JIMMA UNIVERSITY
COLLEGE OF NATURAL SCIENCES
DEPARTMENT OF INFORMATION SCIENCE

Users need assessment on web based integrated library system services in selected Ethiopian academic libraries

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By

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Users need assessment on web based integrated library system services in selected Ethiopian academic libraries

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ACRONYMS

ALE: - Academic library of Ethiopia

DDUL: Dire Dawa University Library

EMOE: Ethiopian Ministry of Education

HEI: Higher Education Institute

HUL: Haremaya University Library

ILS: Integrated Library System

IMLS: Institute of Museum and Library Services

IS: Information Sciences

ISO: International Standard Organization

JUL: Jimma University Library

LAN: Local Area Network

MARC: Machine Readable Catalogue

OPAC: Online Public Access Catalogue

RDBMS: Relational Database Management System

ABSTRACT

The study entitled "Users need assessment on web based integrated library system services in Ethiopian academic libraries "has focused on assessing the need of the web based resources and services of libraries through integrated system. The study is confined to three public university of Ethiopia. Survey methods with questionnaires were designed to collect information from academic staff, and students. The stratified sampling was used to select sample from the universe of study. Questionnaire was distributed among 420 users 76 for Dire Dawa University, 160 for Haremaya University and 185 for Jimma University. From all selected users 360 users are surveyed responded. Percentage calculations have been used to analyze the responses. Analysis of the responses received from students and academic staff revealed that users were visiting website frequently to meet their information needs for electronic resources but the users access the system and the service from other different place in the university has maximum with 81% due to this reason most of the users use different search method from web site because of the service are does not have any guide and help for the users how to search and get the service and system the response also shows 36% and 55.6% of the users disagree and naturally agree. The Interest of users on resources provided are highly on different electronics resources with 63% and on existing resources and system not have adequate resources and searching quality are not as users need. The users need on the service of the system limited from the result most of the user with 45.1% need convenient access time and place and they need on different services in the system Access to other university resources, Supplemental reading sites, Integration of available digital library in Ethiopia, Accessing the resource from one site, From the result users are regularly using of website, familiarized with the e-resource and web based services as well as the other reasons mentioned above indicate there is a strong need on web based integrated library system and services to implement the system in Ethiopian University academic libraries.

CHAPTER ONE

1. INTRODUCTION

1.1. Introduction

The application of computer and telecommunications technologies has changed the ways in which libraries interact with their communities and users. These technologies have enabled greater access for users to cultural, historic, scientific, and artistic collections and resources and have advanced educational opportunities for students across the globe (IMLS, October 2003) . And also the rapid growth in technology has changed the traditional library into automated, electronic, virtual and digital library. Moreover, using of technology helps to minimize the need of more manpower, save time which sometimes may save cost; In addition, it adds value and helps to provide quality services.

It is the wish and desire of a modern library to apply and enjoy the benefits of emerging technologies in the library routines works and future developments. Developments in emerging technologies have had a tremendous impact on all kinds of libraries activities specifically, has implication and information resource centers over the last two and half decades in general (Ulah, 2011)

Libraries are mainly entrusted with a host of predetermined tasks like acquiring, organizing, preserving, retrieving and disseminating information to the users. Right from ancient times to the present Internet era, the primary objective of library has always been this. However, the way this purpose has been achieved has drastically changed and a library plays a pivotal role in ensuring the success of higher degree of research. The important activities of university libraries include the collection development, reference service circulation, document delivery, user education, and access to electronic resources etc. (Karisiddappa & Cholin, 2006). University libraries are expected to provide cost effective and reliable access to information using the state-of-the art information technology tools.

Information technology has influenced the very nature of business and management of libraries. They are undergoing significant changes today not only in outlook but also in function, services, methods and techniques for collection development, processing and

dissemination of information (Singh & Krishna, 2004). The conventional set up of brick and mortar libraries that store information within a constrained physical space have given way to data centers that integrate data sources around the globe by way of networking. Libraries have not yet explored their full potential to the full (Miao, 2001). With the advancement in technology and its direct application to libraries, business and management libraries are becoming lean and agile libraries that streamline information supply. The pervasive nature of the Internet, coupled with platform independent database connectivity is turning library websites more and more effective.

Information technology has revolutionized the information handling activities in the academic libraries during the past few years. The Information Society demands that all the relevant technologies; that are involved in information processing, consolidation, repackaging and retrieval be merged so as to evolve an integrated system; capable of providing diversified services. In this direction the automation of individual university libraries is a first step, rather a pre-requisite for the development of such an integrated university library and information system. The promising trend in the development of information services with effective networking of these libraries will facilitate the optimum utilization of information resources.

Ethiopian universities create the largest higher education systems in our country certainly there are 33 universities / institutions, 574,693 students and 21,899 academics staff (EMOE, 2013). This vast academic community needs a wide variety up to date information services in the ever changing academic environment.

The electronic resources, which are available in libraries today is an outcome of the advances in both computer technologies, with powerful computers the information storage and delivery mechanisms, such as CD-ROMs and user-friendly interfaces (Ping & Moira, 2013).

Most of the current library implements Online Public Access Catalogues (OPAC's) and it replaced card catalogues, offering enhanced search capabilities for accessing the local collection and often expand coverage to include the holdings of other area or regional libraries. Many libraries also provide a web interface to their library and information system. The library and information system with a web interface often includes direct links to electronic journals, books and Internet resources.

Access to electronic journals and full-text data is another important component of an integrated library system providing access to full-text resources in an electronic library setting. The association's or integration models help to provide better access to scholarly literature. The access to electronic resources enable the researchers what they want, when they want it, where they want it. Full-text electronic resources offer access to resources unrestricted by either location or library hours (Dilroshan, 1998).

Based on the advantage and the current status and situation of our academic environment and resources need the study is asses' user need on web based integrate library system services in on the library website or the university website for identifying the need and for proposing as well as to generate data or results for further work and research will done on topic related to integrated library system and its services.

1.2. Statement of the problem:

The technological innovation, lot of changes occurred in day today activities and services of human being. Libraries are not an exception. Strong cut in funding, inflation of currency, user expectations, initiatives from government and other organizations are various reasons for libraries to embark on available information technology (Kanamadi & Kumbar , 2006). These technological improvements lead to library automation, library cooperation, library networking, resource sharing, use of Internet in the libraries, electronic access to scholarly journals, access to other library catalogues through union catalogues etc.

Most of the libraries have traditionally tried to own resources as much as possible, because owning an item provides faster access to patrons than waiting to borrow or purchase on demand. Due to the need of the users and types information and resources that are available in the library digital resources and services most university libraries are not satisfy user needs within their resources with exponential rise in information. Even if many libraries provide a web interface to their library and information system and adopt library and information system with their web interface that have direct links to access electronic journals, books and Internet resources but the system does not support and integrate to solve user information need due to its search the resources from its own storage and sources.

Libraries are unable to continue subscription to many publications and other resources

mostly due to price escalation and high foreign exchange rates, skilled human man power, lack of standards and guidelines for library services.

The role of university libraries on information transfer in higher education has raised the value of research in integrated library system through information sciences field. It is also a researchable point which needs to find out the need, show the gap between the existing system, why the underutilization of libraries still exists and how we can tackle the problem. Therefore conducting research on this area in different libraries may provide with a spotlight to address the issue. Accordingly, the study raised the following basic questions:

1.3. Research questions

1. What are the services mostly needed by Ethiopian HEIs users on integrated library system?

2. What are the specific skills required to access integrated library services from Ethiopian HEIs users?

3. What challenges do the users face in accessing the resources provided by the integrated library system?

4. What areas of integrated library system services need improvement in line with the needs of the users?

1.4. Objective of the study

1.4.1. General Objective

To assess the users need on web based Integrated Library Systems (ILS) services in selected Ethiopian academic libraries.

1.4.2. The Specific objectives

The specific objectives of the study were

- To identify the most preferable services provided by the ILS to the users in HEIs library systems
- To identify the particular skills needed for users in accessing the resources provided by the ILS.

- Identify the gaps on users to use the integrated library system and to point out areas for improvement.
- To investigate the barriers faced by users in accessing the resources.

1.5. Scope and Limitation of Research

The scope of the study is limited on academic libraries of Ethiopia to study the user need the necessity of the integrated library system that have website and apply library automation system for the library service.

- The Present Study considers the public universities in Ethiopia.
- The study was limited to regular students and Academic of the selected university.

1.6. Significance of the study

Using library technology in Ethiopia is at its infant stage but gradually developing. Thus, sufficient studies have not yet been done on Ethiopian academic libraries. It is widely accepted that using library integrated system is important for teaching-learning and research activities of any country particularly in the academic libraries as a whole. Using Library integrated system transforms libraries from traditional way of service provision in to modern type of services, which enables libraries to create: automated library system; which includes Machine Readable Catalogue (MARC) System, electronic loan system, Online Public Access Catalogue (OPAC), electronic acquisition system. Moreover, library technology helps to create Digital library system that enables users to use electronic resources online and it makes library inventory very easy and less time taking. In addition, it enables to integrate WEB to the library. In general using integrated system in library helps to create virtual library system.

On the users side, it saves their time and cost. On the library side, it minimizes time, cost and manpower. Moreover, it plays a vital role to provide quality services and adds value to the system and helps to attract library users and important for on line consortia creation.

Thus, the Study is significant for:-

- Clearly shows the need of user on the integrated library system and service.

- For decision making to establishment of the system throughout academic libraries of Ethiopia.
- Reference for those who want to undertake further study in relation to this topic.
- Recommendation can be used by concerned officials to alleviate the need identified.
- In addition, the research may serve as an eye-opener and a pointer towards further study in the area.

1.7. Organization of the thesis

The study is organized in 5 chapters. The body of the report is organized as detailed below.

- The first chapter constitutes "Introduction" which contains the definition of the term, statement of the research problem, title of the study, operational definition of key terms, objectives, scope and limitations, significance of the study and organization of the report.
- The literature, which are relevant to the study, are presented with six headings such as integrating automation system, Web based library system, Automation, Types of Integrated Library Systems, Integrated Library System and Components of an Integrated Library and Information System, as the second chapter under the heading "Review of related literature".
- The data, sample and methodology used for the study is presented in chapter three. Three university libraries in Ethiopia under study with respect to the student and academic staff with gender, qualification, place of respondents is provided in chapter three as a background to the field of study.
- Analysis of the questionnaire to identify the need and services that can be useful for the users by the academics library in selected university. And to assess the integration of information system and services of the university libraries of Ethiopia with respect to the users' point of view in terms of use pattern, awareness, the quality of service and user need attitude is presented as chapter four.

- Chapter five is devoted to the conclusion, recommendation and areas for further study.

The following appendices are also provided at the end.

- Appendix I: Questioner Cover Latter
- Appendix II: Questionnaire for the users of the university libraries
- Bibliography

CHAPTER TWO

2. Literature Review

2.1. Introduction

In the last decades of the 20th century, remarkable developments in the computer and communication sectors, among other things, place substantial changes in the way people access information (Rao & Babu, 2001). Describing the situation Kumar stated as follows:

> *The abode of knowledge is in transition mode from repositories to open access, dramatic and drastic changes in acquisition, process, storage and dissemination of information, harnessing and apt application of versatile technologies, gap between user needs and services rendered and from phobia of ICT developments to justify the inevitable changes required in e-environment for sustainability and future life* (2009, p. 106).

In general, the environment in which librarians work is changing in terms of greater access to a range of information, increased speed in acquiring information, greater complexity in locating, analyzing and linking information, constantly changing technology and adaptation (Rao & Babu, 2001). This in turn has opened up new possibilities in areas such as digital libraries, virtual libraries, scientific information retrieval and dissemination (Kumar, 2009) which significantly contributes towards the change in the roles and functions of libraries (Rao & Babu, 2001). Consequently, many libraries all over the world have been digitalizing not only their recent publications but also ancient and historical documents (Kumar, 2009).

The development of WEB with all its powerful attributes, has pushed the frontiers of the roles and functions of the traditional libraries out of their traditional physical buildings within which their services were confined. Due to the introductions of the web and internet, libraries have been significantly aspiring to transform their ability to provide resources to those users who may never visit their physical building but use resources intensively in their own homes or work places (Kumar, 2009) (Rao & Babu, 2001). Consequently, the design and implementation of ever more sophisticated computer systems to accomplish tasks originally done by hand in libraries begun in the 1960s with the development of the machine-readable catalog record (MARC) (Reitz, 2006). The development of libraries in this regard could be discussed from the integrated library system perspective, which this paper tries to address in detail.

2.2. Integrated Library System (ILS): Concept and Meaning

ILS has been defined by scholars of the field in different ways of expressions. The change in the concept and definitions of ILS could be attributed to the changing face of technology (Sani, 2006). Müller, (2011) for example defined ILS as "multifunction, adaptable software applications that allow libraries to manage, catalog and circulate their materials to patrons" (p. 58). Saffady (2000) on the other hand offers the following definition of ILS: it is "an interrelated group of computer programs that automates multiple library operations". Cibbarelli (1999) refers to the provision of integrated online access to the library catalogue and to cataloguing, circulation, acquisitions and serials management functions. Based on the above definitions, ILS could be understood as an automation of multiple library services such as cataloguing, circulation, acquisitions and serials management through the use of computer programs and or software's to reach out the needs of users. It is obvious that, in today's globalized world, there is a tremendous explosion of knowledge and information. Libraries can only survive if they are able to meet even more challenges and opportunities to serve students, faculty, staff, scholars and other users, all with much expectations and many more demands triggered by the growth of emerging and cutting edge technologies in academic learning environments (Kumar, 2009)

2.3. The How of ILS

As an overall framework, Borgman (1997), suggested that, ILS or automation of libraries involves an identification of three stages. In the first place, it needs an improvement in the efficiency of internal operations, through improving internal work flow and sharing catalogue data. Then providing access to local library resources, through the provision of OPACs, through retrospective conversion of card catalogues and in turn the provision of access to resources outside the library. Besides, library systems development has now reached its further stage of ensuring the interoperability of systems with a related tendency towards modularization and fragmentation (Borgman, 1997).

According to Borgman (1997), the provision of access to resources outside the library involves enhanced facilities for identifying, locating and obtaining documents; bibliographic data exchange, and integrating local collections with other types of information resources.

ILS can be divided in to two based on the size of the libraries they meant to serve. Though there are no absolute divisions in this regard, two basic types of ILS are identified (Saffady, 2000). These are; those systems intended for larger academic or public libraries, and those intended for smaller libraries, such as school or special libraries.

2.4. Characteristics and Trends of ILS

2.4.1. Characteristics of ILS

Integration: ILS is a system that aims at providing an integrated library management tool covering all main functions in a library such as acquisitions, bibliographic databases management, users management, loans management, serials control, end user searching on local and external bibliographic databases and library portal. According to Akeroyd (1998), ILS also provides full support for hybrid libraries (i.e. integrate multiple systems both of bibliographic and full text information). ILS, moreover, integrates the library system with knowledge management systems

Modular Architecture: ILS in general is automation system in which the various applications share one bibliographic database. Each system comes with a set of core modules as well as additional modules which can be added on if necessary (or affordable). A trend in modern library systems towards a modular architecture based on software components and well-defined application programming interfaces (APIs); this allows much faster upgrading of software. This is relevant to the open source software movement. One would expect that adoption of such industry standards would have facilitated the inter-operation of modules from different library systems.

Besides, it is now typical for ILS vendors to provide systems that: use multi-tiered client/server architecture and TCP/IP networking protocols; have Web-based OPACs; employ graphical interfaces for library maintenance functions (sometimes a Web interface is available throughout a system); support UNICODE, hence the use of non-Western characters; have an object-oriented architecture; are built on industry-standard relational database management systems (RDBMS); are Z39.50 compliant (client and server); support the ILL protocol (ISO 10160/61); are EDI compatible (Saffady, 2000).

2.4.2. Trends in ILS

The Library and Information Technology Association (LITA) "Top Tech Trends" web pages provide a useful barometer of expert opinion over the last few years on overall trends in library automation. Among the trends identified by the LITA and other commentators are the following:

1) The impact of computer industry developments and standards (technical and metadata), in particular Z39.50, XML, Java, and Web services
2) The use of customization and personalization technologies; the emergence of partnerships between integrated library system vendors and digital content providers
3) Integration of many aspects of information service provision; between libraries, museums and archives (particular regarding the development of digital collections);

between library and computing services in universities; between special libraries and other corporate information systems within their host organizations

4) A move to enhance the scope and content of the library OPAC; to use it as a tool for integrating access to information resources; the requirement to support resource sharing and document delivery functions
5) The open source software movement
6) The advent of the Application Service Provider model for outsourcing of services
7) The move to wireless applications.

2.5. Advantages of ILS

The advantages of ILS, among other things, are related to its automation process. The chief advantages of ILS in terms of its automation are well known and include streamlined procedures and work flows, customized management and information system, sounder evaluation and stricter auditing. It gives library users enhanced access to available study materials. That beautiful buildings, well trained staff and modern information storage and retrieval system can best be appreciated, if excellent services are given to users. This can be achieved faster with automated process. Finally, library automation is the process of performing all information operations/ activities in library with the help of computers and related information technologies. Specifically, ILSs have numerous advantages both for staff and students. Douglas identified the following benefits for both the staff and the students:

2.5.1. Faculty Benefits

The faculty using these tools reports many benefits: versatile courseware, time for active learning, online courses that can mirror classwork, problem solving activities, and collaboration. These tools vary in ease of use and make it possible for faculty to create meaningful courses that range from the very basic to the highly interactive, from web enhanced to distance education (Douglas, 2001).

2.5.2. Student Benefits

Student benefits are numerous. Web-based and web-enhanced learning provides a consistent look and feel to course information and resources; provides anytime, anyplace, any pace instruction (most beneficial to non-traditional students); allows students to continue the conversation beyond the traditional classroom's constraints of time and space through collaborative tools such as discussion forums and virtual chats. Students now have the ability to begin the process of becoming lifelong learners (Douglas, 2001)

2.6. Types of Integrated Library Systems

2.6.1. Turnkey:

A turnkey implementation refers to purchasing from a single vendor an integrated library system that includes both the software and the hardware. The server(s) may arrive preinstalled with the software or the vendor's staff will install the software on-site. In addition, the vendor will install the server(s) for the library and connect to the network. It is a hardware-based system referred to as client-server architecture (Webber & Peters, 2010).

2.6.2. Stand-Alone Installation:

Stand-alone installations describe systems in which the hardware and software are purchased separately and the system administrator or library staff installs the client-server software him/herself (Webber & Peters, 2010). Managing a stand-along ILS requires attention to issues as varied as:

- Regular backups of patron and bibliographic data.
- Maintaining the ILS server and database.
- Creating and running reports.
- Technical support for ILS users.
- Customizing the display of the public-access catalog.
- Managing access to and setting up security for staff modules.
- Installing client software on staff workstations.
- Serving as the liaison between the library and the ILS vendor.
- Keeping current with new versions and features and coordinating any needed software upgrades.
- Testing connections between the ILS and any linked external databases.
- Setting up policies in conjunction with other library staff.
- Implementing new or additional modules.

2.6.3. Hosted system:

In this type of integrated library system, the vendor hosts the library's ILS software, bibliographic records, patron records, and sometimes the library's Web site on its server farms (Webber & Peters, 2010).

2.6.4. Software-as-a-service (SaaS):

SaaS refers to a subscription service for Web-based software. Unlike a hosted system, the library does not purchase the ILS software (Webber & Peters, 2010).

2.6.5. Open-source software systems:

Open-source software (OSS) is software in which a program's source code is available for individuals to use, copy, modify, and redistribute. This is opposed to closed software in which the program's source code is not publicly available. Most integrated library system software is closed. Examples of well-known open-source software are the Firefox Web browser, Linux operating system, Koha, and Evergreen integrated library systems (Webber & Peters, 2010).

2.7. Components of an Integrated Library and Information System

(Karisiddappa & Cholin, 2006) The old concept of library as a store house of knowledge are giving way to concepts based on development of 'Intermediary' roles in hybrid environment in which the resources are either traditional or in electronic formats. Librarians will need to be very clear about the purposes that their libraries serve, and will need to re-design the range of services they offer with those purposes in mind. All academic libraries virtually depend on the IT systems for their basic operations such as acquisitions, cataloguing, circulation, serials control etc. The development of IT based systems by organizations with which the libraries deal and within the institution itself has meant that much closer attention has to be paid to the integration of the library's system with others. The functions that are required to provide effective delivery of information requirements need to be integrated. The integrated university library and information system can provide one-stop information services using the state of the art information technology tools. The system designed to serve as integrated university library and information system is expected to cover all the aspects required so that the integrated system can support technologies such as Internet, electronic publications etc to provide integrated services.

(Karisiddappa & Cholin, 2006) In the context of new millennium, a university's position should be advanced as a leader among the colleges and universities in using the information technology and library services in providing an enriched learning environment. There is a desperate need for a university to make information technology and library services a pervasive and transparent part of the lives of students, faculty and staff. Those resources are transparent when information, applications and services are available without any delay or limitation of hardware/ software etc. Users must experience information resources as seamlessly integrated into their activities. The integrated university library and information system can provide pervasive access to information

resources; to have a greater return with the use of computer and communication tools to return meaningful results for the benefit of research and academic community.

This model has to be developed with the following few objectives (Karisiddappa & Cholin, 2006)

1) Automate all functions and maintain comprehensive automated library system.
2) Campus networking for connecting all the departments with library and Maintain LAN/Campus LAN / and a wide area network.
3) Maintain contracts with two Internet Service Providers and regularly evaluate performance.
4) Seek to conform to all relevant standards.
5) Create all library records in Machine Readable form using standards.
6) Provide online public catalogue access to within & to campus users and provide access to other library catalogues
7) Provide one or more “electronic access centers” in each library.
8) Maintain a Web site of its Own
9) Negotiate for online reference services.
10) Provide Document Delivery Service including electronic document delivery
11) Upgrade skills of the staff by training and orientation time to time on implementation of latest IT tools.
12) Designate a full-time systems manager.
13) Phase in implementation over a period.

2.8. Web based library system

2.8.1. Benefits of Using the WEB in Academic Libraries

With the preceding litany of problems with using the web, one might wonder whether the frustration and expense of such a resource can be justified. Looking now at the potential of the web with its superior timeliness and currency, interactivity, multimedia and hypertext capabilities, flexibility, and wealth of information, librarians can ill afford to ignore this resource.

2.8.2. Integrating the WEB in to the Library

Despite the mystique of "virtual libraries," libraries as we know them -- with bricks and books -- will be with us for years to come. At the same time the technology of the World Wide Web makes the resources of the Internet more accessible than ever before. The question is not the library or the Internet, but the library and the Internet. Ultimately librarians will need to strike a balance between traditional and virtual resources, "playing to the strengths of each format, one supporting the other and complementing the other as needed and appropriate." (LaGuardia, 1995).

The use of the web by libraries poses fundamental dilemmas. Whether used directly by the library's clientele, or by librarians in the course of providing information services to users, librarians must apply the traditional values of the profession to minimize the hazards and maximize the benefits of this powerful resource. To accomplish this, librarians need to gain an understanding of the types of resources on the web that might serve the information needs of their clientele, and know how to find them. As A.P. Thapisa observes, "[The Internet] will bring with it, like the River Nile after a very heavy downpour, essential water (information) that is mixed up with all kinds of debris, cow dung, sticks and all that is unmentionable. The immediate concern therefore is how to scoop out only that which is vital and leave in the rest." (Thapisa, 1996).

2.9. Integrating automation system

If you are integrating /migrating from one type of automation system, you will want to speak to other libraries that also Integrating/migrated from the same system. These individuals can give you an account as to how smooth the migration process was and if they experienced any problems. A vendor that is unable to produce a list of current customers of similar size and type is a sign that the company does not have experience working with a library and in this case one should ask and check the some questions to be clear with such issues as (Webber & Peters, 2010): name of integrated library system, what version of the software they are operating, which ILS did they migrate, whether they have servers on-site, or did they purchase a hosted system, the system stability, server or connection problems? (If it is a hosted system, ask about the reliability and speed of the connection, experiences of downtimes or slow connection speeds at certain times during the day.

1. If the library migrated from the same ILS you are using, ask about the migration and data conversion process. What problems, if any, did they encounter? How were issues resolved? How long did the process take? How much downtime was experienced in the transition?
2. Did the vendor create your Web site? If so, may I have your Web site address? Are you pleased with the Web site the company designed for you?
3. In what ways was the ILS Company knowledgeable, helpful, and professional?
4. Were there any instances or issues that you wished the company would have handled differently?
5. Do the modules operate as you thought they would? Are staffs satisfied with the system?
6. Can you provide any overall advice or comments?

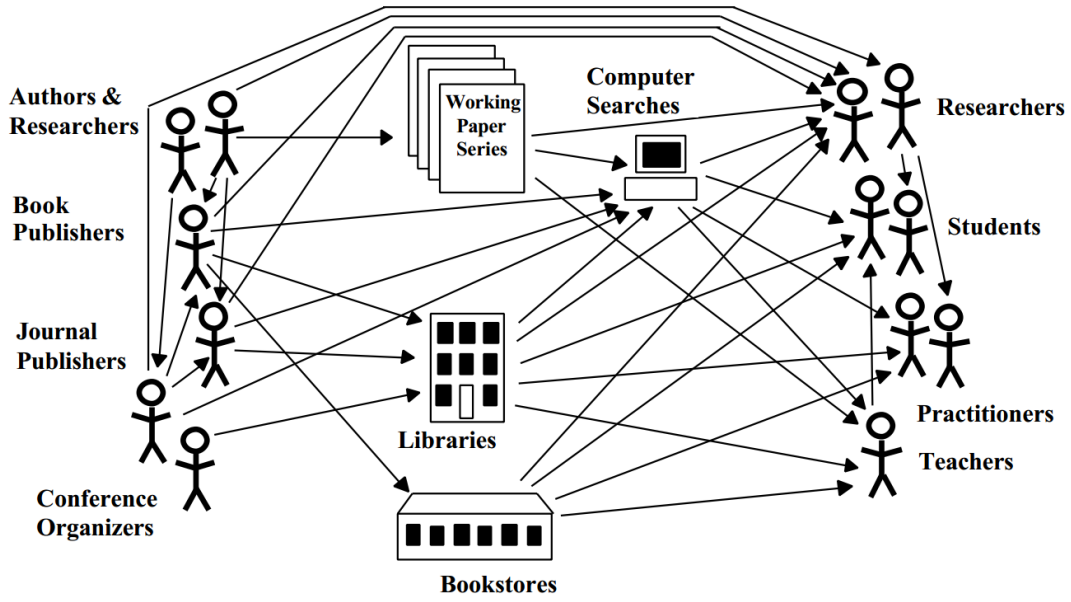
According to Webber & Peters (2010) on intigrated library sharing resourse, if you are searching for copies of RFPs, then you should ask the person to whom you are speaking if he would be willing to share a copy of his or her RFP. Most librarians and MIS administrators are open to

sharing their RFPs. After all, these individuals are in the information-sharing business and they were once in the same position of shopping for an ILS.

Time invested in researching the types of integrated library systems available, and the vendors who provide ILS products and services, will help you make the right decision in choosing the best system for your library. Communities grow and technology changes, so it is vital to choose an ILS that is flexible and can support add-ons when the library is ready to make additional purchases (Webber & Peters, 2010).

2.10. Conceptual model for integrated library system

It is currently somewhat difficult to locate and obtain recent, relevant publications in the field of information systems. Figure 1 shows a greatly simplified overview of the situation. Information systems publications come from many sources and via many distribution means. A researcher or student seeking publications is faced with a huge number of choices, which vary widely in their support for searching. Computer-based search indexes often provide only searches of keywords and/or abstracts. A major problem is that the various distribution means typically have low coverage of the available IS publications, for example including only a subset of the journals and not including important conferences' papers, workshop papers or working papers. A researcher is



then forced to consult multiple sources (with the consequent time/effort) and yet still being unsure of finding relevant publications.

Figure 1: Information system digital library (Venable, 1996)

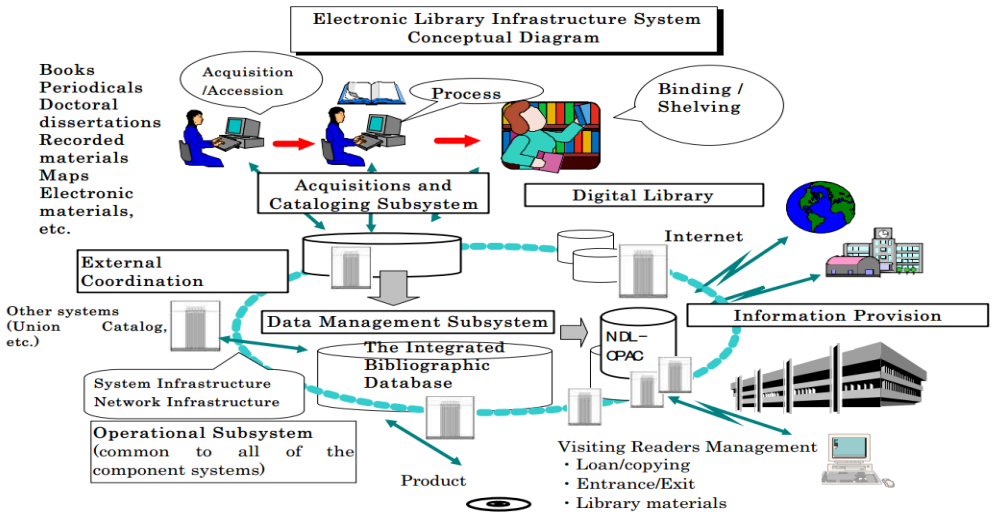


Figure 2: Electronic Library Infrastructure System (National Diet Library, 2012)

2.11. Users and ILS

Since systems are intended to be run and used by users, then what a user wants is a system that does what he wants (Eid, 2003). We might have fabulous graphics and solidly marked up pages, but if our users can't find the information they need or figure out how to buy our products, all of our efforts have been for nothing (Building Usable Web Sites, 2007). Users' perceptions of the usefulness, usability, and desirability of a Web application based upon the sum of all their direct and indirect interactions with it. Users' perceptions are determined by interface design, or usability, or visual design, or performance (Gualtieri, 2009). The user interface (or just interface) is that part of the computer system with which a user interacts in order to undertake his or her tasks and achieve his or her goals (The Importance of Good User Interface Design).

The user interface can be determined by asking the extent to which our LISs are useful, usable and desirable (Gualtieri, 2009) (The Importance of Good User Interface Design).

In determining the ***usefulness*** of ILSs, we have to ask that "Can users achieve their goals?" Users visit Web sites for one purpose: to achieve their goals. The degree to which they find a Web site useful is measured by their ability to achieve those goals, which can run the gamut from routinely checking email to applying for a life insurance policy (Gualtieri, 2009).

Usable or usability might refers to the extent to which our website is easily accessible to our users or putting it another way "how easily can users achieve their goals?" (Gualtieri, 2009) or "The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use." (The Importance of Good

User Interface Design). Users want to accomplish their tasks with the least amount of effort. A Web site that provides a user with the ability to easily search for a shirt by size and color might be very useful, but if it takes many unnecessary clicks to order the shirt then the overall usability of the site is lacking (Gualtieri, 2009).

Desirable: here we are concerned with the issues as to what extent the site appeal to the users' emotions? Although the degree to which the site is useful and usable can influence desirability, it's also influenced by factors such as imagery, language, aesthetics, fun, and sophisticated production values that come from attention to detail. These all add up to emotional engagement that sets brands apart from competitors (Gualtieri, 2009).

2.11.1. Designing a Good User Interface

Gualtieri provides with some essential guidelines in the design of good user interface. The first step in designing a great user experience is to deeply understand our users; their needs, wants, hopes, dreams, aspirations, attitudes, and goals relative to the project at hand. This needs us to get inside the heads and find out what our users will really find useful, usable, and desirable, you should:

• ***Listen to users' needs:*** we need to remember that our users are the real people who will use our Web site, not business stakeholders. Interviewing them directly is the best way of understanding their needs. We can also survey them, collect their feedback on our Web site, and review what they're saying about us and our competitors in the blogosphere and on social networking sites. When we do use traditional requirements gathering processes, remember to ask not only for what they'll find useful but also about the features and design conventions they find usable and desirable (Gualtieri, 2009).

• ***Observe users' natural habitat:*** Users cannot always articulate what they need and what will make them happy. Observing how users perform tasks on our existing Web site or the sites of competitors is invaluable for understanding issues that users were unable to articulate. When doing this, we should also observe the environment and context in which the user performs the tasks. That's because our user experience design must fit into the total context in which the user is using our application (Gualtieri, 2009).

• ***Create personas:*** A persona is a vivid, narrative description of a fictitious person who represents a segment of your user population. It is based on primary research that uncovers the real attitudes, goals, and behaviors of the users it represents. To turn research into a persona, give the persona a real sounding name and a face (a stock photo will do), and write a description of him or her that includes details you uncovered during your user research. Some companies go as far as creating

posters or even life-size cardboard figures of their personas. Keep in mind that it is common to have more than one persona, each representing a segment of your user population (Gualtieri, 2009).

• ***Empathize with them***: You have listened and observed. Now you can take a walk in their shoes to feel their pain and their joy — to truly understand them. What upsets them? How do they make decisions? Empathize broadly, but also empathize in context. The concerns of a nuclear reactor operator will be different from a 15-year-old music lover. To empathize with your users, pick a persona to impersonate and get into character. Do a mental walkthrough of the user waking up in the morning, going through her day, and, at some point, using your application. What motivated her to use the applications? What was she thinking? What tasks did she want to perform, and how easy was it to do them? What other choices does she have for achieving her goals, and why did she choose your application?

2.12. Users need and level of information service system in the digital library

How does a digital library support users' information needs and solve the problems they face with their information seeking activities?

2.12.1. Users' information needs

Users' needs are a complex and constantly evolving issue. We can never meet all users' needs because of their individual, personal and changing nature. The ways in which people express their information needs also vary. However, information professionals are committed to understanding and defining library clienteles' needs and trying to meet them effectively. In his classic theory, four levels of information needs and the configuration of question which represents each level (Taylor, 1968): Q1 - the actual, but unexpressed need for information (the visceral need); Q2 - the conscious, within-brain description of the need (the conscious need); Q3 - the formal statement of the need (the formalized need); Q4 - the question as presented to the information system (the compromised need).

For most users, the librarian is often seen as part of the information system. A user may submit a question to an automatic system (self-help) or to a librarian. "An enquiry is merely a micro-event in shifting nonlinear adaptive mechanism" (Taylor, 1968). As outlined above, some needs are explicit and some are implicit. An enquiry to the reference desk, an explicit need, is a component of levels 3 or 4. Comparatively speaking, users' implicit needs in level 1 and level 2 are more complicated and difficult to capture. Only thorough user studies and deep interviews can help us understand them better and subsequently meet them effectively.

2.12.2. Three-leveled information and reference support system in the digital library

In terms of personalization and generalization, users' information needs can be roughly divided into three levels, depending on their specificity (Jackson, The advent of portals. Online: Interne, 2003):

L1 - first level: general, almost all the library users' needs and expectations;

L2 - second level: some users' needs, groups with common interest such as undergraduate students, Research staff, engineering master's students;

L3 - third level: individual needs, relevant only to specific questions.

Accordingly, the digital library can be conceived of as providing three-leveled information and reference services to cope with the three levels of needs separately.

On the first level, technologies, resources and services are integrated into the digital library. For users, it is a web, an easy-access interface to support their information needs. The interface is "designed taking into account the resources needs of everyone and their expectations with regard to access, functionality and personalization" (Arant W. Payne L., 2001). This level affects all the users in the community since every member must access resources through the interface. Thus, it is a one-to-all service mode although because the interface can be personalized for individuals, it is also a one-to-one mode. On this level, reference librarians do a lot of work behind-the-scenes to support the functions of the digital library, e.g., resource development, configuration of interface, etc.

On the second level, information professionals provide induction and training courses to educate users to use the digital library. All kinds of materials such as FAQs, online help and self-guided information resources are prepared in anticipation of users' questions to help them find answers on their own. In this case, users are treated as groups with similar interests or questions or needs. Thus it is a one-to-group pattern.

On the third level, reference librarians are waiting for users' questions at the reference desk, on the telephone, via email or an interactive system, etc. They offer personal help to users in a variety of ways. This level is time consuming since the services are provided to patrons one by one. Given the size of population to be reached, the first level is the most cost-effective method and the third level, the enquiry system, is least. With regard to the number of staff that are needed in each level, the first level is least labor-intensive and the enquiry system is most labor-intensive, while the second level is targeted at a group and lies in the middle between the other two. This reinforces the idea mentioned above that librarians ought to place more emphasis on the first level and "move toward a

more efficient application of our unique skills, talents, perspectives, training and experience" (Jackson, The advent of portals. Online: Interne, 2003).

Generalized ⟵				⟶ Personalized
		Levels		
	Items	First level	Second level	Third level
Features of users' needs	Attributes of information needs	General, abstract	Group: some users' common needs	Specific, particular, concrete, personal
	How users express their needs	Expectations, representative questions	A group's common information needs	Expressed as a direct enquiry
How the digital library meets users' needs	Methods of meeting users' needs	Automatic digital library technology with librarians' expertise embedded	User education, FAQ and self-help materials	Direct communication between users and librarians
	The aims of meeting users' needs	To solve general problems, improve efficiency and usage	To know how, to improve users' skills	To know what or know how
	Coverage/ Impact	All members in the community: one-to-all	A group within the community: one-to-group	One-to-one
	Librarian's attitude	Active: to predefine users' needs and translate them into available automatic information systems	Active: to predefine users' needs and fulfil them through human effort	Passive: to wait for customers' questions

The three levels of users' needs and how the digital library meets them accordingly (Lifeng Han, 2003).

2.12.3. Digital libraries and information services - the first level

2.12.3.1. Digital libraries and portals

The digital library is still in its developmental phase. (Halm, 2002) Commented that currently "increased attention seems to focus on portals" and defined the digital library as "an entity providing integrated and coherent access to a well-defined range of heterogeneous information resources independent of location, format and curatorial domain within an appropriate organization and legal framework". He identified portals as the first distinct components of the digital library. Technically, portals involve issues of resource discovery, information retrieval and the integration of resources and user interface, all critical for serving user needs. Portals are therefore the key between technologies and information seekers. An effective portal can dramatically improve a user's ability to use library resources and services. One must consider the role of the librarian in portal interface design when thinking about the future of reference services (Rockman, 2003).

2.12.3.2. Portals and users' expectations

The library is faced with internal and external factors encouraging it to change. Externally, growing numbers of commercial portals on the web attract growing numbers of users. Users prefer the convenience of the web to library resources. A survey found that "too many students, because they know how to use the Web, are using *only the* Web itself to find material for their assignments, rather than trying the periodical indexes that we offer via the Web" (Tenopir & Ennis, 2002). Many other reports reveal a similar situation, indicating that the library is viewed as less convenient than commercial search engines and this represents a barrier to many users. Complicated access will exclude potential users and lead to low usage. "Libraries must gear up to provide a competing level of convenience while retaining the authority and quality of information delivery for which they have been traditionally known" (Jackson, The advent of portals. Online: Interne, 2003).

Internal issues also force the library to change. Libraries are subscribing to more and more expensive electronic databases and e-journals. At the same time, print resources continue to exist which means most media will be hybrid for the foreseeable future. Increasing web-based resources are also a feature. Users feel overloaded and need assistance to navigate high quality resources and services in such a complex environment.

There is a danger that unless librarians start coming up with innovative and flexible solutions for easy and convenient access to electronic resources, then academics and students will go elsewhere, by-passing the libraries 'quality controlled' resources completely" (Bentham, 2002).

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Introduction

This chapter discusses the study's methodology. It also examines how problems and constraints encountered during the research were overcome. Quantitative data was collected. Two approaches were used to collect quantitative data namely: questionnaires and observation check list. Quantitative data was analyzed using the Statistical Package for Social Sciences (SPSS) software Version 17.0 and Microsoft excel 2010.

3.2. Study site and population

3.2.1. Study site

The study conducted on three University of Ethiopia Jimma University, Haremaya University and Dire Dawa University. The three universities selected purposively based on their year of establishment to address the sample from three generation their establishments are divided in to three category first categories are universities established before 1999 G.C, after 1999 G.C and after 2002 G.C as well as the researcher place of living.

3.3. The research design

Figure 3 below summarizes the methodology adopted for this study. The choice of the data collection approaches shown in Figure 3 was guided by the literature (Bolden, F.B, & Smith, 1993; McNamara, 1999; Miller & Brewer, 2003)(Akporhonor, 2005; Bolden & Smith, 1993; McNamara, 1999; Miller & Brewer, 2003; Nueman, 2003; Wasylenko, 1983).

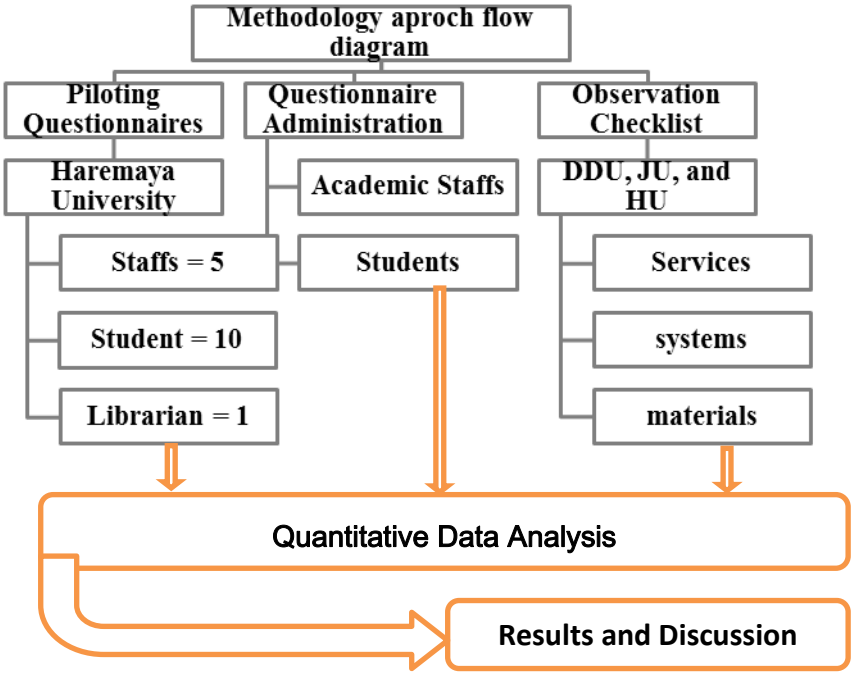


Figure 3: A summary of the study's methodological approach

3.4. Developing the Integrated Library Users Need Questionnaire

The questionnaires were developed through a pilot study done by the researcher at HU University. Haremaya University was chosen for the pilot study for the simple reason that this is where the researcher is based. It was convenient to do the pilot study at this university in order to cut on the research costs. The major aim of the piloting was to improve the validity of the questionnaires. five academic staff as well as advisers of the study and the researcher, one library staff and another ten other student of the Haromaya University were selected and were asked to respond to and comment on a batch of 23 open ended and closed questions. These questions were designed to elicit users' views the user's need of integrated library system and existing system quality of service provided by the Ethiopian public University academics library. After pilot study drawing up the questions was done by the researcher in collaboration with the supervisor. After completion of questionnaires the responses were analyzed and a discussion held with advisors of the study. The discussions centered on language, the clarity of questions and their content validity. These discussions led to five questions being dropped from the original 23 and add other question that replaced those dropped question because they

were either ambiguous or the respondents felt they did not clearly bring out issues of the need assessment.

As has already been noted, the questionnaire had 23 questions. The library users question asked the respondents to evaluate the current system and to put their need on web based integrated library system of service they received from the library. For most of the questions required respondents to indicate their answers by ticking (√) in appropriate spaces provided. For all questions, the respondent could give only one response but in responding to questions 21, 23 respondents could give more than one answer and any comment. Question 23 required respondents to respond to provided item statements and then go on to give a comment.

3.5. Observation checklist

The observation method used can be described as unstructured (Cohen, Manion & Morrison, 2000; Powell, 1994). An observation is described as structured when the researcher observes with a predetermined set of elements to be taken note of. The researcher goes into the field with more or less an open mind and records checklists. During the observation the researcher took hand written notes. Notes were recorded on such aspects as: existing system, digital material, computers and servers, websites, digitization process, and different services and department that are mainly work for digital material preparation and ready for the users and other similar equipment. This check list was used for verifying the correctness of the information provided by the users in the questionnaires.

3.6. Sample used for the Study

It is not possible to study the entire population to arrive at generalizations if the population is large. If sample drawn is perfectly representative, it is identical with its parent population almost in every respect and is possible to draw valid inferences or generalizations.

The population consists of different types of users with different characteristics including individuals and institutional members of the university libraries. Since the institutional membership is not offered in all the university libraries under study such type of members has been excluded from the present study. In order to get samples

from all groups, the investigator grouped the users into two, based on the type of membership.

The groups under study are:

4. Students: - consisting of students of colleges affiliated to the selected universities and university teaching departments.
5. Teachers and Research Scholars(academics staff):- Teachers and Research Guides of affiliated colleges, university teaching departments and research centers recognized by the universities and those of doing research in the university teaching departments, affiliated colleges and centers recognized by the universities.

3.6. Sample Size

According to Education Statistics Annual Abstract of MoE (2012/13), the selected three government universities have 48,978 study populations from the total population 44776 are students and 4130 academic staffs. Based on this data the sample size of the study is calculated as follow for each category.

Sample size of total population:

$$s = \frac{X^2 NP(1-P)}{d^2(N-1) + X^2 P(1-P)}$$

Where:

S = required sample size.

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level

(3.841).

N= the population size.

P= the population proportion (assumed to be 0.50 since this would provide the maximum sample size).

d= the degree of accuracy expressed as a proportion (0.05).

Considering the population correction factor into account the sample size of academic staffs will be:

$$s = \frac{1.96^2 * 80{,}673 * 0.5(1-0.5)}{0.05^2(48987-1) + 1.96^2 * 0.5(1-0.5)} = 381$$

Based on these results the total number of sample size for the research: **381**

As shown in the following tables the proportion or percentage of sample size for each university from each category is calculated so that data will be collected accordingly.

Table 3.1: Total number of study population

University	**Student(Regular)**								
	Degree		**Masters**		**PhD**		**Total**		
	M	F	M	F	M	F	M	F	T
Dire Dawa University	5,922	2,425					5,922	2,425	8,347
Haremaya University	11,733	3,350	121	897	16	192	11,870	4,439	16,309
Jimma University	15,466	3,364	1,121	139	28	2	16,615	3,505	20,120

(Source: FDRE MOE (2013). Education Statistics Annual Abstract 2012/2013)

Table 3.2: Total number of academic staff in each university

University	**Academics Staff**												
	Diploma		**Bachelor**		**MD/DVM**		**Masters**		**PhD**		**Total**		
	M	F	M	F	M	F	M	F	M	F	M	F	**T**
Dire Dawa University	0	0	183	24	7	4	263	29	7	0	460	57	**517**
Haramaya University	104	26	593	104	234	32	1019	99	128	1	2078	262	**2340**
Jimma University	46	10	316	31	102	18	605	63	76	6	1145	128	**1273**
Total													**4130**

(Source: FDRE MOE (2013). Education Statistics Annual Abstract 2012/2013)

Table 3.3: percentage and sample size distribution University-wise

Sample size by university			
university	**No population**	**Percentage**	**sample**
Dire Dawa University	8864	18	76
Haramaya University	18662	38	160
Jimma University	21461	44	184
	48987	100	419.00

Table 3.4: Sample size distribution category-wise

Sample size by population category				
university	**Student**	**Sample**	**Staff**	**Sample**
Dire Dawa University	8,347	71	517	4.4221
Haramaya University	16,309	139	2353	20.126
Jimma University	20,120	172	1341	11.47
	44,776	383	4211	36.018

Table 3.5: Percentage and sample size distribution Gender-wise

Sample size by Gender							
University	**Male**	**Male %**	**Sample**	**Female**	**Female %**	**Sample**	**Total**
Dire Dawa University	6382	72	55	2482	28	21	76
Haramaya University	13961	75	119	4701	25	40	160
Jimma University	17825	83	152	3636	17	31	184
	38168		326	10819		93	419

Table 3.6: Sample size distribution qualification-wise

Sample Size by Qualification								
University	**Diploma**	**sample**	**Bachelor**	**sample**	**Masters**	**sample**	**PhD**	**sample**
Dire Dawa University	0	0	8554	73	303	3	7	0
Haremaya University	130	1	14554	125	3836	33	129	1
Jimma University	56	0	17887	153	3368	29	82	1
	186	2	43511	373	4991	43	218	2

Total number of sample size will be the actual calculated number as well as 10% of the sample size that used for unreturned, missed and filled below the 80% and etc

Therefore the sample size: **S = 381 + 38 = 419**

From the total sample 419 according to the number of users in the university proportionally to their total study population 76, 160, 185 questionnaires were distributed in each of the three university library in Dire Dawa, Haremaya and Jimma universities respectively allocate for the study.

The questioner distributed through data collector three data collector from Haromaya and Jimma university staff selected two from Dire Dawa University and the data collector select purposively from registrar staff, library staff and post graduate student and assign different place within the university because of the contact of the student and academic staff. The data collectors distribute and collect the questioner from available campus through the selected university from three different place student café, staff lounge, and library. Finally from the total 419 questioner 360 are returned and used for the study.

3.7. Data analysis

3.7.1. Variables

Three classificatory variables used for the study. They are:

- Three university libraries viz. Dire Dawa University Library (DDUL), Haremaya University Library (HUL), Jimma Library (JUL).
- Type of Membership viz. student, academic staff (research scholar, teacher).
- Qualification of the Users, viz. Degree, Masters, post-graduation, and Ph.D. For this study, those who are studying for degree course also included in the degree holders and those who studying post graduate included in master's degree category, while postgraduates.

3.7.2. Mode of answering and scoring

The respondents were asked to mark their opinion provided in the third part of the questionnaire regarding:

- The usefulness of the electronics material
- The reason of the users brows website or library webpages
- The need of web based integrated library system in a five-point scale viz. most frequently, frequently, sometimes, rarely and never;

- The usefulness of the information sources, products and services in a five-point scale viz. most useful, useful, least useful, not useful and no opinion; and
- The awareness of the information services in a three point scale viz. aware of and used, aware of but not used, and not aware of.

3.7.3. Consolidation of data

The data collected were consolidated with different category using SPSS version 17 and MS-Excel. MS-Excel spreadsheet package used because of the limitation of the researcher in some of the function of SPSS and to increase confidentiality on the result I get from the SPSS and MS-Excel cross check. But more of data were then subjected further statistical treatment by using SPSS package.

3.7.4. Data presentation

Data presentation was by descriptive statistical techniques at different stages of the study to draw valid conclusions.

3.8. Conclusion

Keeping in view the objectives of the study, the data collected from the users of the three university academic staff and students under study is analyzed and interpreted with respect to different variables through statistical tabulation methods are given in chapter 4.

CHAPTER FOUR

4. RESULT AND DISCUSSIONS

4.1. Introduction

This chapter deals with the analysis and discussed of data collected from 360 users consisting of students, academics staff (research scholars, teachers) selected by using multistage random sampling method of the three university libraries in Ethiopia under study.

4.2. Results

In order to study the user need assessment on web based integrated library system services in the university libraries in Ethiopia it is important to study the use pattern of the members including the frequency of visit website, ranking of the purpose of visit in the library and the reason for not a regular user. These factors are analyzed along with its variations with respect to the three variables viz. university libraries, type of membership, and qualification of the users are presented in Table 4.1 to Table 4.15.

4.2.1. Breakup of selected sample responses

The break-up of the sample of the three university libraries with respect to place, gender, membership category, qualification described as follows.

4.2.1.1. University Library- wise Distribution of the Sample

Distribution of the sample selected from the university libraries are given in Table 4.1.

Table 0.1 Distribution of sample-University–wise

University	Frequency	Percent
Dire Dawa University	63	17.5
Haremaya University	137	38.1
Jimma University	160	44.4
Total	**360**	**100.0**

Table 4.1 reveals that the response of the users was taken proportionally from all the universities with a minimum from Dire Dawa University (17.5%) and maximum from Jimma University (44.4%).

The diagrammatic representation of the percentage distribution of university-wise sample is given in Figure 4.1

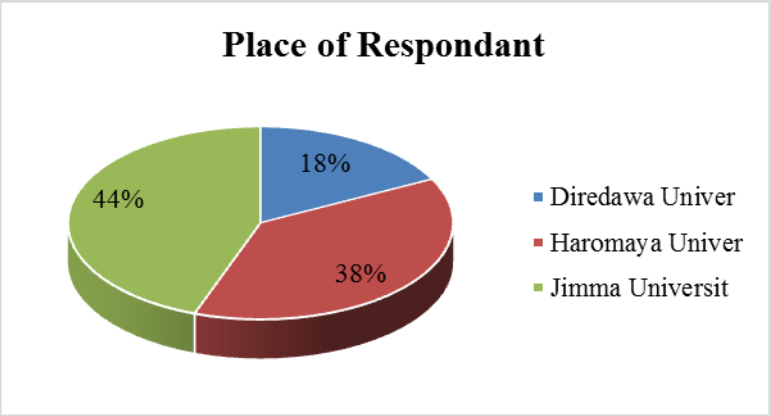


Figure 4: Percentage distribution of sample-University–wise

4.2.1.2. Gender- wise Distribution of Sample

Table 4.2 shows that majority of the respondents were males constituting 78.1 % and the remaining 21.9 % were females.

Table 0.2 Distribution of the sample – Gender wise

Gender	**Frequency**	**Percent**
Males	281	78.1
Females	79	21.9
Total	**360**	**100.0**

The pictorial representation of the gender -wise distribution of sample is given in Figure 4.2

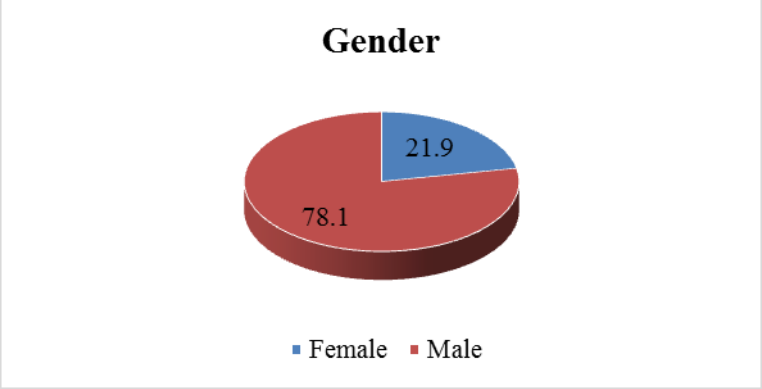


Figure 5: Distribution of the sample - Gender- wise

4.2.1.3. Membership-Wise Distribution of Sample

Table 0.3 Distribution of the sample Membership-wise

Membership Type	Frequency	Percent
Staff	33	9.2
Student	327	90.8
Total	**360**	**100.0**

Table 4.3 shows that majority of the study participants were students contributing 90.8 % and only 9.2 % of the respondents were staffs of the universities.

The graphical representation of category- wise distribution of the sample is given in Figure 4.3.

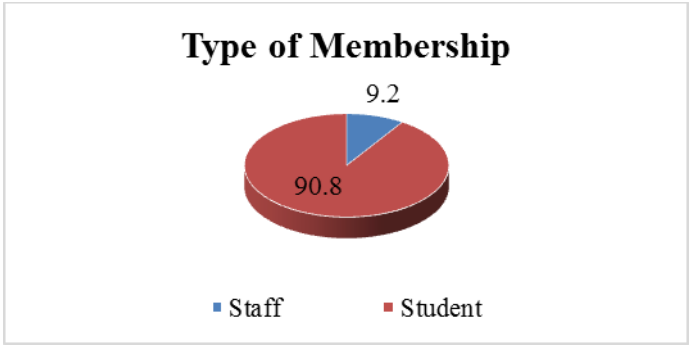


Figure 6: Distribution of the sample Membership-wise

4.2.1.4. Qualification-wise distribution of Sample

Size and percentage of the sample selected according to the category of qualification is given in Table 4.4.

Table 0.4 Distribution of the sample qualification–wise

Qualification	Frequency	Percent
Diploma	1	0.3%
Bachelors	265	73.6%
Master	93	25.8%
PhD	1	0.3%
Total	**360**	**100.0**

Table 4.4 shows that while almost all of the respondents were Bachelors and Masters level graduates and candidates with their academic background (contributing 73.6 % and 25.8 % respectively) only 0.3 % and 0.3 % of them were Diploma and PHD level respectively.

The diagrammatic representation of the distribution of sample based on qualification is given in Figure 4.4

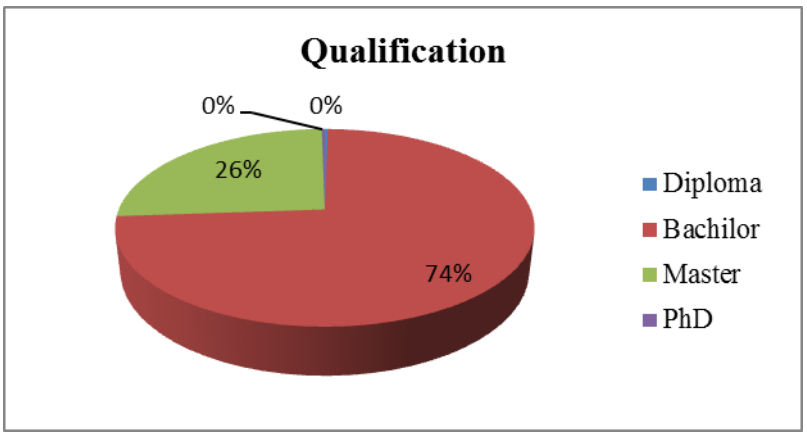


Figure 7: Distribution of the sample - Qualification-wise

4.2.2. Use Pattern

4.2.2.1. Frequency of browsing

To analyze the use pattern of users in browsing website, it is relevant to study the frequency of visit, the results of which is given in Table 4.5

Table 4.5 shows that only 41.9% of the respondents are visiting the library always, frequently users by 27.2% and 12.8% of the users visit the website rarely and 18.1% of the rest users does not brows website at all.

From the Table it is clear that both frequently and always browse the website are 70.1% of the users visiting website with average regularly and 12.8% occasionally that shows a consistency in user visit website.

Table 0.5 Browsing website frequency

Browsing website frequency		
	Frequency	Percent
Never	65	18.1
Rarely	46	12.8
Frequently	98	27.2
Always	151	41.9
Total	**360**	**100.0**

4.2.2.2. Purpose of browsing website

According to (Senthur, 2013) web-based user education provides a high degree of interactivity and flexibility to the users. Web guides and teaching tools are found everywhere on the Web because they are easily updated, accessed, and printed on demand.

Table 0.6 Frequency of website browsing reasons

web site browsing reason		
	Frequency	Percent
For academic Study/Research	141	39.2
To gain current awareness and to keep up-to-date	81	22.5
To read newspaper	41	11.4
To access electronic resources	97	26.9
Total	360	100.0

From the Table 4.6 it is clear that the main purpose of why users browsing different web site by the members are for studying and research was 39.2% and it which falls in line with the objective of the university libraries. Getting specific and current information by the users with 22.5% and to access electronic resources are with 26.9% and finally the users reasons for browse the website to read newspaper are 11.4%.

Table 0.7 Resources access place

Resources displayed by the system		
	Frequency	Percent
From local database only	290	80.6
From different database at different place	70	19.4
Total	360	100.0

From table 4.7 it's clear that most of the system displayed the resources from local database only with 80.6% and the rest 19.4% of the respondents result resources displayed from local and other databases.

From the result the system are not integrated and access different resources from different place this make the users not satisfy about the result due to different users need different types of resources and making this from one or local database difficult for the university libraries in Ethiopia.

Table 0.8 Place of accessing the System by users

Place of accessing the System by users		
	Frequency	Percent
Library	35	12.7
Office	15	5.5
Others	225	81.8
Total	275	100.0

From the table 4.8 clearly shows that the users access different website and electronics resources are from the total of the respondent that have awareness about the system with a maximum number of respondents about 81.8% of the users access the resources and services from different other place and followed by the library and office are 12.7% and 5.5% respectively.

From the total percent of the respondents around 23% of the users doesn't include on the responses because of lack of awareness about the existing system in the university.

Table 0.9Way of accessing the library system

Way of accessing the system		
	Frequency	Percent
From main university website	102	37.1
From other website that support search	173	62.9
Total	275	100.0

From table 4.9 it's clear that the users most of the users access the system and resources with different method on website by searching with 62.9% and from the exact access place or address of the library system with 37.1%. This shows that most of the users do not have about the way of accessing the resources directly from the system and it need more promotion and guide how to access the system and function from the system.

Table 0.10 Importance of existing resources

Resources	**Not Very Important**	**Not Important**	**Somewhat Important**	**Important**	**Total**
Electronics Journals	5%	17%	43%	35%	100
	14	46	119	96	
electronics Book	0	6%	68%	26%	100
	.0	17	187	71	
online references	6%	47%	39%	7%	100
	17	130	108	20	
other electronics resources	7%	16%	14%	63%	100
	18	45	38	174	
Total	**4.45%**	**21.64%**	**41.09%**	**32.82%**	**100.00**
	49	**238**	**452**	**361**	

From the table 4.10 it's clear the importance of existing different resources the importance of electronics journals by the users with maximum percent 43% somewhat important followed by important with 35% and not important and not very important are respectively 17% and 5%. The importance of the electronic book with maximum percent 68% somewhat important followed by important with 26% and not important and not very important are respectively 6% and 0%.

The importance of the online references with maximum percent 47% not important followed by somewhat important with 39% and important and not very important are respectively 7% and 6%. And the importance of the other electronic resources with maximum percent 63% important followed by not important with 16% and somewhat important and not very important are respectively 14% and 7%.

The total result of the respondents on table 4.9 clearly shows that the existing resources available on the system are somewhat important with 41.09% followed by important 32.82%.

The result indicate that electronic resources for the users highly important with 63% followed by electronic book and journals with 68% and 43% respectively but the resources about online reference are not important.

4.2.2.3. Quality of services

Need and quality are so closely linked that the former is considered an essential component of the later. Need cannot be separated from quality. Many users prefer searching in the scholarly information resources, because the quality of the materials has been verified by the publisher of the materials and confirmed by the institution's selection of these resources. The initial results of a recent survey conducted at the European organization CERN regarding their users' perception of information systems related to high-energy physics show that 93% of the scientists consider the depth of the resource coverage very important, and 91% of them indicated that the quality of the content is very important (Mele, 2007). The needs and expectations of the users are critical factors in assessing service quality. A need and users orientation throughout the university can ensure that library get close to the users, thus ensuring that service delivery meets user customer expectations. The user, in terms of their expectations of the benefits, may judge the actual output of the service. This leads to an important idea

Table 0.11 Quality of services

Quality of services		**Strongly Disagree**	**Disagree**	**Neutral Agree**	**Strongly Agree**
Adequate resources availability	**Frequency**	35	158	82	0
	percent	12.7	57.5	29.8	
Searching quality	**Frequency**	23	141	102	9
	percent	8.4	51.3	37.1	3.3
Bibliographic instructions about electronics resources	**Frequency**	33	216	86	25
	percent	9.2	60.0	23.9	6.9
Guide how to use	**Frequency**	24	99	152	0
Total	**percent**	**8.7**	**36.0**	**55.3**	
	Frequency	**115**	**614**	**422**	**34**

From table 4.11 it's clearly shows that the quality services about the system and system provider the responses in the table shows the availability of adequate resources with 57.7% of the users does not agree followed by 29.8% agree. Strongly disagree with 12.7% and none of the user's response with the adequate resources with strongly disagrees. And also the searching quality of the system with 51.3% respondents disagree and 37.1% users are replay with naturally agree.

From the table about the bibliographical instructions with 60% of the respondents not agree next to 23% with naturally agree. And the system guide on the usability for the users are 55.3% agree naturally and 36% of the responses also shows not agree with the help service on the system. From the result it indicate the services and resources provided is not satisfy the users and more than half of the users disagree with the service and around 28% also naturally agree therefore the table shows that the users does not agree on the services provided by the libraries on digital library.

Table 0.12 Other option of resources searching

Other option of resources searching		
	Frequency	**Percent**
Searching from website	214	59.8
From Other university library	50	14.0
From the link provide by search engine	63	17.6
Other Methods	31	8.7
Total	358	100.0

Table 4.12 clearly shows the respondents use other option to satisfy the need on resources and services for them work from the result 59.4% of the respondents use different website to satisfy their need, 13.9% and 17.5% of the respondents search from other university library and search engine respectively and the rest of the users use different method.

The result shows more of the users are using different website for satisfy the need of their electronic resources followed by the search engine for the different services and resources.

Table 0.13 Method to search by users

Why the user choose others method to search		
	Frequency	**Percent**
Does not have enough and important collection of resources	71	19.7
University library not functional	20	5.6
Delivery support not as I need	20	5.6
All	249	69.2
Total	**360**	**100.0**

From table 4.13 it shows the reason why users other different method for searching resources with maximum percent 69.2% of the users due to the reason in the table followed by adequate resources for the users.

From this result it's clear that the service and resources quality make the users need other option that fill the gap of the system and their need.

Table 0.14 Reason using other digital library

Reason using other digital library		
	Frequency	Percent
Convenient access time	153	45.1
Library owns resources I need	29	8.6
Integration of the service with other library	12	3.5
Easy and fast of the system	31	9.1
All	114	33.6
Total	339	100.0

From the table 4.14 the respondent's response shows the reason of using different digital library due to convenient access time and place with 45.1% followed by the library system does not give the resources based on their need. Due to the easiest and fast delivery system with 9.1% and integration of the system are 3.5%. The result shows the respondents reasons are different but specifically the convenient access time and easiest of the system therefore the users need the service with more of modification and improvements.

4.2.3. User need Attitude

Five statements regarding web based integrated library system of the university libraries including user needs, are presented for assessing users attitude towards web based library system and services.

The advent of information technology in library has necessitated changes in the user need on resources. Book, journals, reference service, e-resources, Lectures, and audio-visual method etc. are the features of web based system and integrated library services of user need satisfaction. According to Bauwens (1993), knowledge of how to navigate the Internet is now becoming a basic requirement for information professionals.

Table 0.15Usefulness of the web based library system features

Responses	N	Percent
Somewhat useful	2	.1%
Moderately useful	23	1.3%
Useful	644	36.1%
Extremely useful	1115	62.5%
Total	1784	100.0%

The percentage distribution of attitude on need of adding features towards web based integrated library system is given in Table 4.27. It shows that the vast majority 98.6% of the respondents are looking for new service and system in the university libraries in Ethiopia. Among them, 62.5% agreed on extremely useful if the listed integrated library service adds those component or services. 36.1% of the users also agreed on usefulness and the rest 1.3% and 1% agree with moderately useful and somewhat useful respectively. Majority of the users agreed on the usefulness of the web based integrated library system features.

Table 0.16 Users need on different integrated library services

		somewhat useful	**Moderately useful**	**Useful**	**Extremely useful**
Access to other university resources	**Frequency**	-	-	230	125
	percent	-	-	64.8	35.2
Supplemental reading sites	**Frequency**		19	132	204
	percent		5.4	37.2	57.5
Integration of available digital library in Ethiopia	**Frequency**	-	-	182	175
	percent	-	-	51.0	49.0
Accessing the resource from one site	**Frequency**	-	-	19	338
	percent	-	-	5.3	94.7
Accessibility of service from any ware and any time	**Frequency**	2	4	81	273
	percent	.6	1.1	22.5	75.8

From the table 4.15 its clearly shows the users need on different services on integrated library system. Users need on the access other electronic resources from another university with 64.8% useful and with 35.2% are extremely useful by the users and the users on the service regarding to the supplemental reading sites are rated highly with 57.5% of the respondents are if the service add it is extremely useful and the rest of the users with 37.2% and 5.4% are useful and moderately useful. Additionally on other services accessing resources from one site and accessing the service from anywhere and any place are rated highly by the users with extremely useful with 94.7% and 75% and useful with 5.3% and 22.5% respectively. From the result it indicate that the users does not response if the service add not useful totally but almost all the respondents need if they access the service from anywhere anytime and if the service allow to access other database with information about supplementary reading sites.

4.3. Discussions

From the study all academic community agreed on the advantage of computer literacy and education. According to Bennett argument that, “it may be that there is as much variation within the digital native generation as between generations”. Given the variety of students in higher education, it is important that the embracement of new technologies does not create a digital divide. Equally, students may be adept at using new technologies, but they do not necessarily have the abilities to use research content in effective ways: 'digital literacies and information literacies do not go hand in hand' as one study argues (Rowlands and Nicholas 2008, 20). From the result and research on this area difference type of service, place or qualification agreed on the literacy of computer for academic community.

But the result shows more of the users brows website for the academic and research study with 39.2% even the percent of the result is maximum relatively to other reason and the users with 26.9% also they brows different website for the need of their electronic material therefore both reason are shows the reason of the users on website for satisfy the need on electronic resources for their academic and research.

Nicholas and Tomeo (2005) state that even though many academic libraries are providing a variety of resources and services such as online databases, virtual reference services, online tutorials, e-reserves, etc. to their distance students, the students are often not fully aware of what is available to them. From the result on the existing library system the users result shows the system does not integrate and search from different database the result tell us all the library display the result from local database only but the users access the system and the service from other different place in the university has maximum with 81% and the rest from office and library due to this most of the users accessing the system directly with library website are less but to access the system and resources most of the users use different search method from web site because of the service are does not have any guide and help for the users how to search and get the service and system the response also shows 36% and 55.6% of the users disagree and naturally agree.

Interest of users on resources provided are highly on different electronics resources with 63% important and journals and book are 43% and 68% somewhat important this is due

to not have adequate resources and searching quality are not as users need. On the other hand users use alternative option from internet for their need around 60% of the users use internet by searching the resource they need and the service that can provide the different electronics resources because of the different reason, the system not have enough and important collection of resources, system and services library not functional, the user need and the service delivery not good based on this all reason most of the users 69% are choose other option to satisfy their need.

The users need on the service of the system limited from the result most of the user with45.1% need convenient access time and place and 33% of the users also need the resources as they need easy and fast service as well as integration the system and resource.

Lorenzo discusses how the new technology environment in higher education impacts campus libraries and creates a need for online information literacy programs and collections of full-text electronic resources to meet the needs of learners at a remote different place and distances (Lorenzo, 2006). Based on the result the users need on different services in the system Access to other university resources, Supplemental reading sites, Integration of available digital library in Ethiopia, Accessing the resource from one site, Accessibility of service from any ware and any time rated highly. From the services the users need accessing the resource from one site, anytime and anywhere is the main feature that must be included in the system.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1. Introduction

This chapter contains the based on findings of the study, discussion and answers the main objective of the study and areas suggested for further research. The study verified the research objective based on the findings evolved in the study.

5.2. Conclusions

It is evident from the study that the users in academic libraries of Ethiopia university libraries users agreed on the computer literacy for accessing different services and system, and integrated features and web based resource access to satisfy the main objective of the users from the study users are mostly need to access the system and service from one site as well as the users highly need on the service that enable them access from anywhere and anytime. Most of the user's browsing website regularly for searching resources for them academic and research purpose. And maximum number of the users does not access website from library or office because of the availability of internet in their university they access the service from different place in the university.

Users access mostly service that support search engine from the website the existing library system due to many reason users does not access from the study users response most of the users accessing the system directly with library website are less but to access the system and resources with different search method from web site because of the service are does not have any guide and help for the users how to search and get the service and system but the importance of the existing resources services are averagely electronic book and journals the user mostly need and agree on the importance of them.

In addition those mention reason the system does not have electronics resources because of the different reason, the system not have enough and important collection of resources, system and services library not functional, the user need and the service delivery not good are the challenges to access the system and services.

The users highly need the system that can access anytime and anywhere with integrated different resources database library and adequate resources. The study also on the

integrated feature of the system like accessing from one site and accessing other university library system are the features shows high need on the user response.

Finally from the result users are regularly using of website, familiarized with the e-resource library services and systems, and web based services. Therefore there is a strong need on web based integrated library system and services to implement the system in Ethiopian University academic libraries.

5.3. Recommendations

Based on the findings of the study have brought out many facts which are of interest and significance to educationists, university authorities, funding agencies, university librarians and users as well.

- Most users in Ethiopia University agreed the importance of computer literacy for brows web site, for different purposes. But the expected result are not satisfy the users for their academic The expected benefits are an improvement in the service quality and improved accessibility of electronic resources by students and researchers.
- The present digital library system service approach of the university libraries in Ethiopia is moderately accepted by most of the users. Regular users went to the system and service but its not based on the users need. A feedback mechanism is highly appreciated to monitor the effectiveness of the services and resources in the university libraries in Ethiopia.
- The resources and services offered by the university libraries in Ethiopia are rated as above low. So it is suggested to enhance the quality of resources and services offered by existing digital library in Ethiopian university.
- Most of the users reported that browsing website for electronic material and journals are the most useful information sources. So steps should be taken to strengthen the text book and reference collection in all the university libraries.
- Establishment of more system access place and integrating the service and resources of the existing services are the ways in which the university libraries to provide more access and availability of information to their user community.

5.4. Further area of work

Various studies can be conducted in the area of integrated library on the present study. Some of the dimensions in which studies of this type can be conducted are listed below.

- web based library system and services of the university libraries in Ethiopia from the manpower point of view.
- Integrated library system services and resources according to the available collection and user satisfaction
- Need study for the design and development of selective information products and services in each of the university library in Ethiopia.
- Impact of Information Technology for satisfies the need of users in the university libraries.
- Comparative analysis of services and resources of the university libraries in Ethiopia.

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Appendix I: Questioner Cover Letter

Jimma University

Department of Information Sciences

Cover letter for Questionnaire

Date _____

Dear respondent:

I am pursuing a Master's degree in Information and knowledge management and my area of interest is need assessment on integrated web based library services on the users. As part of the requirement for the degree, I am conducting a survey to ascertain what the new services you would like to see introduced and how the libraries is serving you on web based integrated library services. I will not use the information you provide for study purposes only.

I am therefore seeking your participation in the survey by requesting that you complete the attached questionnaire. Your answers will be treated with strict confidentially.

Thank you for taking the time to fill out this survey and participation.

Mr. Zelalem Asefa, Jimma University (zelalemasefa@gmil.com)

Tel 0911082058

Thank you for your cooperation.

Yours sincerely

Zelalem Asefa

Appendix II: Library Users questioners

I. Socio Demographics

1. What is your gender?

   Male ☐ Female ☐

2. What is your highest qualification?

   Undergraduate ☐ Diploma ☐ Ph.D. ☐

   M.D/DVM ☐ Master's ☐

3. Please indicate your academic rank

   Student ☐ Assistant professor ☐ Associate professor ☐

   Lecturer ☐ Professor ☐

   Others please. Specifies _____

4. Year of study/Work experience in University

   a. < 2 years ☐ c. 6-10 ☐

   b. 3-5 ☐ d. >10 years ☐

II. Computer knowledge

5. How extensively have you been using **web browsers** and Microsoft web application?

   Never ☐ Sometimes ☐ Always ☐

   Rarely ☐ Frequently ☐

6. Computer literacy is important to use electronic resources.

   Strongly disagree ☐ Agree ☐

   Disagree ☐ Strongly agree ☐

   Neutral ☐

7. What is the reason for browsing website?
    1. To read newspaper
    2. To gain current awareness and to keep up-to-date
    3. To access electronic resources
    4. For academic Study/Research
    5. For other purpose

III. Availability, type and its service delivery system of the integrated library system.

8. Does your university have web based library system?

    Yes ☐ No ☐

9. If your answer yes, how do you access the library system?

    From the university web site ☐ By searching globally ☐

    Independently from the library web site ☐ If other _____

10. Which library system applied in your university?

    ABCD ☐ Other _____

    Greenstone ☐

11. Where do you access electronic resources?

    From the library ☐ From the office ☐ From home ☐

    Others Please. specify_____

12. Where the system search and deliver the requested resource?

    From local database only ☐

    From different database worldwide ☐

    From local and inform other database that have the resources. ☐

Directly it links and search from internet. ☐

13. How do you rank the value of these electronic resources on conducting your reference, research and teaching?

	Not very important	Not important	Somewhat important	Important	Very important
ii) Electronic journals					
iii) Electronic books					
v) Online reference works					
vi) Internet websites					

IV. Service and collection of resources in the library system

14. The library provides adequate access to electronic resources.

Strongly disagree ☐ Neutral Agree ☐

Disagree ☐ Strongly agree ☐

15. The search result of the library system as you need?

Strongly disagree ☐ Neutral Agree ☐

Disagree ☐ Strongly agree ☐

16. The librarians offer adequate bibliographic instructions and assistance enable to use the electronic resources effectively

Strongly disagree ☐ Neutral Agree ☐

Disagree ☐ Strongly agree ☐

17. The library provides adequate training on how to use electronic resources and system.

Strongly disagree ☐ Neutral Agree ☐

Disagree ☐ Strongly agree ☐

V. New services

18. In addition to the Library Services, which of the following other system used for searching resources.

    Searching from website ☐

    From Other university library ☐

    From the link provide by search engine ☐

    Others, _____

19. Why you are using different search method and system for your electronic resources need?

    Does not have enough and important collection of resources ☐

    University library not functional ☐

    Delivery support not as I need ☐

    Does not search and display from other sources ☐

    Other _____

20. How do you rate the usability of the interface of the library web site? ☐

    Very difficult ☐ Easy

    Difficult ☐ Very Easy ☐

    Somewhat easy ☐

21. What are the factors responsible for you choice of library? Please tick all the answers that are relevant to you. / you can tick more than one/

Services	
Convenient access time	
Accessibility of any where	
Library owns resources I need	

Integration of the service with other library	
Easy and fast of the system	
Helpfulness of guide how to use	
Other	

22. Do you think add the following services would be useful to you in your studies? Please circle the relevant number as indicated by the scale.

Services	not useful at all	somewhat useful	moderately useful	useful	extremely useful
Access to other university resources					
Supplemental reading sites					
Integration of available digital library in Ethiopia					
Accessing the resource from one site					
Accessibility of service from any ware and any time					

23. Do you have additional comment?

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