

**EFFECT OF ELECTRONIC INFORMATION RESOURCES  
UTILIZATION ON RESEARCH OUTPUT: CASE OF JIMMA  
UNIVERSITY ACADEMIC STAFFS**

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**JIMMA UNIVERSITY, ETHIOPIA**

**October, 2013**

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**A THESIS SUBMITTED TO THE DEPARTMENT OF  
INFORMATION SCIENCE, COLLEGE OF NATURAL  
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FULFILLMENT FOR THE AWARD OF THE DEGREE OF  
MASTER OF SCIENCE IN INFORMATION SCIENCE  
(ELECTRONIC AND DIGITAL RESOURCES MANAGEMENT)**

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## Approval sheet

This Thesis en-titled: “Effect of Electronic Information Resources Utilization on Research Output: Case of Jimma University Academic Staff ” by Tariku Gerba has been read and approved as meeting the requirements of the Department of Information Science and in partial fulfillment for the award in the degree of Master of Information Science (Electronic and Digital Resources Management), Jimma University, Jimma, Ethiopia.

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## **Dedication**

This thesis is dedicated to God the Almighty for his provision in all the resources required for this work as well as to my wife Jitu Hordofa and my sister Raji Wilisa for their day to day encouragement and support during this work.

## **Acknowledgement**

I would like to express my profound gratitude to my principal research advisor, Dr. Lawrence Abraham Gojeh, (Associate Professor), for his tremendous insight, patience, and generosity with his time. I received valuable assistance from his rich knowledge, interesting discussions and intellectual thought.

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## Abbreviations/acronyms

AGORA	Access to Global Online Research in Agriculture
BECO	College of Business and Economics,
CD-ROM	Compact Disk
CNS	College of Natural Sciences,
CSSL	College of Social Sciences & Law,
E-Books	Electronic Books
EIR	Electronic Information Resources
E-Journals	Electronic Journals
E-Mail	Electronic Mail
HINARI	Health Inter Network Access to Research Initiative
ICT	Information Communication Technology
INASP	International Network for the Availability of Scientific Publications
IP	Internet protocol
JIT	Jimma Institute of Technology,
JU	Jimma University
JULS	Jimma University Library Systems
JVCAM	College of Agriculture and Veterinary Medicine
NASSDOC	National Social Science Documentation Centre
OARE	Online Access to Research in Environment
OPAC	Online Public Access Catalogue
PEIR	Program of Enhancement of Information Resources
PHMS	College of Public Health and Medical Sciences
POD	print-on-demand

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## **Abstract**

This thesis is aimed at the “Effect of Electronic Information Resources Utilization on Research Output: Case of Jimma University Academic Staff” with a view to survey the extent to which academic staffs utilize electronic information resources provided by Jimma University Library System (JULS) for their research work. The study used a survey method; a clustered sampling technique was employed to select 257 subjects from a population of 779 academic staffs. Questionnaire was instrument used for data collection and the response rate was 229 (89.1%). The study investigated that 76.0% of academic staffs were utilizing EIRs provided by JULS and they were utilizing these resources for their research work because of its importance in saving time and easy to use when compared to conventional (printed) sources. There was significant difference among academic staffs on reasons for utilizing EIRs on ease of use. The study also found out that academic staffs were generally negative on applying search techniques in searching materials from EIRs provided by JULS for their research work. In the same vein, there was also significant difference among academic staffs in applying search techniques (Boolean and weighted term search) in their search. The study also revealed that insufficient EIRs, Lack of search skills and slow downloading are the three most affected hindrances in accessing EIRs provided by JULS. There was significant difference among academic staffs on factors such as incompatible user interface to the library website and power failure that hinder access to EIRs provided by JULS. The study found out that the utilization of electronic information resources provided by JULS enhanced research output of academic staff considerably in reducing searching printed research materials in libraries, easier to find materials and easier to keep up to date. It indicated that there was significant difference on the enhancement of research output resulted from EIRs utilization in ease of finding materials and reducing searching printed materials in libraries. The study found out that there was significant relationship between electronic information resources utilization and research output. The study concluded with recommendations for further study.

# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 Background of the Study

The advancement of Information Communication Technologies (ICTs) has changed the way people communicate and reduced the cost of communication for individuals. As Bavakenthy et. al. (2003) observed, electronic information resources can be seen as the modern means of communication in information technology and it is one of the most powerful tools ever invented in human history. Electronic information resources are a method by which information is stored electronically and made accessible through electronic systems and networks. In addition, Electronic information resource' is a broad term that includes a variety of different publishing reproductions, including OPACs, CD-ROMs, online database, e-journals, e-books, internet resource, print-on-demand (POD), e-mail publishing, wireless publishing, electronic link and web publishing (Haridasan & Khan, 2009).

When it is compared to its print counterpart, electronic information resources have rapidly become an established medium of communication and connect people across the globe, removing geographic boundaries and simplifying access to information. The electronic sources of information are becoming more and more important for the researchers in accessing information at the right time and in the right form. The role of electronic information resources as used for research output have become more pronounced when information becomes more readily available in electronic form and when researchers are willing to use them (Harle, 2009).

Research outputs and innovations are the main weapons in poverty reduction and in empowering the economic growth of a country (World Bank, 1998). The government of Ethiopia formulated an economic growth and transformation policy to alleviate and bring about a drastic development. For this policy to be successful, the Ethiopian government is encouraging higher education institutions in the country to establish the information and

communication technology (ICT) infrastructure; in order to enhance research and innovation by providing pertinent information through electronic information resources.

Jimma University is one of the higher institutions found in Ethiopia that afford electronic information resources freely to its academic staff, non-academic staff and students to support their day to day academic and research activities by delivering electronic information resources through its library systems. Electronic resources are being provided by Jimma University Library Systems (JULS) and are freely accessible to academic staff through the databases that include: Hinari, Emerald, PubMed, JOSTOR, and I.E.E.E. These databases are available to the academic staffs and student through the JULS' computer centers and wireless links to satisfy their information needs for their day to day academic and research work (JU, 2013). The main aim of providing these resources to students as well as academic staffs in Jimma University was to enrich the teaching-learning process and research output. But there was no any recorded assessment that shows the productivity of academic staffs regarding their research output as a result of provision of EIRs by JULS.

## **1.2 Statement of the Problem**

Exponential growth of electronic information has proved to be more value added in nature and time saving for an individual. The access to, utilization of and awareness about the electronic information resources are very essential for users as well as for libraries.

Electronic information resources are quick to access, save time and keep up-to-date with the current happenings in the specific fields and related areas. Further, electronic information resources play a pivotal role in enhancing research & development activities and improving the productivity of an individual.

For sometimes now, JULS have been providing numbers of electronic information resources or databases that are free of cost and provided by external initiatives. These databases are freely available to academic staffs and students in the University. On the top of that the government has increased its budget in the establishment of ICT

infrastructure to enhance the quality of the teaching-learning activities and research productivity of academic staffs through the provision of up-to-date information. The main aim of both external initiatives and government in providing EIRs and establishing network infrastructure for University libraries in developing countries freely is to capacitate academic staffs in producing high quality and problem-oriented scientific investigation and new innovations so as to bring about drastic development in the country. But JULS is yet to have any recorded assessment that shows the level of utilization of electronic information resources provided by JULS by academic staffs and the role it plays on academic staffs research output. Hence, this study addressed the “Effect of Electronic Information Resources Utilization on Research Output; Case of Jimma University Academic Staff”.

### **1.3 Research Questions**

The study addressed the following research questions:

- 1.3.1 To what extent do academic staffs utilize electronic information resources provided by JULS for their research activities?
- 1.3.2 What are the reasons that make academic staffs to utilize EIR and search techniques used for retrieving materials from EIR provided by JULS for their research work?
- 1.3.3 What are the factors that hinder academic staffs from accessing electronic information resources provided by JULS for their research work?
- 1.3.4 How has the electronic information resources utilization enhanced the academic staff research output?
- 1.3.5 Is there any relationship between academic staff electronic information resources utilization and their perception towards research output?

### **1.4 Hypothesis**

The following hypothesis were formulated to find answers to academic staff’s utilization of EIR provided by JULS for their research work and their perception towards the effect of these electronic information resources utilization on their research output.



- 1.4.1 There is no significant difference among academic staff on utilization of electronic information resources provided by JULS for research work.
- 1.4.2 There is no significant difference among academic staff on the reasons of utilization of EIR provided by JULS and search techniques they apply for retrieving research materials for their research work.
- 1.4.3 There is no significant difference in the factors that hinders academic staffs in accessing electronic information resources provided by JULS for their research work.
- 1.4.4 There is no significant difference among academic staffs' perception on effect of utilization of electronic information resources provided by JULS on their research output.
- 1.4.5 There is no any significant relationship between academic staffs' electronic information resources utilization provided by JULS and their research output.

## **1.5 Objective of the Study**

The general objective of this study was to investigate the effect of electronic information resources utilization on research output; case of Jimma University academic staff, Ethiopia.

The specific objectives of the study were:

- 1.5.1 Determine the extent to which academic staffs utilize electronic information resources provided by JULS for their research activities.
- 1.5.2 Identify academic staffs' reasons for utilizing EIR and search techniques for materials from EIR provided by JULS.
- 1.5.3 Determine factors that hinder the access of electronic information resources provided by JULS in support of academic staffs' research output.
- 1.5.4 Establish the effect of electronic information resources utilization on academic staffs' research output.
- 1.5.5 Identify the relationship between academic staffs' electronic information resources use and their perception toward research output.

## **1.6 Scope of the Study**

This study focused on the utilization and effect of electronic information resources provision by JULS on academic staffs' research output in Jimma University, Ethiopia. It was limited to only Jimma University academic staff and focused on the perception of Jimma University academic staffs towards the effect of EIR use on their research output and the extent to which academic staff make use of EIR for their research work.

## **1.7 Significance of the Study**

The study established the vital roles of electronic information resources for research productivity of academic staffs and JULS and in saving their time and money. It went a long way in knowing the importance, efficiency and effectiveness of electronic information resources' utilization on research output of academic staffs in JU and the contribution of EIR utilization for competitive advantage of Jimma University; as well as the economic growth of Ethiopia.

By this study, Ethiopian higher education as well as other private University Library Systems in the country will use as a bench mark in assessing their electronic information resources provision to enhance productivity of their end users. Not only higher education institutions, but also research and development institutions and other organizations working on research and development are the beneficiary from this study. In the same vein the study is an addition to the imperative literature in Jimma University; as well as Ethiopian higher institutions in shaping researchers on the field of electronic and digital resources management in particular and the field of information sciences in general. So, professional librarians and information specialists will find the work very resourceful not only as a document but to serve as a means for further studies.

## 1.8 Operational Definition of Terms

Academic staff:	Full-time University lecturers of Jimma University who are mainly responsible for teaching, researching and undertaking academic service (advising students and performing professional duties) as well as researchers who work in specific research centers. They can be Professors, Associate Professors, Assistant Professors, lecturers and assistant graduates. It doesn't include those academic staffs who are engaged in their study in the country or abroad.
Research productivity:	Research productivity is the quality and the quantity of scientific publication produced by academic staffs. Total research output compared with inputs (money, time, facilities, researchers' and team's efforts). Academic staffs' research productivity is measured in terms of ease of finding research material, range of research material, ease of keeping up to date, quality of research work, inspiration of new ideas, saving working time and reduction of time wasted in browsing conventional resources in libraries. Through out this research the two terms research productivity and research output will be used interchangeably.
Effect:	The changes the electronic information resource brings about as a result of its provision through Jimma University library system on the research output/productivity of Jimma University academic staff.
Electronic information:	Information that can be processed, stored, accessed and disseminated through computers and computer networks.
Electronic information resources:	Resources that can be used over the computer network on the screen such as electronic journals, electronic books and online databases.
Electronic information resources provision:	Access to electronic information resources through electronic means. This electronic information provision needs the network infrastructure and access to the content.
Information need:	The information gap that the academic staffs have for their day to day activities in their research work.
Jimma University Library Systems (JULS):	Jimma University Library system is a public higher education library providing conventional and electronic information services to support teaching-learning and research activates through its branches like: Main Library, Agriculture and Veterinary Medicine College Library, Health Sciences

Library, Education Library, Technology Library, Social Sciences Library, Graduate Studies Library, Law Library, Business and Economics College Library and Females library.

Perception: The feeling or opinions that the academic staffs experience towards the research output as a result of utilization of the electronic information resources provided by JULS in their research work.

Utilization: Extracting the values of electronic information resources in their research work as a search for background information from the previously published scientific works in their respective fields when the academic staffs are in need of.

## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 Jimma University Library System**

Jimma is located to south of west of the country which is 350 km from Addis Ababa. Jimma is the home of different ethnic diversity where different private university colleges and governmental higher institution are actively engaged in producing skilled citizens who will take part in the Ethiopian growth and transformation policy. Jimma University is one of higher institution found in Ethiopia having five colleges, two institutions and school of graduate studies (College of Natural Sciences, College of Social Sciences and Law, College of Public Health and Medical Sciences, College of Business and Economics, College of Agriculture and Veterinary Medicine, Jimma Institute of Technology, Institute of Educational and Professional Development and School of Graduate Studies) working the University's core vision and mission. In parallel to its academic activities, Jimma University is well known to the neighbor community and other communities in the nation by community based education strategy having the motto "We are in the Community". This is to alleviate various community problems by the intervention of experts through scientific investigations (JU, 2013).

Jimma University Library System (JULS) is established as a University Library in 1999, commissioned to promote the Instructional, Research, and Public Service goals of the entire University Community through the expert provision of information. It provides both conventional and electronic information services through all its branch libraries (Main Library-1999, Agriculture and Veterinary Medicine College Library-1952 Health Sciences Library-1985, Education Library-2003, Technology Library-2004, Social Sciences Library-2004, Graduate Studies Library-2004, Law Library-2005, Business and Economics College Library-2010, Females library-2010) to meet the its core mission and vision (JU, 2013).

Jimma University is caring out the responsibility of academic and research activities given to it by the Ethiopian Ministry of Education. In addition to its traditional information services through print materials, Jimma University afford electronic information resources freely to its academic staffs, other non-academic staffs and students to enhance academic work and research activities by delivering electronic information resources through its library systems.

A number of online databases available at Jimma University library systems and accessible freely to academic staffs and other non-academic staffs include: AGORA (Access to Global Online Research in Agriculture), HINARI (Health Inter Network Access to Research Initiative) , OARE (Online Access to Research in Environment), Emerald, PubMed, JOSTOR, and I.E.E.E. Apart from these major online databases, the library has access to other online databases through the Program of Enhancement of Information Resources (PEIR), fronted by the International Network for the Availability of Scientific Publications (INASP) (JU, 2013). The objective was to support capacity building in the research sectors especially in University Libraries in developing countries by strengthening the production, access and dissemination of information and knowledge (INASP 2003).

These databases provided by the University library systems are freely accessible and available to the academic staffs and students through the Jimma University library systems' computer centers and wireless links so as to fulfill their information needs in their day to day academic and research work. These electronic information resources are gateways to other resources. This is to say that users can retrieve electronic information from around the world without financial concerns. In addition to the Internet protocol (IP) address authentication the academic community were given institutional user name and passwords. This enables patrons to have access to full-text journal articles, databases and other resources.

## **2.2 Electronic Information Resources**

Electronic information resources are a method by which information is stored electronically and made accessible through electronic systems and networks. In addition to that 'Electronic information resource' is a broad term that includes a variety of different publishing reproductions, including OPACs, CD-ROMs, online database, e-journals, e-books, internet resource, print-on-demand (POD), e-mail publishing, wireless publishing, electronic link and web publishing etc. (Haridasan and Khan, 2009).

### **2.2.1 Types of electronic resources**

#### *2.2.1.1 Online databases*

Online database is a collection of e-books, e-journals by various publishers in different fields that can be accessible online. Some of these resources are provided at no cost to libraries in developing countries, while others require some fee payable as subscription. However, access to these databases provides researchers with thousands of scholarly journals articles in one field of specialization or research (Bozimo, 2007).

#### *2.2.1.2 Digital information*

Digital information is a method by which printed information resources in the libraries and information centers can be converted to electronic form by digital means. It is a recent technology thereby information materials in paper format are converted by machine into microfilm and other miniature form in order to have quick and easy access to them by electronic means. The mechanism by which information in paper format is converted to digital information is called digitization. However, the advantages accrue from the world of digitalization of libraries in the provision of access to primary electronic sources from any remote geographic location and multiple accesses to a single resource are quite enormous. Nevertheless, as special and valuable collections are confined to certain institutions, users from different institution, research centers etc have to travel a long way to access the materials.

(Ellis and Oldman, 2005) opined that researchers from different institution further away from library or information center where the printed information resource is found felt that digitized resources would allow them to get hold of materials more easily without problem, hence, most researchers are of the opinion that digitalization of certain materials in the library would be a huge benefit in terms of accessibility to relevant information.

#### *2.2.1.3 Electronic journals*

As result of the development of internet, researchers and public library institutions have cognized the quality and capabilities of Information and Communication Technologies (ICTs) as "effective means to exchange results from findings , to get around barriers by full transfer of intellectual property rights, from the author to publisher and to improve on the hitherto slow turnaround of traditional publishing"(Correia and Neto, 2002). This development has therefore resulted to growing number of electronic journals, pre-print (e-print), archives, and electronic books. However, electronic journals relatively provide efficient access to information, hence they are easy to distribute to library clientele than the traditional print information.

#### *2.2.1.4 CD-ROM databases*

CD-ROM databases are electronic information resources that are damped on the CD-ROM storage device. CD-ROM databases allow users access to relevant databases without internet connectivity in libraries. It is therefore cost effective than online databases, as information can conveniently be accessed offline without paying for telecommunication fee.

The introduction of CD-ROM has led to the use of e-journal collections in the reference library and an increase in the states of libraries (Oduwole, 2001). Besides this CD-ROM database is of great value over conventional (print) information resources if the system is networked, as library patrons at their respective terminals could access information without coming to the library (Oduwole, 2001).



### **2.2.2 Utilization of electronic information resources**

We live in the era of dramatic change in the use of electronic information resources. Research activities are one of the strongest factors that influence the utilization of electronic information resources (Okiki & Asiru, 2011).

Egberongbe (2011) carried out a survey on the use and the impact of electronic resources at the University of Lagos. The survey implied the provision of electronic information resources in library and information centers enhance the research productivity of researchers by providing different information resources in various formats in the readily accessible format.

The information service provided by libraries whether in print or in electronic format must consider the information need of the end users. In higher institutions academic staffs' information need varies in accordance with their disciplines and the library must take in to consideration the information needs of the academic staff in the provision of electronic information resources to satisfy their needs (Zhang, 2000).

Agba, Kigongo-Bukenya, and Nyumba (2004) found out both academic staff and students in a University system must use these resources for better quality, efficient, and effective research more than ever. However, despite the inherent benefits, Igbo and Imo (2010) found out that lack of electronic information resources and subscription irregularity to electronic journals as some of the factors inhibiting accessibility to electronic information resources.

But as Omotayo (2010) identified, a major issue that constraints users is awareness of electronic information resources. He however; argued that e-journals are becoming popular amongst academics in developing countries and that awareness is not necessarily a proof of use. It is therefore clear that academics' use of electronic information resources to surmount the challenges that abound in meeting their target cannot be over emphasized.

Barjak (2006) found that the frequent use of the online resources by scholars for information retrieval from electronic journals and full-text databases correlated positively with the number of refereed journal articles published. Those who publish most are also most information active, including the use of electronic resources. Electronic information resources availability alone is not a proof of use. The Use of electronic information resources are affected by the information skill required of the end users and its accessibility. In the next section the researcher tried to explain how the academic staffs' information skills and ease of the accessibility of electronic information resources affect the use of electronic information resources.

#### *2.2.2.1 Information Literacy Skills*

Utilization of the vast amount of information on the Internet and the growing amount of electronic information resources, users need to acquire the skills necessary to make use of them. The survey conducted in the higher education libraries in new Delhi, India showed that academic staffs did not acquire the necessary skills that enables them to utilize electronic information resources for their academic activities as well as their day to day research works (Kumar & Singh, 2011).The skills required in making use of electronic information resources are much greater than those required for searching conventional (printed) sources. Such skills are knowledge of the configuration of the database and the search terms which must be inputted into the computer by the searcher, as well as an understanding of the ways in which the instructions are linked with one another.

Haridasan and Khan (2009) carried out a survey on the impact and use of e-resources by social scientists in National social Science Documentation center (NASSDOC) in India indicated that research scholars and faculty members are aware of the electronic information resources and large number of research scholars and faculty members are using these electronic information resources for their research work. Many faculty members strongly agreed with the necessity for computer and internet literacy to access electronic information resources. Majority of users were satisfied with the electronic information resources available at the National Social Science Documentation Centre (NASSDOC) library.

#### *2.2.2.2 Information Access*

Electronic information resources provide faster, improved and larger access to numerous information resources. As a result access to electronic information resources speed up the research and discovery process, better informed research and enabling researchers to study their context more broadly (Houghton & Sheehan, 2006).

Vakkari (2008) summarized the scholars' opinion in his study as influences of electronic information resource use on scholarly work encompass two major dimensions: the first one is accessibility and availability of electronic information resources and the second is the content of scholarly work. He found out the first dimension, the use of electronic information resources has improved identification, availability, and delivery of electronic information resources and led to reducing browsing in libraries, thus reducing time for accessing the literature needed. In the second dimension, the use of digital material has extended the range of literature available, made it easier to keep up-to-date, and inspired new ideas, and finally improved the quality of scholarly work.

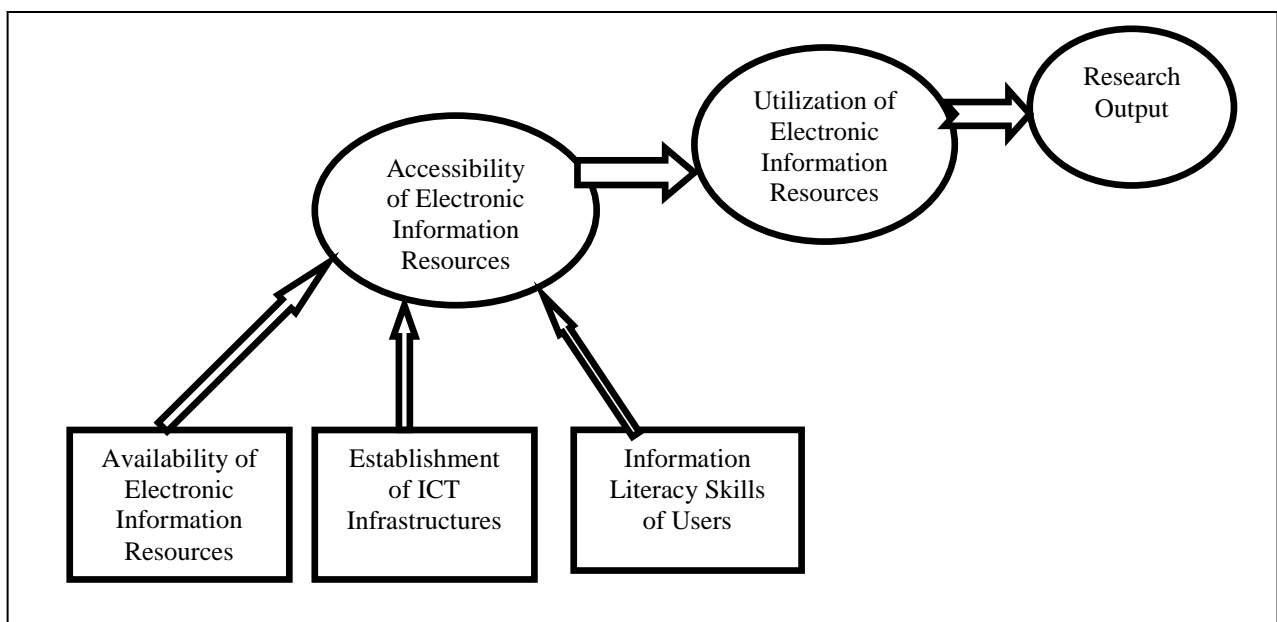
The study conducted in National physical laboratory of India by Kumar & Singh (2011) indicated that many scientists access and use the e-resources in support of their research and development activities and many access and use them because electronic information resource is time saving, so that much time can be saved in their professional work. Also the scientists found greater impact of electronic information resources over conventional resources. Many scientists face the common problem of poor network connectivity.

According to Okoye and Ejikeme (2011) removing access hurdle of electronic information resources will accelerate research, enhance education and share learning; since there is a critical need to make research results available to many academics. Inadequacy of current and relevant information for teaching, learning and research has been the annoyance of university education in Nigeria (Anyira, 2011).

Previous studies have demonstrated varying effects of Electronic information resources use on the publication productivity of researchers. Most studies have shown a positive association between publication rate and use of various electronic information resources. Even if electronic information resources use do have an effect on research productivity, it is possible that many factors moderate the relationship between electronic information resources use and research productivity of academic staffs. But this study will investigate the extent to which academic staffs make use of electronic information resources provided through JULS and the perception of academic staffs towards the effect of electronic information resources use on research output in Jimma University.

### 2.3 Conceptual Framework

Utilization of electronic information resources is the process by which users extract the values of these resources and apply it for their study, research activities and learning. Utilization of electronic information resources are affected by the accessibility of these resources and in the same way, accessibility of electronic information resources depends on its availability, ICT infrastructure and information literacy skills of the users. Hence, the availability and accessibility EIRs and network infrastructure indirectly affects the research output of users in providing pertinent and up-to-date research materials.



**Fig 2.3 Conceptual Framework of Effect of Electronic Information Resources on Research Output**

# CHAPTER THREE

## 3.0 METHODOLOGY

### 3.1 Research Method

The study used survey method with quantitative and qualitative approaches to assess extent of use and effect of electronic information resources provision by JULS on academic staff research output.

### 3.2 Population

The population for the study as from data collected from each college and institute in JU is reflected in table 1, which indicated 779 academic staff; actively engaged in teaching-learning and research output.

**Table 1: Name of Colleges/Institutes and the total population.**

S/N	Name of college/institute	Total population
1.	College of Natural Sciences (CNS)	98
2.	College of Social Science & Law (CSSL)	127
3.	College of Business & Economics (BECO)	69
4.	College of Agriculture & Veterinary Medicine (JVCAM)	82
5.	College of Public Health & Medical Science (PHMS)	246
6.	Jimma Institute of Technology (JIT)	157
	<b>Total</b>	<b>779</b>

### 3.3 Sampling Technique and Sample Size Determination

#### 3.3.1 Sampling technique

The total population for the study was seven hundred seventy nine (779). Since it is impossible to collect data from the whole population in the given period of time and by the budget allocated for this study, samples representing the population was taken.

The study employed clusters random sampling technique, which was used to draw two hundred fifty seven (257) respondents from seven hundred seventy nine (779) academic staff; according to the different cadres of academic staff. There are six clusters (College of Natural Sciences, College of Social Science & Law, College of Business & Economics, College of Agriculture & Veterinary Medicine, College of Public Health & Medical Science and Jimma Institute of Technology). The spread in the clusters used proportional clustering. This was to ensure that respondents from different colleges and institute are equally considered.

#### 3.3.2 Sample size determination

As the data collected by the researcher from colleges and the institute indicate Jimma University has a total of 779 academic staffs actively working on their day to day academic activities during study.

Having the population of each colleges and institute the total sample size was determined using Cochran (1977) formula as follows:

$$n = \frac{n_0}{1 + \frac{n_0}{N}} \quad \text{Where} \quad n_0 = \frac{Z_{\alpha/2}^2 pq}{d^2}$$

$n$  = sample size     $d$  = margin of error

$N$  = total population of academic staff

$p$  = proportion of population

$\alpha$  = level of significance

$q = 1 - p$     Where:  $d = 0.05$      $p = 0.5$      $\alpha = 0.05$

$$n_0 = \frac{(1.96)^2 \times 0.5 \times 0.5}{0.05^2} = 384$$

Considering the population correction factor into account the sample size should be:

$$n = \frac{384}{1 + \frac{384}{779}} = 257 \text{ academic staffs.}$$

Therefore, the total sample size was 257 academic staffs. To proportionally allocate samples for each college/institute total sample size of all colleges and institute were multiplied by the ratio population size of the clusters to total population.

That is:

$$n_h = (N_h/N) * n$$

Where

$n_h$  = sample size for the cluster

$N_h$  = the population size for the cluster

$N$  = Total population

$n$  = total sample size

For example the sample of academic staff from college of natural science can be calculated as follows:

$$n_{CNS} = (98/779) * 257$$

= 32.33 since humans can not be in fraction; by approximating to the nearest non-fractional number = 32.

The sample size for the cluster (college of natural science) was thirty two. In the same way, the cluster for the other colleges and institute are calculated and listed in Table 2.

This resulted in a sample size of two hundred and fifty seven as shown in Table 2 as well.

**Table 2: Name of Colleges/Institutes and the number of academic staffs sampled.**

S/N	Name of college/institute	Total population	Sample
1.	College of Natural Sciences (CNS)	98	32
2.	College of Social Science & Law (CSSL)	127	42
3.	College of Business & Economics (BECO)	69	23
4.	College of Agriculture & Veterinary Medicine (JVCAM)	82	27
5.	College of Public Health & Medical Science (PHMS)	246	81
6.	Jimma Institute of Technology (JIT)	157	52
<b>Total</b>		<b>779</b>	<b>257</b>

### **3.4 Data Collection**

Data was collected with a structured questionnaire using both open-ended and close-ended by randomly selecting respondents from each college and institute according to their sample size. This is because the questionnaire provides an opportunity for respondents to give frank and anonymous answers if not affected by the presence of the researcher (Moser & Kalton, 1997). Secondly, questionnaire also had an advantage of enabling respondents to give their opinions independently (Sarantakos, 2003). A quantitative research design was used in determining percentages and frequencies. It was also useful in drawing tables and pie charts that brought out the study results.

#### **3.4.1 Data and their sources**

In this study the main data source was the primary data. The primary data was collected from the selected sample of the academic staff of Jimma University through structured questionnaire.

#### **3.4.2 Instrumentation**

The structured questionnaire used, consisted of five parts; in the first part the demographic information of the respondents was included. This demographic information included gender, levels of academic staffs, total experience of academic staff and the college/institute where they work was addressed. The second part of the questionnaire



encompassed close-ended questions regarding the use of electronic information resources for research work, the reason why academic staff use EIR for the research work, frequency of use of EIR, search techniques used in making use of EIR and academic staff satisfaction towards the overall EIR services of the JULS. Part three of the questionnaire embraced questions regarding factors that hinder the accessibility and use of electronic information resources provided by JULS and challenges that hinder academic staff from using EIRs available through JULS. The fourth and the final part encompassed questions regarding the enhancement of electronic information resource services provided by JULS so that it fulfills the information needs of its users.

### **3.5 Data Processing and Analysis**

Descriptive statistics, standard t-test, one way ANOVA and post hoc Scheffe's Difference multiple comparison statistics were the main statistical tools used for this study. The 229 questionnaires returned by the five categories of respondents that include: graduate assistants, lecturers, assistant professors, associate professors and professors were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version twenty.

### **3.6 Ethical Issues**

As this study involves the opinions and perceptions of human subjects, certain ethical issues were addressed. This work recognized that the ethical risks associated with this research could be minimized by the careful setting of questions, particularly in respect of avoiding or not directly addressing any areas of weakness in the respondent's work, or opening any lines of inquiry related to psychological issues that the respondent might have. Respondents were also informed that they had the right to abstain from filling the questionnaire. Before conducting data collection the researcher sent an official letter from the Department of Information Science to the Deans of each college to ask for their permission to conduct a study in the college (Appendix B). Subsequently, the respondents were informed in person about the purpose and importance of this study. It is understood

that the researcher is responsible for the security of confidential data by keeping the data collected from respondent from being used for other purposes and by unintended individuals or organizations.

## **CHAPTER FOUR**

### **4.0. RESULTS AND DISCUSSION**

#### **4.1 Introduction**

This chapter comprises of the following headings; response rate, statistical analysis, results and discussions.

#### **4.2 Response Rate**

From the 257(100%) respondents, 229(89.1%) filled and returned the questionnaire from all the colleges and institute of JU. This holds the result at the response rate of 89.1%. Hence the researcher concluded that the research could be conducted. However from the response rate of 229(89.1%), 26(11.4%) were from College of Natural Sciences (CNS), 39(17.0%) were from College of Social Sciences and Law (CSSL), 21(9.2%) were from College of Business and Economics (BECO), 23(10.0%) were from Jimma College of Agriculture and Veterinary Medicine (JVCAM), 74(32.3%) were from college of Public Health and Medical Sciences (PHMS) and 46(20.1%) were from Jimma Institute of Technology (JIT).

Gender distribution was 194(84.7%) male and 35(15.3%) female. The levels of academic staff response was 154(67.2%) Lecturers, 44(19.2%) Graduate Assistants, 21(9.2%) Assistant Professors, 7(3.1%) Associate Professor and 3(1.3%) were Professors. Table 3 below shows the response rate of all the study variables in terms of respondents from colleges/Institutes, Gender and level of academic staff.

**Table 3: Profiles of Respondents.**

General information about respondents		Frequency	Percent
Colleges/institutes	CNS	26	11.4
	CSSL	39	17.0
	BECO	21	9.2
	JVCAM	23	10.0
	PHMS	74	32.3
	JIT	46	20.1
	Total	229	100.0
Gender	Female	35	15.3
	Male	194	84.7
	Total	229	100.0
Level of academic staff	Graduate Assistant	44	19.2
	Lecturer	154	67.2
	Assistant Professor	21	9.2
	Associate Professor	7	3.1
	Professor	3	1.3
	Total	229	100.0

### 4.3 Statistical Analysis

#### 4.3.1 Electronic information resources utilization

The respondents were provided in their questionnaire items on the utilization of electronic information resources that JULS provides for academic staff research work. The result of their response was treated in tables 4a&b as positive (Yes) or negative (No).

**Table 4a: Electronic Information Resources Utilization by Academic Staff.**

Items	Categories of Respondents	Staff	Level of response		Decision
			Yes	No	
Do you utilize electronic information resources provided by JULS for your research work?	GA	44(19.2%)	29(12.7%)	15(6.6%)	positive
	Le	154(67.2%)	117(51.1%)	37(16.2%)	positive
	AP	21(9.2%)	18(7.9%)	3(1.3%)	positive
	ASP	7(3.1%)	7(3.1%)	0(0.0%)	positive
	P	3(1.3%)	3(1.3%)	0(0.0%)	positive
<b>Total</b>		<b>229(100%)</b>	<b>174(76.0%)</b>	<b>55(24.0%)</b>	<b>Positive</b>

GA = Graduate Assistant

Le = Lecturer

AP =Assistant Professor

ASP = Associate Professor

P = Professor

Table 4a above revealed that all categories of respondents (GA, Le, AP, ASP and P) or 174(76.0%) were positive on the utilization of electronic information resources (EIR) available through Jimma University library systems for their research work; while a total of 55(24.0%) indicated that they are not utilizing these EIRs which can be regarded as negative. The table 4a also shows that the categories of users indicated that majority of them who utilizes these EIRs provided by JULS were lecturers with 117(51.1%), 29(12.7%) were graduate assistants, 18(7.9%) were assistant professors, 7(3.1%) were associate professors and 3(1.3%) were professors. Although all respondents of associate professors and professors were positive on using the EIRs of JULS; the non-users showed that the majority 37(16.2%) were lecturers, 15(6.6%) were graduate assistants and 3(1.3%) were assistant professors.

From this analysis, the researcher concludes that academic staffs of Jimma University were positive on the utilization of EIRs provided by JULS for their research work, while associate professors and professors distinguished themselves as complete utilizes of EIRs provided by JULS for their research work. Similarly, the higher the level of the academic staffs the higher was their utilization of EIRs provided by JULS.

This investigation implies that academic staffs in Jimma University were well aware of EIRs provided by JULS and showed willingness in utilizing these resources for their research work.

However, a summary analysis of one way ANOVA on academic staffs' utilization of EIRs provided by JULS for their research work to determine the significance difference among academic staffs on their EIR use is reflected in table 4b. The level of significance was at  $p=0.05$ .

**Table 4b: Summary of One way ANOVA result on utilization of Electronic Information Resources Provided by JULS.**

Item	Source of variation	Sum of squares	Degree of Freedom	Mean square	F-ratio	P-value	Remarks
Use of electronic Information resources	B.G	1.222	4	.306	1.687	.154	Not significant
	W.G	40.568	224	.181			
	Total	41.790	228				

Level of significant at  $p=0.05$

B.G = Between Groups

W.G = Within Groups

Table 4b, depicts the summary table on one way ANOVA result of utilization of EIRs provided by JULS for research work. The table revealed that academic staffs views on the utilization of the EIRs were not significant since  $p= 0.154 >p=0.05$ . Hence we retain the null hypothesis and conclude that there appear to be no significant difference among academic staffs opinion on their utilization of electronic information resources provided by JULS for research work.

#### **4.3.2 Reasons and search techniques in the utilization of electronic information resources**

##### *4.3.2.1 Academic staff reasons of utilizing EIRs provided by JULS and search techniques applied in utilizing these resources*

Table 5a below shows the responses made by the academic staffs to their questionnaire item on the reasons and search techniques applied in utilizing EIRs provided by the JULS. The attitudinal responses were considered positive for ‘Yes’ and negative for ‘No’.

**Table 5a: Reasons of utilizing EIRs and search techniques applied in accessing EIRs by academic staffs.**

Items	Categories of respondents	Staff	Level of response		Decision
			Yes	No	
EIRs saves time	GA	29(12.7%)	22(12.6%)	7 (4.0%)	Positive
	Le	117(51.1%)	91(52.3%)	26 (14.9%)	Positive
	AP	18(7.9%)	16(9.2%)	2(1.2%)	Positive
	ASP	7(3.1%)	5(2.9%)	2(1.2%)	Positive
	P	3(1.3%)	3(1.7%)	0(0.0%)	Positive
<b>Total</b>		<b>174(76.0%)</b>	<b>137(78.7%)</b>	<b>37(21.3%)</b>	<b>Positive</b>
EIRs are easy to use compared to printed sources in research work	GA	29(12.7%)	11(6.3%)	18(10.3%)	Negative
	Le	117(51.1%)	76(43.7%)	41(23.6%)	Positive
	AP	18(7.9%)	8(4.6%)	10(5.7%)	Negative
	ASP	7(3.1%)	5(2.9%)	2(1.1%)	Positive
	P	3(1.3%)	3(1.7%)	0(0.0%)	Positive
<b>Total</b>		<b>174(76.0%)</b>	<b>103(59.2%)</b>	<b>71(40.8%)</b>	<b>Positive</b>
EIRs are more informative than printed sources in research work	GA	29(12.7%)	10(5.7%)	19(10.9%)	Negative
	Le	117(51.1%)	37(21.3%)	80(46.0%)	Negative
	AP	18(7.9%)	5(2.9%)	13(7.5%)	Negative
	ASP	7(3.1%)	3(1.7%)	4(2.3%)	Negative
	P	3(1.3%)	0(0.0%)	3(1.7%)	Negative
<b>Total</b>		<b>174(76.0%)</b>	<b>55(31.6%)</b>	<b>119(68.4%)</b>	<b>Negative</b>
EIRs are more useful than printed sources for research work	GA	29(12.7%)	9(5.2%)	20(11.5%)	Negative
	Le	117(51.1%)	41(23.6%)	76(43.7%)	Negative
	AP	18(7.9%)	12(6.9%)	6(3.4%)	Positive
	ASP	7(3.1%)	1(0.6%)	6(3.4%)	Negative
	P	3(1.3%)	1(0.6%)	2(1.1%)	Negative
<b>Total</b>		<b>174(76.0%)</b>	<b>64(36.8%)</b>	<b>110(63.2%)</b>	<b>Negative</b>
EIRs are less expensive than printed sources for research work	GA	29(12.7%)	9(5.2%)	20(11.5%)	Negative
	Le	117(51.1%)	59(33.9%)	58(33.3%)	Positive
	AP	18(7.9%)	5(2.9%)	13(7.5%)	Negative
	ASP	7(3.1%)	3(1.7%)	4(2.3%)	Negative
	P	3(1.3%)	1(0.6%)	2(1.1%)	Negative
<b>Total</b>		<b>174(76.0%)</b>	<b>77(44.3%)</b>	<b>97(55.7%)</b>	<b>Negative</b>
Do you use Boolean operator in searching EIRs for research work	GA	29(12.7%)	3(1.7%)	26(14.9%)	Negative
	Le	117(51.1%)	16(9.2%)	101(58.0%)	Negative
	AP	18(7.9%)	5(2.9%)	13(7.5%)	Negative
	ASP	7(3.1%)	4(2.3%)	3(1.7%)	Positive
	P	3(1.3%)	0(0.0%)	3(1.7%)	Negative
<b>Total</b>		<b>174(76.0%)</b>	<b>28(16.1%)</b>	<b>146(83.9%)</b>	<b>Negative</b>

Items	Categories of respondents	Staff	Level of response		Decision
			Yes	No	
Do you use Weighted term search in searching EIRs for research work	GA	29(12.7%)	2(1.1%)	27(15.5%)	Negative
	Le	117(51.1%)	6(3.4%)	111(63.8%)	Negative
	AP	18(7.9%)	6(3.4%)	12(6.9%)	Negative
	ASP	7(3.1%)	0(0.0%)	7(4.0%)	Negative
	P	3(1.3%)	0(0.0%)	3(1.7%)	Negative
Total		174(76.0%)	14(8.0%)	160(92.0%)	Negative
Do you use Subject term (truncated) search in searching EIRs for research work	GA	29(12.7%)	13(7.5%)	16(9.2%)	Negative
	Le	117(51.1%)	56(32.2%)	61(35.1%)	Negative
	AP	18(7.9%)	8(4.6%)	10(5.7%)	Negative
	ASP	7(3.1%)	6(3.4%)	1(0.6%)	Positive
	P	3(1.3%)	0(0.0%)	3(1.7%)	Negative
Total		174(76.0%)	83(47.7%)	91(52.3%)	Negative
Do you use Full text search in searching EIRs for research work	GA	29(12.7%)	12(6.9%)	17(9.8%)	Negative
	Le	117(51.1%)	61(35.1%)	56(32.2%)	Positive
	AP	18(7.9%)	6(3.4%)	12(6.9%)	Negative
	ASP	7(3.1%)	5(2.9%)	2(1.1%)	Positive
	P	3(1.3%)	1(0.6%)	2(1.1%)	Negative
Total		174(76.0%)	85(48.9%)	89(51.1%)	Negative

GA = Graduate Assistant

Le = Lecturer

AP =Assistant Professor

ASP = Associate Professor

P = Professor

Table 5a indicated that among the academic staffs that utilize electronic information resources provided by JUS for their research work, majority 137(78.7%) of the academic staff were positive on the utilization of EIRs for research work, saves time as compared to printed sources, 103(59.2%) were also positive on EIRs' ease of use as compared to printed sources in research activities, 77(44.3%) indicated EIRs were less expensive than printed sources for research work, 64(36.8%) considered that EIRs were more useful than printed sources for research work, 55(31.6%) EIRs were more informative than printed sources in research work.



From above analysis, we conclude that academic staffs in Jimma University were positive on utilization of electronic information resources made available by JULS for their research work because of its importance in saving time and easy to use when compared to conventional (printed) sources. However, they were negative on EIRs being informative, usefulness and less expensive than the printed sources.

This implies that academic staffs in JU who utilizes EIRs provided by JULS for their research work were not well equipped with the skills that help them to compare the importance of EIRs with the conventional (printed) sources which has a negative impact on their utilization of EIRs for their research work.

Additionally, Table 5a showed that 85(48.9%) academic staffs were using full text search, 83(47.7%) were using subject term (truncated) search, 28(16.1%) Boolean search and 14(8.0%) weighted term search. This analysis leads to the conclusion that less number of academic staffs which is below the average applies search techniques in their effort to search research materials.

This implies that academic staffs in JU did not acquire the skill of using different search techniques (Boolean, weighted term, subject term and full text) and did not apply in searching materials for their research from electronic information resources provided by JULS. This has also a negative impact on the productivity of academic staffs in their research work.

However, a summary analysis of One way ANOVA on academic staffs reasons and search techniques applied on the use of EIRs provided by JULS for research work at  $p=0.05$  level of significant is shown in table 5b.

**Table 5b: Summary of One way ANOVA result on reasons and techniques applied on the utilization of EIRs by academic staffs in JULS by academic staffs in JU.**

Items	Source of variation	Sum of squares	Degree of Freedom	Mean square	F-ratio	P-value	Remarks
Saves Time	B.G	.393	4	.098	.578	.679	NS
	W.G	28.739	169	.170			
	Total	29.132	173				
Easy to Use	B.G	2.696	4	.674	2.896	.024	S
	W.G	39.333	169	.233			
	Total	42.029	173				
More Informative	B.G	.439	4	.110	.499	.737	NS
	W.G	37.176	169	.220			
	Total	37.615	173				
Less Expensive	B.G	1.478	4	.370	1.507	.202	NS
	W.G	41.447	169	.245			
	Total	42.925	173				
More Useful	B.G	2.097	4	.524	2.309	.060	NS
	W.G	38.363	169	.227			
	Total	40.460	173				
Boolean	B.G	1.667	4	.417	3.227	.014	S
	W.G	21.827	169	.129			
	Total	23.494	173				
Weighted Term	B.G	1.319	4	.330	4.824	.001	S
	W.G	11.554	169	.068			
	Total	12.874	173				
Subject Term	B.G	1.737	4	.434	1.762	.139	NS
	W.G	41.671	169	.247			
	Total	43.408	173				
Full Text	B.G	1.151	4	.288	1.149	.336	NS
	W.G	42.326	169	.250			
	Total	43.477	173				

Level of significant at  $p=0.05$

B.G = Between Groups

W.G = Within Groups

S = Significant

NS = not significant

Table 5b above, revealed the summary table of one way ANOVA result on reasons for utilization of EIRs and search techniques applied on the use of EIRs provided by JULS for research work. The table revealed that academic staffs' views on reasons of

utilization of EIRs were significant for one item (i.e. easy to use) since  $p = 0.024 < p = 0.05$  and were not significant for the rest items (i.e. saves time, more informative, less expensive and more useful) since their p-values were  $p = 0.69; 0.737; 0.202$  and  $0.60$  greater than  $p = 0.05$ . This finding implies that JULS should work on familiarizing academic staffs to the available electronic information resources so that academic staffs can utilize it easily for their research work and enhance their research productivity.

Table 5b also revealed that academic staffs' views on search techniques applied in the access of EIR were significant for two items (i.e. Boolean and weighted term) and their p-values were  $p = .014$  and  $.001$  respectively and less than the  $p = 0.05$ . The rest two items (i.e. subject term and full text) were not significant since their p-values were  $p = 0.139$  and  $0.336$  which are greater than  $p = 0.05$ .

Hence' we can reject the null hypothesis on two items (Boolean and weighted terms) and conclude that there appear to be a significant difference in the search techniques applied by academic staffs on the access of EIR provided by JULS for their research work.

#### **4.3.3 Factors that hinder access to electronic information resources**

There are various factors that hinder the access of electronic information resources for research and development activities. Respondents were asked to indicate the factors that hinder their access of electronic information resources provided by JULS for their research work and the result of academic staffs that utilizes these resources are displayed in table 7a below.

**Table 6a: Factors that Hinder Access to Electronic Information Resources by Academic Staff.**

<b>Factors</b>	<b>GA</b>	<b>Le</b>	<b>AP</b>	<b>ASP</b>	<b>P</b>	<b>Total</b>
Slow downloading	18(10.3%)	56(32.2%)	12(6.9%)	6(3.4%)	2(1.1%)	94(54.0%)
Lack of search skills	17(9.8%)	82(47.1%)	12(6.9%)	5(2.9%)	2(1.1%)	118(67.8%)
Insufficient EIRs	26(14.9%)	95(54.6%)	17(9.8%)	4(2.3%)	3(1.7%)	145(83.3%)
Incompatible user interface	8(4.6%)	41(23.6%)	0(0.0%)	1(0.6%)	3(1.7%)	53(30.5%)
Power failure	7(4.0%)	60(34.5%)	1(0.6%)	2(1.1%)	2(1.1%)	72(41.4%)
Others	6(3.4%)	38(21.8%)	0(0.0%)	0(0.0%)	2(1.1%)	46(26.4%)

GA = Graduate Assistant

Le = Lecturer

AP =Assistant Professor

ASP = Associate Professor

P = Professor

As it is indicated in the table 6a above, all academic staffs were positive on all of the factors that hinder the access of EIRs. The factors include slow downloading, search skills, insufficient EIRs, incompatible user interface, power failure and others which include lack of access points and irrelevance of these electronic information resources for their specific field. However, the degree of effect on opinions differs among the factors as revealed on the table. majority 145(83.3%) of academic staff consider insufficient electronic information resources, as the highest felt factor and the least felt factor 46(26.4%) was other factors; such as lack of access points and irrelevance of these electronic information resources for their specific field.

The finding revealed that insufficient EIRs, Lack of search skills, slow downloading, incompatible user interface, power failure and others like lack of access points and irrelevance of these electronic information resources for their specific field were the

factors that hinder access of academic staff to the electronic information resources provided by JULS for research work. While, the most affected factors were insufficient EIRs, Lack of search skills and slow downloading. The least was access points and the irrelevancy of the EIRs.

However, table 6b below contains a one way ANOVA on the factors that hinder academic staffs' access to electronic information resources provided by JULS for research work.

**Table 6b: Summary of One way ANOVA result on Factors that hinder access to EIRs by academic staffs of JULS.**

S/N	Factors	Source of variation	Sum of squares	Degree of freedom	Mean square	F-ratio	P-value	Remarks
1.	Slow Downloading	B.G	2.251	4	.563	2.326	.058	Not Significant
		W.G	40.881	169	.242			
		Total	43.132	173				
2.	Lack of searching skills	B.G	.317	4	.079	.356	.840	Not Significant
		W.G	37.660	169	.223			
		Total	37.977	173				
3.	Insufficient Electronic Information Resources	B.G	.949	4	.237	1.680	.157	Not Significant
		W.G	23.878	169	.141			
		Total	24.828	173				
4.	Incompatible User Interface to the Library Website	B.G	3.574	4	.893	4.536	.002	Significant
		W.G	33.283	169	.197			
		Total	36.856	173				
5.	Power Failure	B.G	4.626	4	1.157	5.201	.001	Significant
		W.G	37.581	169	.222			
		Total	42.207	173				
6.	Others	B.G	2.756	4	.689	3.746	.006	Significant
		W.G	31.083	169	.184			
		Total	33.839	173				

Level of significant at  $p=0.05$

B.G = Between Groups

W.G = Within Groups

The summary table 6b above of One way ANOVA result of factors that hinder access to EIR revealed that academic staffs views on the factors were significant on 3 items

(i.e. Items 4, 5 & 6 at  $p=0.002$ ,  $.001$  and  $.006$  less than  $p=0.05$  respectively) out of the 6 listed factors. Three of the items (Items 1, 2 & 3 at  $p=0.058$ ,  $.840$  and  $.157$  were greater than  $p=0.05$  respectively) are not significant on the result of the analysis.

But further unplanned multiple pair-wise comparisons with Scheffe test to show how the pairs of groups of academic staffs as Graduate Assistants, Lecturers, Assistant Professors, Associate Professors and Professors differ at 0.05 or 5% level of significance was applied to the factors that hinder users' use and access to electronic information resources. The result is shown in table 6c below.

**Table 6c: Summary Post hoc Scheffe multiple comparison test on the factors that hinder academic staffs' access to electronic information resources provided by JULS.**

S/n	Factors	Status		P-value	Remarks
		(I)	(J)		
1.	Slow Downloading	GA	Le	.747	N.S
			AP	.999	N.S
			ASP	.860	N.S
			P	.805	N.S
			GA	.747	N.S
		Le	AP	.685	N.S
			ASP	.421	N.S
			P	.513	N.S
			GA	.999	N.S
			Le	.685	N.S
		AP	ASP	.944	N.S
			P	.881	N.S
			GA	.860	N.S
			Le	.421	N.S
			AP	.944	N.S
		ASP	P	.996	N.S
			GA	.805	N.S
			Le	.513	N.S
			AP	.881	N.S
			ASP	.996	N.S
2.	Lack of searching skills	GA	Le	.849	N.S
			AP	.988	N.S
			ASP	.981	N.S
			P	.999	N.S
			GA	.849	N.S
		Le	AP	.999	N.S
			ASP	1.000	N.S
			P	1.000	N.S
			GA	.988	N.S
			Le	.999	N.S
		AP	ASP	1.000	N.S
			P	1.000	N.S
			GA	.981	N.S
			Le	1.000	N.S
			AP	1.000	N.S
		ASP	P	1.000	N.S
			GA	.981	N.S
			Le	1.000	N.S
			AP	1.000	N.S
			P	1.000	N.S

S/n	Factors	Status		P-value	Remarks
		(I)	(J)		
		P	GA	.999	N.S
			Le	1.000	N.S
			AP	1.000	N.S
			ASP	1.000	N.S
3.	Insufficient Electronic Information Resources	GA	Le	.881	N.S
			AP	.996	N.S
			ASP	.381	N.S
			P	.907	N.S
		Le	GA	.881	N.S
			AP	.747	N.S
			ASP	.609	N.S
			P	.979	N.S
		AP	GA	.996	N.S
			Le	.747	N.S
			ASP	.296	N.S
			P	.843	N.S
		ASP	GA	.381	N.S
			Le	.609	N.S
			AP	.296	N.S
			P	.998	N.S
		P	GA	.907	N.S
			Le	.979	N.S
			AP	.843	N.S
			ASP	.998	N.S
4.	Incompatible User Interface to the Library Website	GA	Le	.956	N.S
			AP	.372	N.S
			ASP	.973	N.S
			P	.129	N.S
		Le	GA	.956	N.S
			AP	.049	S
			ASP	.836	N.S
			P	.185	N.S
		AP	GA	.372	N.S
			Le	.049	S
			ASP	.971	N.S
			P	.013	S
		ASP	GA	.973	N.S
			Le	.836	N.S
			AP	.971	N.S
			P	.103	N.S
		P	GA	.129	N.S
			Le	.185	N.S
			AP	.013	S
			ASP	.103	N.S
5.	Power Failure	GA	Le	.108	N.S
			AP	.786	N.S
			ASP	1.000	N.S
			P	.697	N.S
		Le	GA	.108	N.S
			AP	.007	S
			ASP	.821	N.S
			P	.989	N.S
		AP	GA	.786	N.S
			Le	.007	S
			ASP	.878	N.S
			P	.368	N.S
		ASP	GA	1.000	N.S
			Le	.821	N.S
			AP	.878	N.S
			P	.849	N.S
		P	GA	.697	N.S
			Le	.989	N.S
			AP	.368	N.S
			ASP	.849	N.S

S/n	Factors	Status		P-value	Remarks
		(I)	(J)		
6.	Others	GA	Le	.780	N.S
			AP	.630	N.S
			ASP	.859	N.S
			P	.539	N.S
			GA	.780	N.S
		Le	AP	.067	N.S
			ASP	.438	N.S
			P	.762	N.S
			GA	.630	N.S
			Le	.067	N.S
		AP	ASP	1.000	N.S
			P	.189	N.S
			GA	.859	N.S
			Le	.438	N.S
			AP	1.000	N.S
		ASP	P	.284	N.S
			GA	.539	N.S
			Le	.762	N.S
			AP	.189	N.S
			ASP	.284	N.S

Level of significant at  $p=0.05$

S =Significant

N.S = Not Significant

GA = Graduate Assistant

Le = Lecturer

AP =Assistant Professor

ASP = Associate Professor

P = Professor

I, J = Multiple Comparison of the respondents (i.e. Graduate Assistants, Lecturers, Assistant Professors, Associate Professors, Professors)

The table 6c reveals that the Graduate Assistants (GA), Lecturers (Le), Assistant Professors (AP), Associate Professors (ASP) and Professors (P) were not significant on four (4) items of the six (6) listed items on the table. The items were 1-3 and 6. The only items that appeared significant were 4 and 5. Item 4 showed significance in the pairing between lecturers and assistant professors, professors and assistant professors while item 5 showed significance in the pairing between lecturers and assistant professors only. Hence, we can reject the null hypotheses and conclude that there is significant difference in some of the factors (i.e. incompatible user interface to the library website and power failure) that hinder academic staff access to electronic information resources provided by JULS for their research work.



#### 4.3.4 Enhancement of electronic information resources utilization and academic staff research output

##### 4.3.4.1 Close-ended response by academic staff on enhancement of electronic information resources access and utilization

Electronic information resources have a perceived effect on the competence level of an individual and improve the intellectual activity necessary for research. Similarly, electronic information resources allow academic staffs to directly access the materials in digital form. Table 7a below shows EIRs use on academic staffs research output.

**Table 7a: Electronic information resources utilization on academic staff research output**

EIR use on research output	Considerably	To some extent	Not at all	Don't know	Mean	SD	Decision
Easier to find materials	81(46.6%)	78(44.8%)	10(5.7%)	5(2.9%)	2.35	.720	C
Extended the range of materials	64(36.8%)	88(50.6%)	14(8.0%)	8(4.6%)	2.20	.773	SE
Easier to keep up to date	80(46.0%)	71(40.8%)	19(10.9%)	4(2.3%)	2.30	.756	C
Improved the quality of research work	68(39.1%)	89(51.1%)	11(6.3%)	6(3.4%)	2.26	.727	SE
Improved the number of scientific publication	72(41.1%)	72(41.1%)	18(10.3%)	12(6.9%)	2.17	.876	C&SE
Inspired new ideas	78(44.8%)	81(46.6%)	5(2.9%)	10(5.7%)	2.30	.786	SE
Reduced searching printed materials in libraries	95(54.6%)	59(33.9%)	14(8.0%)	6(3.4%)	2.40	.781	C

C = considerably

SE= to some extent

As indicated in Table 7a, majority 95(54.6%) of academic staffs are of the opinion that utilization of electronic information resources had brought about various aspects of accessing material considerably, and has reduced searching printed materials in libraries, 89(51.1%) of academic staffs are of the opinion that the use of EIR improved the quality of research work to some extent, 88(50.6%) of academic staffs were of the opinion that the utilization of electronic information resources extended the range of materials to some extent, while 4(2.3%) of academic staffs were of the opinion that they do not know whether the utilization of EIR provided by JULS were easy to keep

up-to-date and 6(3.4%) of academic staffs were of the opinion that they do not know whether the use of EIR provided by JULS improved the quality of research work.

From this it is reasonable to conclude that the utilization of electronic information resources provided by JULS enhanced research output of academic staff considerably in reducing searching printed research materials in libraries, easier to find materials and easier to keep up to date.

However, table 7b below shows the summary of one way ANOVA result on the perception on utilization of EIR Provided by JULS for research output.

**Table 7b: Summary of One way ANOVA result on the perception on utilization of EIR Provided by JULS for research output.**

S/N	Measures of research output	Source of variation	Sum of squares	Degree of freedom	Mean square	F-ratio	P-value	Remarks
1.	Ease of Finding Materials	B.G	5.378	4	1.345	2.698	.033	S
		W.G	84.237	169	.498			
		<b>Total</b>	89.615	173				
2.	Extending Range of Materials	B.G	.387	4	.097	.159	.959	N.S
		W.G	102.970	169	.609			
		<b>Total</b>	103.356	173				
3.	Ease of Keeping up to Date	B.G	4.584	4	1.146	2.054	.089	N.S
		W.G	94.273	169	.558			
		<b>Total</b>	98.856	173				
4.	Improving the Quality of Research Work	B.G	.821	4	.205	.383	.820	N.S
		W.G	90.541	169	.536			
		<b>Total</b>	91.362	173				
5.	Improves the Number of Scientific Publications	B.G	3.510	4	.878	1.147	.336	N.S
		W.G	129.317	169	.765			
		<b>Total</b>	132.828	173				
6.	Inspiring New Ideas	B.G	3.476	4	.869	1.421	.229	N.S
		W.G	103.380	169	.612			
		<b>Total</b>	106.856	173				
7.	Reducing Searching Printed Materials in Libraries	B.G	6.861	4	1.715	2.935	.022	S
		W.G	98.777	169	.584			
		<b>Total</b>	105.638	173				

Level of significant at  $p=0.05$

B.G = Between Groups

W.G = Within Groups

The summary table 7b above of ANOVA result of perceived effect of utilization of electronic information resources provided by JULS on research output of academic staff revealed that Graduate Assistants' (GA), Lecturers' (Le), Assistant Professors' (AP), Associate Professors' (ASP) and Professors' views were significant on two items (i.e. ease of finding materials and reducing searching printed materials in libraries) at  $p= 0.033$  and  $.022$  being less than the level of significant at  $p=0.05$ . But it were not significant on other five items (i.e. extending range of materials, ease of keeping up to date, improving the quality of research work, improves the number of scientific publications and inspiring new ideas) at  $p=0.05$ . Hence, we reject the null hypothesis and conclude that there is significant difference in two of the measures of research output (i.e. ease of finding materials and reducing searching printed materials in libraries) that enhance academic staffs' research output as a result of utilizing electronic information resources provided by JULS.

This finding implies that JULS should work on EIR service provision giving special attention on acquainting academic staffs on how to find research materials easily and materialize its importance regarding its reduction in searching printed materials in libraries.

#### *4.3.4.2 Open-ended response by academic staff on enhancement of electronic information resources utilization*

Academic staffs were provided with an open-ended question to clearly put their opinion on enhancing the utilization of electronic information resources provided by JULS and factors that were critical on users' view. The respondents' opinions were provided as follows:

- i. That JULS should strive to subscribe more databases so as to make EIR services in the library as all rounded and full fill the information needs of all academic staffs in all disciplines.
- ii. That training on how to access electronic information resources should be provided to academic staffs continuously.
- iii. That library staffs in JULS should be equipped with adequate knowledge and skills on electronic information resources access and utilization so as to provide proper electronic information resources services to patrons and specifically to academic staffs.
- iv. That JU information and communication technology staff should be acquainted with the latest technology in making electronic information resources easily accessible to users (e.g. developing easy and interactive user interface).
- v. That library staffs in JULS should create awareness to all academic staffs and informing academic staffs regularly as new databases are subscribed by the University library systems.

#### **4.3.5 Relationship between electronic information resources utilization and research output**

The final research question in this study was on the relationship between electronic information resources utilization and research output as perceived by academic staffs in Jimma University. Table 9a presents the T-test result among the variables from research output and electronic information resources utilization by academic staffs in Jimma University.

**Table 8a: Summary of T-test result on relationship between utilization of EIR Provided by JULS and perception on research output.**

Items	Mean	Std. deviation	t	Degree of freedom	P-value (2-tailed)	Remarks
Utilization EIRs - Ease of Finding Materials	-1.351	.720	-24.753	173	.000	S
Utilization EIRs - Extending Range of Materials	-1.195	.773	-20.401	173	.000	S
Utilization EIRs - Ease of Keeping up to Date	-1.305	.756	-22.765	173	.000	S
Utilization EIRs - Improving the Quality of Research Work	-1.259	.727	-22.846	173	.000	S
Utilization EIRs - Improves the Number of Scientific Publications	-1.172	.876	-17.650	173	.000	S
Utilization EIRs - Inspiring New Ideas	-1.305	.786	-21.896	173	.000	S
Utilization EIRs - Reducing Searching Printed Materials in Libraries	-1.397	.781	-23.575	173	.000	S

Level of significance at  $p = 0.01$  (two-tailed)

S = Significant

The table 8a shows that the T-test results shows significance on each pair of the variables compared between utilization of EIRs and research output at  $p = .000$  being less than the level of significance at  $p = 0.01$ . This implies that there was significant relationship between electronic information resources utilization and the measures of research output (i.e. ease of finding materials, extending range of materials, ease of keeping up to date, improving the quality of research work, improves the number of scientific publications, inspiring new ideas and reducing searching printed materials in libraries).

The result of the analysis indicates that we reject the null hypotheses and conclude that there is significant relationship between utilization of electronic information resources (provided by JULS) and research output among academic staffs.

This implies therefore, that EIR provided by JULS helps JU academic staff in conducting their research work and getting good research output.

## **4.4 Results and discussions**

### **4.4.1 Electronic information resources utilization**

The study revealed that majority 174(76%) of academic staffs (Graduate assistants, Lecturers, Assistant professors, Associate professors and Professors) in Jimma University were found to be utilizing electronic information resources provided by JULS for their research work. This finding is in line with Haridasan and Khan (2009) which indicated that research scholars and faculty members are aware of the electronic information resources and large number of research scholars and faculty members are using these electronic information resources for their research work.

### **4.4.2 Reasons and search techniques in utilizing electronic information resources**

The other finding of the study was that academic staffs in Jimma University were positive on utilization of electronic information resources made available by JULS for their research work because of its importance in saving time and easy to use when compared to conventional (printed) sources. This is in the same vein with the study conducted in National physical laboratory of India by Kumar & Singh (2011) which indicated many scientists access and utilize electronic information resources in support of their research and development activities and many access and utilize them because electronic information resource is time saving, so that much time can be saved in their professional work. There was significant difference among academic staffs on reasons of utilization of EIR provided by JULS for research work in ease of use.

The study also indicated that academic staffs did not apply different search techniques (Boolean, weighted term, subject term and full text) in searching materials for their research from electronic information resources provided by JULS. This finding is in line with the studies conducted in the higher education libraries that show the academic staffs did not acquire the necessary skills that enable them to utilize electronic information resources for their academic activities as well as their day to day research works (Egberongbe, 2011; Kumar & Singh, 2011). There was also significant difference among academic staffs on search techniques applied in the use of EIR provided by JULS in Boolean and weighted term search techniques.

#### **4.4.3 Factors that hinder access to electronic information resources**

The study also found out that insufficient EIRs, Lack of search skills, slow downloading were the most affected factors that hinder access and use of academic staff to the electronic information resources provided by JULS for research work. This is partly in line with the finding by Igbo and Imo (2010) which indicated lack of electronic information resources and subscription irregularity to electronic journals as some of the factors inhibiting accessibility to electronic information resources. There was significant difference among academic staffs on factors that hinder access to EIR provided by JULS in incompatible user interface to the library website, power failure and other factors (i.e. lack of access points and irrelevant EIR).

#### **4.4.4 Enhancement of electronic information resources utilization and academic staffs research output**

The study investigated that the utilization of electronic information resources provided by JULS enhanced research output of academic staff considerably in reducing searching printed research materials in libraries, easier to find materials and easier to keep up to date. This finding is in line with the finding of Vakkari (2008), which states that the use of electronic information resources has improved identification, availability, and delivery of electronic information resources and led to reducing browsing in libraries, thus reducing time for accessing the literature needed the use of

digital material has extended the range of literature available, made it easier to keep up-to-date, and inspired new ideas, and finally improved the quality of scholarly work. There was significant difference on the enhancement of research output resulted from EIR use in ease of finding research materials and reducing searching printed materials libraries.

#### **4.4.5 Relationship between Electronic Information Resources Utilization and Research output**

The finding indicated that there was significant relationship between utilization of electronic information resources (provided by JULS) and its perceived effect on research output among academic staff. Hence electronic information resources utilization has significant effect on the research output of JU academic staffs. This finding in line with Barjak (2006), which states that frequent utilization of the Internet by scholars for information retrieval from electronic journals and full-text databases correlated positively with the number of refereed journal articles published.



## **CHAPTER FIVE**

### **5.0 SUMMARY, CONCLUSION AND RECOMMENDATION**

#### **5.1 Introduction**

This chapter presents the short review of summary of the study summary of the findings, conclusions and recommendations based on the results of the research findings. The chapter also advanced suggestions for further research.

#### **5.2 Summary of the Study**

The importance of an investigation is the provision of evidences and information that will lead the decision makers and professionals on how to overcome problems. The study tried to do the investigation within its scope. It focused on the effect of electronic information resources utilization on research output within University library systems' electronic and information resources service provision. The assessment of electronic information resources utilization is vital both for the understanding of the current situation of libraries in their service provision regarding EIRs and for the formulation of future directions in improving their EIRs service provision. The planning of University library systems' electronic information resources service provision should take in to consideration the users' information needs and should work towards its goals. One of the major goals of University library system is to provide up-to-date information whether in print or in electronic format to support research and development activities carried out by their users. This is the reason why this study assessed academic staffs' (Graduate assistants, Lecturers, Assistant professors, Associate professors and Professors) perception on the effect of EIRs utilization on research output in Jimma University in Ethiopia.

As literature indicated, Jimma University Library System (JULS) is established as a University Library in 1999, commissioned to promote the Instructional, Research, and

Public Service goals of the entire University Community through the expert provision of information. JULS is yet to have any recorded assessment that shows the level of use by academic staff on the electronic information utilization and what role it plays on its research output. This study, therefore, is being conducted to assess the extent of utilization of electronic information resources and its perceived effect on the research output of academic staff in Jimma University.

The research method adopted for the study was the survey research. The instrument employed for data collection was questionnaire and consisted of four sections. These sections include: demographic information about respondents, electronic information resources utilization, factors that hinder access to electronic information resources and enhancement of electronic information resources utilization and academic staffs' research output. A clustered random sampling technique was used to select six colleges and one institute that were involved in the study. The population of the study comprised Jimma University academic staffs (Graduate assistants, Lecturers, Assistant professors, Associate professors and Professors) engaged in their teaching and research work during this study.

The study used research questions and hypotheses stated on users' extent of utilization of electronic information resources, reasons and search techniques in utilizing electronic information resources, factors that hinder access to electronic information resources, effect of electronic information resources utilization on research output and the relationship between utilization of electronic information resources and research output.

Descriptive statistics, standard t-test, one way ANOVA and post hoc Scheffe's Difference multiple comparison statistics were the main statistical tools used for this study. The 229(89.1%) questionnaires returned by the five categories respondents that include: graduate assistants, lecturers, assistant professors, associate professors and professors were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.

Both descriptive and inferential statistics were used in the analysis. Inferential statistics were used one after the other to test each stated hypotheses. The one way ANOVA was used to test the difference among academic staff on the utilization of electronic information resources provided by JULS for their research work, difference in reasons and search techniques in utilizing electronic information resources, difference in the factors that hinder access to electronic information resources among academic staff and difference among academic staffs' perception on research output on utilization of electronic information resources provided by JULS for their research work. The T-test used to test relationship between electronic information resources utilization and perception towards research output among academic staff. After using the ANOVA test to test if there was significant difference between the groups, Scheffe's difference test was used to identify what the groups' observed differences were attributed to.

### **5.3 Summary of Findings**

Based on the data collected for this specific study, on the effect of electronic information resources utilization on research output of academic staff in Jimma University in Ethiopia, it was found that majority of academic staffs (graduate assistants, lecturers, assistant professors, associate professors and professors) 174(76%) were utilizing electronic information resources, while associate professors and professors distinguished themselves as complete users of EIRs provided by JULS for their research work. The study found out that there was no significant difference among academic staffs on their electronic information resources utilization provided by JULS for research work.

The other finding of the study was academic staffs in Jimma University were positive on utilization of electronic information resources made available by JULS for their research work because of its importance in saving time and easy to use when compared to conventional (printed) sources. There was significant difference among academic staffs on reasons of utilizing EIRs provided by JULS for research work in ease of use.

On the other hand, the academic staffs were generally negative on the search techniques applied by academic staff in searching EIRs. There was also significant difference among academic staffs on search techniques applied in accessing EIRs provided by JULS using Boolean and weighted term search techniques.

The study also found out that insufficient EIRs, Lack of search skills, slow downloading were the most affected factors that hinder access and use of academic staff to the electronic information resources provided by JULS for research work. There was significant difference among academic staffs on factors that hinder the use and access to EIR provided by JULS in incompatible user interface to the library website, power failure and other factors (i.e. lack of access points and irrelevant EIR).

The study investigated that the utilization of electronic information resources provided by JULS enhanced research output of academic staffs considerably in reducing searching printed research materials in libraries, easier to find materials and easier to keep up to date. There was significant difference on the enhancement of research output resulted from EIRs utilization in ease of finding research materials and reducing searching printed materials libraries.

The finding indicated that there was significant relationship between utilization electronic information resources (provided by JULS) and its perceived effect on research output among academic staff. Hence, electronic information resources utilization has significant effect on the research output of JU academic staffs.

## 5.4 Conclusions

From the findings of this study, the researcher first conclude that majority of academic staffs (graduate assistants, lecturers, assistant professors, associate professors and professors) were utilizing electronic information resources, while associate professors and professors distinguished themselves as complete users of EIRs provided by JULS for their research work. We therefore conclude that academic staffs are well aware of EIR provided by JULS and interested to use these resources for their research work.

The other finding of the study was academic staffs in Jimma University were positive on utilization of electronic information resources made available by JULS for their research work because of its importance in saving time and easy to use when compared to conventional (printed) sources. From this it can be concluded that academic staffs were relatively saving their time and energy in searching reference materials from EIRs provided by JULS when compared with conventional (printed) sources for their research work. There was significant difference among academic staffs on reasons of utilization of EIR provided by JULS for research work in ease of use.

The study found out that academic staffs were generally negative on applying search techniques in searching EIRs. From the finding we can conclude that academic staffs did not acquire the necessary skills in using search techniques that enable them to retrieve reference materials from electronic information resources provided by JULS for their research work. There was also significant difference among academic staffs on search techniques applied in the utilization of EIR provided by JULS in Boolean and weighted term search techniques.

The study also revealed that insufficient EIRs, Lack of search skills, slow downloading, incompatible user interface, power failure and others like lack of access points and irrelevance of these electronic information resources for their specific field were the factors that hinder access of academic staffs to the electronic information resources provided by JULS for research work. From this finding we can conclude that there

were access hurdles to EIRs provided by JULS that inhibit academic staffs from using these resources for their research work. There was significant difference among academic staffs on factors that hinder access to EIR provided by JULS in incompatible user interface to the library website, power failure and other factors (i.e. lack of access points and irrelevant EIR).

The study investigated that majority 95(54.6%) of academic staffs were of the opinion that utilization of electronic information resources had brought about various aspects of accessing material considerably, and has reduced searching printed materials in libraries, 89(51.1%) of academic staffs were of the opinion that utilization of EIR improved the quality of research work to some extent, 88(50.6%) of academic staffs were of the opinion that utilization of electronic information resources extended the range of materials to some extent. From this it is reasonable to conclude that utilization of electronic information resources provided by JULS enhanced research output of academic staffs considerably in reducing searching printed research materials in libraries, easier to find materials and easier to keep up to date. The study investigated that there was significant difference on the enhancement of research output resulted from EIRs utilization in ease of finding research materials and reducing searching printed materials libraries.

The study found out that there was significant relationship between electronic information resources utilization and the measures of research output (i.e. ease of finding materials, extending range of materials, ease of keeping up to date, improving the quality of research work, improves the number of scientific publications, inspiring new ideas and reducing searching printed materials in libraries) and hence research output. The researcher therefore concludes that EIRs provided by JULS helps JU academic staffs in conducting their research work and getting good research output.

## **5.5 Recommendations**

Based on the findings, conclusions emanating from this study, the researcher offers the following recommendations and suggestions.

Even though academic staff were positive in the utilization of EIRs for their research work and there was significant relationship between EIRs utilization and academic staffs' research output, to further enhance the research output of academic staffs in JU:

1. JULS should provide information literacy training to equip academic staffs with the necessary search skills that is vital to search reference materials for their research work from the available electronic information resources.
2. JULS should assess academic staffs' information needs in order to identify the lacking reference materials for their research work.
3. JULS should work on subscription of additional electronic information resources focusing on the information needs of the academic staffs regarding their research work.
4. Efforts should be made by JULS in enhancing the downloading speed of the network connections so that academic staffs can download materials with less time.

### **5.5.1 Suggestion for further study**

From the findings and conclusions above, the following suggestions are made for further investigations:

1. Even though large number of research materials are published in electronic form this days, the study established 55(24.0%) of academic staffs in JU were not utilizing electronic information resources provided by JULS for their

research work. A study should be carried out to identify the reason why they do not utilize these resources for their research work.

2. Finding from this thesis indicated that JULS should work towards equipping academic staffs with the necessary search skills in providing electronic information resource services. This and other EIRs related service provisions need information professionals' support. Hence a study should be carried out to assess as JULS has placed the right person in its library systems to give proper electronic information resources service.



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## Appendix A

Format and questioner conducted in Jimma University only for Academic staffs

**JIMMA UNIVERSITY  
COLLEGE OF NATURAL SCIENCE  
POST GRADUATE PROGRAM  
Questionnaire**

Academic Year: - 2013/2005 E.C.

Study Site- Jimma Town, Jimma University

*To be filled by:* - Jimma University Academic Staff

### Introduction

The aim of this questionnaire is to assess the role of electronic information resources utilization on the research output of academic staffs in Jimma University. In doing so, the researcher is expected to identify problems that crucially affect the research outputs of Jimma University academic staffs regarding the utilization of electronic information resources in their research activities which are freely accessible through Jimma University library systems (JULS). So, to achieve the goal of study, getting genuine information on the current situation of the academic staffs' electronic information resources utilization in their research activities and factors that hinder the scientific research publication 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 purpose of this study. No part of the information will be given for third party or will be used for other purposes.

### General Information about Respondents

1. Gender  
Male   
Female
  
2. level of academic staffs  
Graduate Assistant   
Lecturer   
Assistant Professor   
Associate Professor   
Professor

### I. Electronic Information Resources Utilization

3. Do you utilize electronic information resources provided by JULS for your research activities?

Yes

No

## II. Reasons for utilizing EIR and Search Techniques

4. Why you utilize Electronic information Resources rather than print in your research work? *(Mark all that apply)*

Time Saving

Easy To Use

More Informative

Less Expensive

More useful

5. Do you know how to use search techniques in searching literature for your research work from EIR provided by JULS?

Yes  No

6. Do you use Boolean search technique in searching literature for your research work from EIR provided by JULS?

Yes  No

7. Do you use weighted term search technique in searching literature for your research work from EIR provided by JULS?

Yes  No

8. Do you use subject term (truncated) search technique in searching literature for your research work from EIR provided by JULS?

Yes  No

9. Do use full text search technique in searching literature for your research work from EIR provided by JULS?

Yes  No

## III. Factors that Hinder Access to Electronic Information Resources

10. Which of the following factor(s) do you think hinder you from accessing electronic information resources provided by JULS for your research work? *(Mark all that apply)*

Slow downloading

Lack of searching skills

In-sufficient electronic resources

Incompatible user interface to library

website

power failure

Specify if others \_\_\_\_\_

## IV. Enhancement of electronic information resources utilization and academic staffs' research output

How has the utilization of electronic resources enhanced your research work?  
*(Mark all that apply)*

<b>Dimensions of work</b>	<b>Considerably</b>	<b>To some extent</b>	<b>Not at all</b>	<b>Don't know</b>
Easier to find material				
Extended the range of material				
Easier to keep up to date				
Improved the quality of work				
Improved the number of scientific publication				
Inspired new ideas				
Reduced searching printed materials in libraries				

11. What should be done to enhance the academic staffs' utilization of electronic information resources?

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***Thank You!***

# Appendix B

## Letter of permission from department of Information Science to Colleges/Institute in JU

ቁጥር IS017/505/2005

ቀን 05/09/2005

ከ ኢንፎርሜሽን ሳይንስ ት/ክፍል  
ጅማ ዩኒቨርሲቲ  
ጅማ

ለተፈጥሮ ማይንስ ኮሌጅ  
ለሶሻል ሳይንስና ሕግ ኮሌጅ  
ለቴክኖሎጂ ኢንስቲትዩት  
ለግብርናና እንስሳት ህክምና ኮሌጅ  
ለቢዝነስና ኢኮኖሚክስ ኮሌጅ  
ለህብረተሰብ ጤናና ህክምና ሳይንስ ኮሌጅ  
ጅማ ዩኒቨርሲቲ  
ጅማ

### ጉዳዩ:- ትብብር ስለመጠየቅ::

የኢንፎርሜሽን ሳይንስ ት/ት ክፍል ተማሪ የድህረ ምረቃ ተማሪ ታሪክ ገርባ የመመሪቱያ የጥናት ዕህፋቸው “Electronic Information Resources use and Research output case of JU” በተሰኘ ርዕስ ላይ ዳታ ለመሰብሰብ ድጋፍ እንዲሟራልጉ ገልፀው የትብብር ደብዳቤ እንዲጻፉላቸው ባመለከቱት መሰረት የኢንፎርሜሽን ሳይንስ ት/ክፍል መልካም ቢሮአቸው ተገቢውን ትብብር እንዲያደርግላቸው እንጠይቃለን። ለማደራገግቸው ትብብር ሁሉ ከወዲሁ እናመስግናለን።



ከሰላምታ ጋር

*[Handwritten Signature]*  
ይታቸው ባይሳ  
የኢንፎርሜሽን ሳይንስ ትምህርት  
ክፍል ርዕሰ

Jimma University, College of Natural Sciences, Department of Information Science/  
ጅማ ዩኒቨርሲቲ ፣ የተፈጥሮ ሳይንስ ኮሌጅ ፣ ኢንፎርሜሽን ሳይንስ ት/ክፍል/  
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