic resources				
Computer based assessment				
Online submission of coursework				
Anti-plagiarism software				
Wikis				
Online group work				
Video conferencing				

SMS texting				
Research software (SPSS, bibliographic software etc)				

Do you have any other comments regarding e-resource?.....

Appendix B
Interview Questions for Librarian and IT professionals

Name of University: _____

Respondent's Position: _____

Respondent's gender: _____

1. How do you say about your university practice or experience in creating, generation, organization, retention, utilization and Dissemination of electronic resources?

_____

_____

_____

2. Does the library support or contribute to e-resource materials?

3. How to disseminate this, for staffs, research and others user?

4. How does your institution communicate its research reports, theses, dissertations, and other resources such as course/training materials to users of such information resources?

5. What do you think are the benefits of electronic e-resources for teaching and learning process in your institution?

6. What do you think are the benefits of electronic e-resources for teaching and learning process in Ethiopian higher learning institution?

7. Does your institution have a support or use e-resource materials (a central storage or database of the Institution's own research results?

8. How do you say on the usage of medium and the extent for this electronicsmaterial practices among the staff in your University?

E-mail

Organizational website or locally implemented open software

Internal computer networks/ LAN

Internet connection

Video conferencing

Electronic document storage and access

9. Research is among the missions of your institution, does your university have any strategy to maximize the dissemination of its research output nationally and internationally? If so explain. What are the barriers hindering the dissemination of research outputs?

_____

_____

_____

_____

10. How does the university document its research documents/technology to ensure its track since the institution was established?

11. To what extent do you agree or Disagree with you observation as far as dissemination of e-resources from your institution is concerned? What are your reason(s) to agree or disagree?

12. Is there anything else you would like to say about the problem / challenges of e-resources in your institution? _____

13. Have you personally received training in the use of any e-resources, for example, a particular soft ware package?

14 If yes, what were you trained on?

15. Do you feel you need more training for these types of resources are used, either by staff or students? Please explain below

16. Has your institution conducted any research on how e-resources are used, either by staff or students? Please explain below.

17. How many staff PCs are there at your institution? (Approximately)

18. How many student PCs are there at your institution? (Approximately)

Appendix C

Observation Check List

	Jimma University		Addis Ababa		Mizan tebi University		
Observations	**Availability**	**Efficiency**	**Availability**	**Efficiency**	**Availability**	**Efficiency**	**Remark**
Intranet							
Organizational website							
Computers / servers							
Internal networks or LAN							
Internet connection							
Types of internet speed							
Available of electronics resource materials							
Proper storage and management of servers							
storage capacity of servers							

-- End --