JIMMA UNIVESITY
COLLAGE OF NATURAL SCIENCE
DEPARTMENT OF INFORMATION SCIENCE

ASSESSMENT OF STUDENTS' SATISFACTION ON USING INTEGRATED LIBRARY SYSTEM IN SELECTED HIGHER INSTITUTIONS LIBRARIES IN ETHIOPIA

BY

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MSC. INFORMATION SCIENCE (INFORMATION AND KNOWLEDGE MANAGEMENT)

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A THEIS SUBMITTED TO THE DEPARTMENT OF INFORMATION SCIENCE, COLLEGE OF NATURAL SCIENCE, JIMMA UNIVERSITY, IN MEETING THE PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE OF MASTER OF INFORMATION AND KNOWLEDGE MANAGEMENT

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This Thesis titled "Assessment of students' satisfaction on using integrated library system in selected higher institutions libraries in Ethiopia" has been read and approved as meeting the requirements of the Department of Information Science in partial fulfillment for the award of the degree of Master of Information Science (Information and Knowledge Management), Jimma University, Jimma, Ethiopia.

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Title:

Assessment of Students' Satisfaction On Using Integrated Library System in Selected higher institutions Libraries in Ethiopia.

By

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Dedication

This work is dedicated to the Almighty God for being my strength when I get weak; my inspiration when I lose passion and my joy when nothing makes sense throughout my journey.

And

Next to God for my beloved family

ACKNOWLEDGEMENT

LIST OF ABBREVATIONS

ALE :   Academic Libraries of Ethiopia

ALs: Academic Libraries

CEARL: Consortium for Ethiopian Academic and Research Libraries

DB: Data Base

eLM: electronic Library Management

FOSS: Free and Open System Software

GUI: Graphical User Interface

HE: Higher Education Institute

ILS: Integrated Library System

IS: Information System

MARC: Machine Readable Catalogue

OPAC: Online Public Access Catalogue

R&D: Research and Development

RDBMS: Relational Database Management System

TNAS: Total number of academic staff in the universities

TNS: Total number of students in the universities

XML: eXtensible Markup language

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ABSTRACT

This research paper reports a part of a quantitative study that aims to assess students' satisfaction on using integrated library system (i) library services, (ii) infrastructure and (iii) collection/information provided by selected higher institutions libraries in Ethiopia. A questionnaire adapted from related works was used to measure the respondents' opinion on their satisfaction level on the statements related with the three dimensions. The instrument was distributed to a sample of 384 undergraduate, postgraduate and doctorate degree all years students from four faculties/colleges of Addis Ababa University and Jimma University. Descriptive and inferential statistics were used in the analysis of data, and for the parametric test the one-way analysis of variance (ANOVA) was used to compare the mean satisfaction scores among the respondents from the four colleges/ faculties. The results of the study revealed that respondents were moderately satisfied with the integrated library system services, infrastructure, and collection/information of the library as a whole. The respondents were relatively most satisfied with services (M= 3.62), followed by infrastructure (M= 3.32), and library collection/information (M= 3.00). The results also showed significant differences on the satisfaction of services, infrastructure, and libraries' collection/information among the respondents of the four faculties/colleges.

__Keyword__s: Integrated library system; User satisfaction; Library services; Library infrastructure; Library collection

CHAPTER ONE

1. INTRODUCTION

1.1Back ground

The main role of an academic library is to satisfy the needs of its users. They are indispensable instruments for intellectual development of the researchers and scholars. According to (Kotso, 2010), libraries assist in research process by collecting, preserving, and making available an array of information resources relevant to their research community. (Jubb and Green, 2007) observe that academic libraries have played vital roles in supporting research activities in all subjects and disciplines within their host campuses for centuries.

Moreover, studies also identified that students are not interested in visiting the library physically nowadays, and they are more comfortable in retrieving information electronically (Dilevko and Gottlieb, 2002; Moncrieff *et al.*, 2007) as virtual patrons. (Cullen, 2001) noted that due to the explosion of academic publishing and tertiary education, academic libraries are facing greatest challenge today. The author further argued that the global digital revolution is affecting both the traditional forms of creation, organization, and dissemination of knowledge and the world of tertiary education itself. Thereby, academic libraries are currently engaged in experimenting new ways to combine information resources, technology, and research (Laurie, 2003). Some libraries have reconfigured their physical space and redesigned services to meet the new challenges by adopting the idea of information commons or taking initiatives to provide library services (incorporating computers, information resources in various formats, and staff assistance) at a central location. In contrast, a study carried out on student and faculty use of academic libraries in Delta state at Nigeria found that printed books are heavily used than other materials (Okiy, 2000).

University libraries today are faced with challenges on several elements such as online information providers, e-learning and multimedia products, document delivery services, and other competitive sources of information that seem to be threatening the role of academic libraries (White and Abels, 1995; Hernon and Altman, 1996). As a result, university libraries may have to adopt a more strategic direction in which the creation and delivery of service

satisfactions for their users play an important role. Hence, there is a need for university libraries to understand the user needs and satisfy their information and research needs, therefore support in an ongoing learning activities.

The rapid growth and uses of emerging technologies has changed the traditional library into automated, electronic, virtual and digital library. This revolution has completely changed the library scenario, especially in an academic setup. This revolution is the need of the hour to make research more productive, to disseminate information and to establish a strong network system among all university libraries to quench the information thirst of the clientele. It is the wish and desire of a modern library to apply and enjoy the benefits of emerging technologies in its library daily house-keeping routines and future developments (Jan, 2011).

An automation system and integrated library system (ILS) are terms used to describe the software that operates the circulation, cataloging, public-access catalog, reports, and other modules that do the work of typical library operations. When libraries moved from a card-based system (card catalog, shelf list, etc.), staff would state that they had ''automated'' their circulation and catalog processes, hence the term ''automation system.'' Their books had bar codes instead of book pockets with book cards, and their customers searched for materials using a computer screen and keyboard instead of perusing polished wooden drawers full of three-by-five catalog cards (Webber & Peter, 2010).

As (Ossai-Ugbah, 2010) Described, we use Integrated Library System(ILS) to denote a library in which the collections of library materials are primarily on paper but in which the library procedures have been computerized. Libraries are very record-intensive: Not only is each title different but, for many purposes, the records needed for library operations must necessarily be concerned with individual copies of each title. A circulation system must know precisely which copy of which volume of which edition of which title was borrowed by precisely which borrower and when it is due back. Attributing the loan to some other borrower will not do; nor will substituting the return of some other document, even by the same borrower, be acceptable as a discharge of the loan. Acquisition records need to show precisely how many copies of a given work were ordered from which bookseller and which, if any, have so far been received. A library not knowing which titles it already has (and in how many copies) could not function

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efficiently. Serials records contain minute details of copies of issues, indexes, binding, and invoices in order to assure that each set is complete and properly acquired, bound, and paid for. Library records, then, must be specific to individual copies. In general it is desirable that library record-keeping be automated/used integrated library system for three reasons:

1. Much of the work involves the accurate updating of records in files. The tasks involved are generally tedious, repetitive, mechanical in nature, and lend themselves to computerization, even though the records may be complex and arranged in complicated ways.

2. Automation/ILS is likely to improve cost-effective performance by increasing accuracy, by reducing the rate of increase in costs in labor-intensive activities, and by increasing effectiveness. It should become possible to do some tasks more thoroughly than levels of staffing usually permit with manual procedures, such as the regular claiming of unsupplied issues of periodicals, or by doing things that cannot in practice be done in paper files, notably searching for combinations of characteristics.

3. Automation/ILS permits decentralized access to records. A librarian in a branch library can verify the status of another without maintaining duplicate files, traveling to another department, or asking other staff to interrupt their work in order to find out. A user can check to see whether a book is out on loan without traveling to the library to see whether it is on the shelf. Considerations of service, of cost, and of the human use of staff all argue for the use of computers to ease the burden and to increase the effectiveness of handling library records.

The automated library is internet technology based. The internet has changed lives in many ways; it has changed the way we communicate, just like the automated library has changed the way we study and source for educational and learning materials. Through this process, it has given students a tremendous sense of educational empowerment. And it is the beauty of the automated library that every user has now become a potential scholar (Ossai-Ugbah, 2010).

Ethiopia is one of the developing countries, which have been facing a lot of obstacles in introducing information technology in all information-related sectors, especially in libraries and information centers. Although, the present situation in Ethiopia is not as it should be, a

small breakthrough has been achieved in the last couple of years. Universities look forward to embracing Information Technology (IT) and maximizing its potential applications by building a strong information infrastructure based on electronic networking and resource sharing (Daniel, 1998).

1.2 Statement of the Problem

The researcher conceived this research idea during the experience sharing that was conducted in different academic libraries in Ethiopia in 2011. The researcher was one of the committee members that were assigned by Jimma University to prepare the Business Process reengineering (BPR) at Jimma University Library System. During this study the researcher has got the opportunity to observe Addis Ababa University, Haromaya University, Adama University and Mekele University libraries.

This event helped the researcher to observe problems related with services, infrastructure and collection/information of Integrated Library System (ILS) of the aforementioned academic libraries.

The history of library automation in the world is not an old one. It dates back to 1950s and 1960s in America and Europe. But library automation in Ethiopia is a recent phenomenon not older than a decade except the following organization libraries, which includes Economic Commission for Africa (ECA) library that was established in 1958, which maintains a strong collection of documents issued by African governments and international agencies, books on African development and periodicals. The Pan African Documentation and Information Systems for Social and Economic Development (PADIS) library established by the ECA in 1980, and known for its extensive bibliographic and referral databases, numerical databanks, and telecommunications links discussed and criticized by (Sturges and Neill,1990); and the International Livestock Centre for Africa (ILCA) library founded in 1974, which acquired its library services in the early 1980s, and has in–house online database of its entire book and microfiche collection as well as access to international bibliographic databases such as Agricola, AGRIS, and CAB International (Nordstrom,1995).

But, some academic libraries in Ethiopia has recently implemented integrated library system, for instance Addis Ababa University, Haromaya University, Jimma University, Mekele University, Adama University, Gondar University and Bahirdar University, etc.

However, the rapid growth and uses of emerging technologies has changed the traditional library into automated, electronic, virtual and digital library. This revolution has completely changed the library scenario, especially in an academic setup. This revolution is the need of the hour to make research more productive, to disseminate information and to establish a strong network system among all university libraries to quench the information thirst of the clientele. It is the wish and desire of a modern library to apply and enjoy the benefits of emerging technologies in its library daily house-keeping routines and future developments (Jan, 2011).

University libraries today are faced with challenges on several elements such as mega book stores, online information providers, e-learning and multimedia products, document delivery services, and other competitive sources of information that seem to be threatening the role of academic libraries (White and Abels, 1995; Hernon and Altman, 1996). As a result, university libraries may have to adopt a more strategic direction in which the creation and delivery of service satisfactions for their users play an important role. Hence, there is a need for university libraries to understand the user needs and satisfy their information and research needs, therefore support in an ongoing learning activities.

In the past two decades the number of government university libraries in Ethiopia has increased very rapidly. In 1992 there were only two universities but in 2013 this number raised to 34.

Thus, this study is based on the fact that ILS is one of the key enablers to all developmental activities of library services in higher institutions. It is widely recognized that ILS facilitates service quality in terms of organization, utilization of collection/information, use, dissemination and retrieval.

Hence, the researcher aimed to know the integrated library system service progress in Ethiopia. Therefore, it was very urgent to take a study on users' satisfaction on using integrated library system services in academic libraries in Ethiopia.

The goal of this study was to assess users' satisfaction on using integrated library system services in selected higher institutions libraries in Ethiopia, which consists of Addis Ababa University and Jimma University libraries.

1.3 Research Questions

The goal of this study was to assess users' satisfaction on using Integrated Library System in selected higher institutions libraries in Ethiopia. To achieve the goal, the following basic research questions were designed:

1. Are students of the higher institutions libraries in Ethiopia satisfied on using integrated library system; regarding services, infrastructure and collection/information?
2. Is there any difference on the satisfaction level of students from the four colleges/faculties in using integrated library system regarding services, infrastructure and collection /information?

1.4. Objective

The general objective of this study was to assess students' satisfaction on using integrated library system regarding library services, infrastructure and collection/information in selected higher institutions libraries in Ethiopia.

1.4.1 Specific objectives:

In order to answer the basic questions the following specific objectives were designed.

- To identify the satisfaction level of the students' on using integrated library system regarding the services. Collection/information provided by the academic libraries.
- To identify the satisfaction level of the students' on using integrated library system infrastructure.

- To identify the satisfaction level of the students' on using integrated library system collection/information.
- To compare the differences on the satisfaction level of students' among the four faculties/colleges on using ILS services, infrastructure and collection/information.
- To compare the differences on the satisfaction level of students' among the four faculties/colleges on using ILS infrastructure.
- To compare the differences on the satisfaction level of students' among the four faculties/colleges on using ILS collection/information.

1.5 Scope and Limitation of the Study

There are many university libraries in Ethiopia; however, it was impossible to cover all by this single study because of budget and time constraints. Thus, this study was focused only on Jimma University and Addis Ababa University.

1.5.1 Limitation of the study

There were several limitations during this study. The first limitation was the research "thematic area" it was difficult for the researcher to select research topic based on his own interest areas. The second limitation was finding a research advisor. This researcher had problem to find advisor that was assigned by the Department and it was one of the major problems to start and finish the research paper on time. The third limitation was unavailability and scarcity of recently published reference materials; for instance absence of related research works on this topic in the country. The fourth problem was budget limitation.

1.6 Significance of the study

The Study is significant to the higher institution higher officials, library administrators, academic staff and researchers, because they can make use of this research output to take corrective measure on the satisfaction level of students' regarding their library services, infrastructure and collection. Also the output of the study will be used as a baseline reference for students' satisfaction level for the two university libraries. Moreover, it will serve as benchmark for the other higher institutions libraries officials and library administrators as well

as, will help as a source of methodological approach for studies dealing on integrated library system.

The researcher also believes that this study will contribute to the process of ILS creation and experience sharing in the higher institution libraries of Ethiopia. On the other hand, the findings and recommendations of the study will contribute towards the ongoing efforts of developing an integrated library system in higher institution libraries of Ethiopia. In addition, the research will serve as an eye-opener and a pointer towards further study in the area.

1.7 Operational Definition

Automation/Integrated library system: The two phrases are interchangeable and mean the same thing. An automation system and integrated library system (ILS) are terms used to describe the software that operates the circulation, cataloguing, public-access catalogue, reports, and other modules that do the work of typical library operations. When libraries moved from a card-based system (card catalogue, shelf list, etc.), staff would state that they had ''automated'' their circulation and catalogue processes, hence the term ''automation system.''

Students' satisfaction: Students' satisfaction is ultimately a state experienced inside the students head and therefore it is a response that may be both intellectual and emotional or fulfillment of one's wishes, expectations, or needs.

Library services: Library services that are provided by academic libraries, which can be traditional, automated and digital library, such as, circulation service (manual or electronic), reference service(online reference service), periodicals service, documentation service and cataloguing services (online public access catalogue(OPAC)), etc.

*LibraryInfrastructure:*the basic, underlying framework or features of a system or organization.

*Librarycollection:*the published works and other documents collected by libraries for public u se and made accessible through a system of catalogs and card files.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Users' satisfaction

Satisfaction is generally defined as "fulfillment of one's wishes, expectations, or needs" (Oxford Dictionary). Studies on *information user* and *information user satisfaction* have a history of 40 years (Shi, 2001). In the late 1990s, Gap theories and LibQual model were widely accepted by research libraries. Since then, library service evaluation and user satisfaction issues have been discussed in a variety of subject literatures. Many researchers have observed that user satisfaction is a central variable in most user-oriented research (Kotler & Andersen, 1996). Researchers have adopted knowledge and models from other disciplines such as marketing, psychology and computer science to discuss the user satisfaction related to libraries. Thereafter, it was found that a series of variables contributing to user satisfaction other than performance alone (Applegate, 1993).

User satisfaction at micro level – concern only one individual service - user satisfaction contributes to the dimensions of service quality (i.e., tangibles, reliability, responsiveness, assurance, and empathy) (Cullen, 2001). User satisfaction at macro level – concern all the services which users interact - user satisfaction is a global or macro view of quality of services and integrates all the above mentioned dimensions of service quality. It contributes to user's overall satisfaction with the organization (Cullen, 2001). In an early attempt to define *user satisfaction* as a concept, (Tessier *et al*., 1977) stated that satisfaction is "ultimately a state experienced inside the user's head and therefore it is a response that may be both intellectual and emotional".

In the field of library science, researchers usually approach user satisfaction in traditional way, in which researchers emphasize the investigation of user material needs and fulfillment - what users requested and received from libraries (Fei Yu, 2006). Usually, the physical objects like books and journals are the main focus of these studies. (Azzah and Mark, 2010) investigated the relationship between user satisfaction and four factors such as system

effectiveness, user effectiveness, user effort, and user characteristics. A survey analyzed by (Sivathaasan, 2013) revealed that 11.1% of user satisfaction is determined by library collections such as reference collections, lending collections, periodicals, archival materials, and electronic resources. (Simmonds *et al*., 2001) stated several factors that can influence users' satisfaction. These factors include responsiveness, competence and assurances, tangibles and resources. The study of (Basil and Patience, 2012) revealed that information resources, facilities, and services are the factors which influence users' satisfac-tion. (Daisy ,2006) found that most respondents were somewhat or very satisfied with overall library services and staff performance; moderately satisfied with the print collection; and least satisfied with space and ventilation, lack of study areas and the noisy environment. The helpfulness of the staff was rated the best. (Chandarsekar and Murugathas, 2012) found that text books are the main information source for undergraduates.

Customers are generally considered as king in any services provided by the organization. In a customer satisfaction survey done by (Zheng, 2004), increasing number of requests showed that users are truly satisfied with inter-library loan services and commented timely usable. Further, user satisfaction in relation to library facilities and services depends on quality of services offered by the library. (Velnampy and Sivesan, 2013) assessed the service quality of university libraries in Sri Lanka. This study analyzed twenty three variables which measure the service quality of university libraries and finally extracted four factors using factor analysis, namely convenient opening hours, current information, collection comprehensiveness, and convenient access to collection. (Velnampy and Sivesan, 2012) in their research on determinants of customer relationship marketing of mobile service providers in Sri Lanka extracted three factors namely trust, rapport and accuracy using factor analysis. In another study (Velnampy and Sivesan, 2012) they extract from the analysis that together accounted 84.924% of the total variance. These factors were categorized as payment, achievement and proud to work

The topic of customer satisfaction has received considerable interest in recent years, is one of the most popular research topics in marketing (Patterson, 1997; Naeem, 2010; Karna, 2004; Churchill, 1982; Spreng Mackezie and Olshavsky, 1996; Yoon, 2010) has attracted significant

attention from top management in many companies (Bernhardt, 2000). A customer is satisfied when an offering performs better than expected and is dissatisfied when expectations exceed performance (Bolton, 1991) or when actual experience exceeded from expectations. (Kotler et al 2006) points out that whether the buyer is satisfied after purchase depends on the offer's performance in relation to the buyers expectations. Similarly, customers have expectations with regard to the behavior of service employees, when these are exceeded, the level of customer satisfaction with the service provider is positively influenced (Thurau, 2004). Customer satisfaction can be derived from product (Churchill, 1982; Oliver, 1993; Homburg and Rudolph, 2001; Westbrook, 1980) which relates to the customer's evaluation of product performance based on such characteristics as durability, dollar value, technical sophistication, and ease of use (Homburg and Giering, 2001) consumption experience (Bearden and Teel, 1983) and price (Anderson,1996). Moreover, satisfaction with salesperson performance has received considerable attention (Sheth, 1973) which relates to the interaction between the sales personnel and the customer and the ability of the sales

representative to meet a customer's unique needs (Homburg and Giering, 2001). In addition to it, service encounter play a prominent role in customer satisfaction (Suprenant, 1987, Bitner, 1990). Customer satisfaction is often seen as crucial link in establishing long term relationships (Patterson, 1997; Karna, 2004) and few businesses can survive without establishing solid relationships with their customers (Morgan and Hunt, 1994; Dwyer, Schurr, and Oh, 1987). Customer satisfaction also contributes to customer retention (La Barbera and Mazursky, 1983; Zeithaml, Berry, and Parasuraman 1996; Anderson and Sullivan, 1990; Anderson, Fornell, and Lehmann 1994; Cronin and Taylor 1992; Bearden and Teel 1983; Boulding et al. 1993; Oliver and Swan 1989; Oliver, 1980; Rust, 1994; Newman and Werbel, 1973; Fornell and Wernerfelt 1987, 1988). According to (Kotler,2006) One key to customer retention is customer satisfaction, a satisfied customer stays loyal longer‖ and loyalty drives profitability and growth (Heskett, 1994; Pugg, 2002). Loyal and satisfied customers are best achieved by loyal and satisfied employees (Heskett, 1994). It is widely recognized from literature that without satisfied and motivated employees it is impossible to produce worldclass products and impossible to achieve satisfied and loyal customers (Eskildsen and Dahlgaard, 2000).

2.1.1 Conceptualization of customer satisfaction

The literature on customer satisfaction/dissatisfaction suggests two different conceptualizations: Transaction specific and Cumulative (Boulding, 1993).

The most commonly used conceptualizations are based on two perspectives: cumulative and transaction. Several authors agree that there is need to adopt cumulative definition of satisfaction (Johnson, 2002) because cumulative satisfaction is a more fundamental indicator of the firm's past, current, and future performance and motivates firm's investment in customer satisfaction (Anderson, 1994) provide a reliable performance benchmark for making broad based comparisons (Johnson, 2002), whereas transaction specific satisfaction provide information about particular product or service encounter (Anderson, 1994). In consistent manner Hsu, 2008 posits that cumulative customer satisfaction is a fundamental indicator of firms past, current and future performance instead of specific transactional information about a product or service encounter. Cumulative satisfaction should be viewed as a theoretical or latent variable (similar to an attitude). As a latent variable, satisfaction can be empirically measured and meaningfully compared as a weighted-average or index of satisfaction indicators (Johnson, 2002). (Homburg and Giering, 2001) have taken broader perspective to explain customer satisfaction. Customer satisfaction can be defined ―as the result of a cognitive and affective evaluation, where some comparison standard is compared to the actually perceived performance. The satisfaction judgment is related to all the experiences made with a certain supplier concerning his products, the sales process, and the after-sale service.

2.1.2 Antecedents of Customer Satisfaction

Customer satisfaction is influenced by overall quality, price, expectations (Anderson, 1994; Fornell et al., 1996) firm image (Aga, 2007) and persons desires (Spreng, 1996). Moreover, several authors have examined positive relationship between expectation and satisfaction (Ernest et al., 1987; Churchill and Surprenant 1982) product's perceived performance and the customer's expectations regarding that performance (Churchill and Surprenant 1982; Oliver 1980; Westbrook and Oliver 1981; Yi 1990; Tse and Wilton 1988). (Oliver and DeSarbo, ,1988) suggest that effects of expectations and perceived performance are mediated via disconfirmation construct (Churchill and Surprenant, 1982).

2.1.3 Expectation Disconfirmation Paradigm

The expectation disconfirmation paradigm is most popular in customer satisfaction literature (Oliver, 1980, 1981; Spreng, MacKenzie, and Olshavsky, 1996; Tse and Wilton, 1988). Several authors have reported that expectations and disconfirmation are important variables to explain customer satisfaction (Bearden and Teel, 1983; Rogers, 1998). According to Churchill, 1982 the full disconfirmation paradigm encompasses four constructs: expectations, performance, disconfirmation, and satisfaction. Disconfirmation arises from discrepancies between customer satisfaction different for different types of industries prior expectations and actual performance. if perceived performance exceeds a consumer's expectations (a positive disconfirmation), then the consumer is satisfied but if perceived performance falls short of his or her expectations (a negative disconfirmation), then the consumer is dissatisfied (Spreng, 1996). Expectations are considered to be the needs or desires of the consumer, identified by what the consumer feels should be delivered by the provider of the service before receiving it (Millan, 2004). Prior literature confirms the impact of disconfirmation of expectation on satisfaction (Yi, 1990). Researchers have found that consumer involvement with products or services influence the operation of disconfirmation in determining satisfaction (Day, 1977)

2.1.4 Current Performance is a Predictor of Customer Satisfaction

Several other authors found that sometimes disconfirmation have no impact on customer satisfaction. Churchill, 1982 demonstrated performance had a direct effect on satisfaction with durable goods. In case of durable product performance appears to impact customer satisfaction directly rather through disconfirmation. This is due to the reason that this product is new and no prior information of this product is available. In this case, current performance is assumed to have greater impact on customer satisfaction not through disconfirmation. Similar, Findings have been found by (Tse and Wilton, 1988) for compact disc players and by (Bolton and Drew,1991) in consumer telephone services. When the consumer has no expectations about a product or experience, performance becomes the primary determinant of satisfaction (LaTour, 1979). It is confirmed that performance is found to be strongest predictor of customer satisfaction (Tse and Wilton, 1988; Oliver and Desarbo, 1988). Moreover, (Johnson, 1991) argues that, in a dynamic perspective, customers' experience with products and services should result in a general increase in perceived satisfaction. This increase can not be explained strictly on the basis of disconfirmation. (Cardoza, 1965) stated that "customer

satisfaction may depend not only upon the product itself, but also upon the experience surrounding acquisition of the product" (p. 249).

2.1.5 Service Quality is Most Important Component to Explain Customer Satisfaction

In spite of all factors studied, service quality has received considerable attention (Lien, 2008). This is due to the reason that the quality of goods can easily be measured by taking into account the certain physical properties; the measurement for services is rather difficult because the quality in this case depends on large number of factors (Aga, 2007). Several studies report that quality's effect on customer satisfaction is often seen as greater than other antecedents (Churchill and Suprenant, 1982; Oliver and DeSarbo, 1988; Anderson and Sullivan, 1993). Furthermore, (Cronin and Taylor, 1992) concludes perceived service quality leads to customer satisfaction which in turn, has a significant effect on purchase intentions. (Boulding and Zeithaml, 1993) points out the positive effect of perceived service quality on behavioral intention. Expectations and delivered service influenced perceived service quality, which in turn, has an impact on

behavioral intentions such as willingness to provide favorable word of mouth and engage in repeat business (Bernhardt et al., 2000).

There is also a controversy regarding the relationship between customer satisfaction and service quality. Some authors reported that relationship exist between customer satisfaction and service quality (Oliver and DeSarbo, 1988; Parasuraman, Zeithaml, and Berry,1994). Some posit that service quality is important antecedent of customer satisfaction (Parasuraman et al. ,1988; Churchill and Suprenant, 1982; Cronin and Taylor, 1992; Spreng and Mackoy, ,1996; Oliver, 1993; Fornell ,1992; Oliver and DeSarbo ,1988; Chigozirim, 2008). Some other argues that customer satisfaction is an antecedent of service quality. Finally, it is agreed that customer satisfaction is broader construct than service quality, so service quality assumed to be an important antecedent of customer satisfaction.

 In the aforementioned paragraphs discussion was made on different researchers' findings on users' satisfaction in different academic libraries services. The following sections will discuss about overview of integrated library system in selected higher institutions libraries in Ethiopia and general aspects of Integrated Library System.

2.2. Overview of ILS in Selected Higher Institutions Libraries in Ethiopia

2.2.1 Addis Ababa University Libraries

The main university library is known as John F.Kennedy Memorial Library, opened in August 1969.It is located at Sidist Kilo in the main campus of Addis Ababa University. It primarily holds library materials on humanities and social sciences and serves almost all the University community and registered external users .The main library also renders centralized technical processing services (such as acquisitions of information resources, cataloguing and ICT related services) to all branch libraries organized under the university library system [http://www.aau.edu.et/index.php/about-library].

2.2.1.1 Computer and Information Retrieval Center

 AAUL system uses KOHA software for its integrated library system. The library delivers electronic information services to users in literature searches from databases, e-mail, and online public access catalogue (OPAC). The AAU Libraries subscribes to more than 15,000 full text, scientific journals and scholarly databases from different publishers and suppliers. The Addis Ababa University Libraries (AAUL) conducts workshops and training session on information literacy skills and also holds consultative meetings with other college and university libraries in the country. This is done as part of AAU Libraries resource sharing initiative. Most of the programs were carried out with the cooperation of Program for the Enhancement of Research Information (PERI) in Ethiopia. PERI is a UK based program that supports capacity building in the area of research in developing and transitional countries by helping in the production, access and negotiation with publishers of journals, in effect, facilitating easy access to information and knowledge. PERI was founded by International Network for the Availability of Scientific Publications (INASP). Addis Ababa University Libraries negotiated the entry to this program in 2002 and has been the coordinating institution in Ethiopia since then [http://www.aau.edu.et/index.php/about-library].

Addis Ababa University Library serves and promotes the teaching, learning and research environment where information resources are made accessible for those who are engaged in the pursuit of knowledge and excellence in teaching, learning and research. The library primarily supports its parent organization, a student-centered and research-based higher

education institution through provision of library and information services [http://www.aau.edu.et/index.php/about-library].   .

2.2.1.2 *Online Public Access Catalogue*

The AAU Libraries Online Public Access Catalogue holds all the catalogue records of the main and constituent/branch libraries. It is organized into two bibliographic databases: the Union Catalogue (the main catalogue) and the Ethiopian Collection Catalogue. The Union Catalogue contains over 500,000 volumes of books and bound journals. The Ethiopian collection database contains over 30,000 volumes of books, theses and dissertations and other documents in English languages and other languages [http://www.aau.edu.et/index.php/about-library].

2.2.1..3 *AAUL Electronic Theses and Dissertations*

The Addis Ababa University Libraries (AAUL) Electronic Theses and Dissertations (AAU-ETD) was established by the Addis Ababa University (AAU) Libraries in collaboration with the Graduate School in mid 2007 as a pilot project on specific disciplines: humanities, arts and social sciences. Now it is a repository of theses and dissertations in all disciplines containing more than 4000 students' works, mainly of Master theses [http://www.aau.edu.et/index.php/about-library].

2.2.1.4 AAiT Digital Library

The AAiT library has organized more than 10,000 E-book collections in the areas of Civil Engineering, Chemical Engineering, Mechanical Engineering and Electrical and Computer Engineering. The digital library also contains Engineering handbooks and Encyclopedias as well as Supplementary E-books for engineering studies [http://www.aau.edu.et/index.php/library-search-the-collection].

2.2.2. Jimma University Library System

JULS was established in 1999 to promote the instruction, research and public service goals of the university through provision and organizing of information resources in different formats. Currently it has eight organized branch libraries [http://www.ju.edu.et/library/node/23].

2.2.2.1 Collection

The JULS operates in a closed and open access systems. JULS houses around 200,000 monographs, physical journals, magazines and audiovisual collections. The ULS has also access to 7,200 online e-journal resources (full-text documents, reviews, abstracts, and databases). In addition, over 10 million digital off-line eGranary library, and CD-ROMs are available.

JULS uses ABCD software for its integrated library system. JULS collection is fully computerized. It has an electronic loan system at six branch libraries and has an on line Public Access Catalogue (OPAC), which provides the base for the Cataloguing Network in main library, Health Sciences Library, Science library, Technology Library, College of Agriculture and Veterinary Medicine Library and Law Library [(http://www.ju.edu.et/library/node/23].

2.2.2.2 Electronic Journals and Databases

Electronic full-text journals, articles, abstracts, reviews and database resources, be it subscribed by the library or open (free) access are available online and off-line. These resources are acquired mainly through HINARI, NLM, EIFLENET, eGranary, and CD-ROM databases in collaboration with PERI, WHO, ecbp programs and other scientific communities [http://www.ju.edu.et/library/node/23].

2.3 Over View of Integrated Library System

Application of Information Technology to Library Services has several systems and has been developed for their various house-keeping chores and more still are being designed and refined, due to the technology of large-scale integration. These are known as microcomputers designed to handle any of the library processes like acquisitions, cataloguing, serials control, circulation control, bibliographic control, or Selective Dissemination of Information (SDI) (Ogunsola, 2004). Information Technology (IT) is applied to the operation of libraries and information centers to ensure that information delivered is timely, accurate, precise and relevant (Madu, 2002). The concept of Library Automation, thus, became popular and of which (Cobin, 1985) explained that "in the traditional manual library system, staff perform the various tasks required to complete each operation, but if a computer is used to perform some processing operations, an automated library results". Thus, automation helps in the

acquisitions, organization, storage and dissemination of information in libraries. Generally, IT applies to library services in a number of ways, which include: Acquisitions, Cataloguing, Circulation, Serials and User Services.

(Dilroshan, 1998) says that automating a library is only the first step. Keeping up with new trends in information and communication technology is also of paramount importance. If the libraries fail to meet these challenges successfully the tremendous investment that universities have made in their library collections and facilities will be seriously undermined. (Nok, 2006) observes that the success of automation in the university library depends largely on the ability of staff to facilitate and implement the process. Proper, frequent, and regular in-house IT training is a necessity if the maximum benefit is to be gained from the automation of library services. It was further added that if the library ensures sound and quality automation of services and information resources, they need to create new approaches to user education, pays attention to the provision of continuing education for library staff, helping them to master the new techniques required for the management of electronic and the networked information resources and services which makes the gains of automation are immeasurable.

(Bavakutty, 2006) pinpoint the fact that the information explosion, shrinking budgets, and rising costs, a shift in the medium of publication, and lack of adequate staff are the major reasons that necessitate dependence on latest technologies in university libraries. (Salma, 2006) has conducted comparative research study on the management of University of the Western Cape library, South Africa and Dhaka University library, Bangladesh. He suggests that the two studied libraries can improve service delivery if they vigorously promote fund raising activities, improve salaries and allowances of the library staff, and speed up and complete the highly advanced computerization of delivered services.

(Tiwari, 2002) sees automation in nineties as an increasingly divergent issue, in terms of resources, skills and abilities. Over the past few years, library automation has undergone a dramatic shift in direction. Library automation began with in-house processing of traditional task and grew to include the use of computing and telecommunication tools. Nowadays, there is a "library without walls" which uses technology to expand services, resources and relationship between libraries and resources around the world. This "virtual library" is a

reality. A world of digital information is just a keystroke away claims IBM digital library. The future of library automation system will include information kiosks, where people with no computer experience can access information easily. Information scientists will create human computer interfaces and library scientists will manage the resources.

2.3.1 Integrated library system/Automation system/

(Cibbarelli, 1999) refers to the provision of integrated online access to the library catalogue and to cataloguing, circulation, acquisitions and serials management functions. As an overall framework, it is useful to have in mind (Borgman's, 1997) identification of three stages of library automation. These are as follows:

- Improving the efficiency of internal operations, through improving internal work flow and sharing catalogue data.

- Providing access to local library resources, through the provision of OPACs and through retrospective conversion of card catalogues.

- Providing access to resources outside the library.

There are two basic types of system as (Saffady, 2000) described: those intended for larger academic or public libraries, and those intended for smaller libraries, such as school or special libraries. The division, however, is not absolute.

The two phrases are interchangeable and mean the same thing. An automation system and integrated library system (ILS) are terms used to describe the software that operates the circulation, cataloging, public-access catalog, reports, and other modules that do the work of typical library operations. When libraries moved from a card-based system (card catalog, shelf list, etc.), staff would state that they had ''automated'' their circulation and catalog processes, hence the term ''automation system.'' Their books had bar codes instead of book pockets with book cards, and their customers searched for materials using a computer screen and keyboard instead of perusing polished wooden drawers full of three-by-five catalog cards (Webber and Peter, 2010).

Over time, more and more functions of the library are being automated, and the software is continually improving. Libraries currently have automation systems that manage their serials, track and process their interlibrary loan requests, acquire materials from vendors, and provide patron authentication for remote access to the electronic databases on their Web sites. Most vendors use the term ''integrated library system'' instead of ''automation system.'' The former better describes that the computerized functions or modules are interconnected and dependent on one another. For example, staff can use the circulation module to search the catalog, add items to a bibliographic record, and even catalog materials ''on the fly.'' Another example is the electronic databases to which many libraries subscribe and make available on their Web sites. Remote access to a library's online databases uses the patron database within the ILS software to ''authenticate'' that the person is a library customer before allowing entry into the database (Webber and Peter, 2010).

It is important to find the system that will fit both the institution's needs and its budget. So the first steps are (1) to educate oneself about the field of integrated library systems, and (2) to evaluate the needs of your facility. These steps are necessary whether you are purchasing an integrated library system for the first time or migrating to another system. Researching information about integrated library systems and evaluating your facility is a two-pronged approach toward selecting the best ILS for your library (Webber and Peter, 2010)

There are differing opinions as to which step to take first: evaluating the library's collection, staffing, customer base, technology needs, access to technical support, and budget, or researching integrated library systems and what is available. Those who follow trends in technology and the ever-changing field of integrated library systems will be able to assess their institution and write a request for proposal (RFP), view demonstrations, and make a purchasing decision. Those who are new to selecting and implementing an ILS, or have not delved into this area for several years, will want to first research what is available. The field of library automation is rapidly evolving and increasingly complex due to technological innovations in software, delivery of services, mergers, and competition (Breeding, 2009).

(Cibbarelli, 2007) mentioned helpful features for each integrated library system:

- Gives hardware requirements for servers and clients along with the operating systems and recommended Web browsers.

- Lists what modules and applications are available (circulation, cataloging, online public access catalog (OPAC) Z39.50, acquisitions, serials, etc.).

- Gives details on MARC formats and interfaces, such as whether or not the software can import or export full MARC, has a graphical user interface for the OPAC, etc.

- States the type of libraries for which the ILS is recommended: corporate and government, public, school, and university libraries.

- Provides initial installation date, total number of installed sites, and a sampling of current customers.

- Lists system and component prices (along with the caveat that prices are subject to change).

- Supplier comments are given at the end of each description.

2.3.2 Types of Integrated Library System

2.3.2.1 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. The ILS software and the patron and bibliographic data are stored on the server and communicate via the network with the client workstations located within the library at the circulation desk, reference desk, public-access catalogs, and so forth. This option requires that the library house the server(s) on-site and manage the client workstations and network (Webber and Peter, 2010).

2.3.2.2 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. Stand-alone implementations occur in all types and sizes of libraries. Stand-alone installations can be on a single computer workstation in a very small library or on a local area network (LAN)/ wide area network (WAN) in client-server architecture.

As (Webber and Peter, 2010) describes in their book managing a stand-alone ILS requires attention to issues as varied as:

1. Regular backups of patron and bibliographic data.

2. Maintaining the ILS server and database.

3. Creating and running reports.

4. Technical support for ILS users.

5. Customizing the display of the public-access catalog.

6. Managing access to and setting up security for staff modules.

7. Installing client software on staff workstations.

8. Serving as the liaison between the library and the ILS vendor.

9. Keeping current with new versions and features and coordinating any needed software upgrades.

10. Testing connections between the ILS and any linked external databases.

11. Setting up policies in conjunction with other library staff.

12. Implementing new or additional modules.

2.3.2.3 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. Sometimes vendors will use the term ''hosted'' when they mean software-as-a-service (SaaS). If the vendor describes a ''subscription price,'' then the vendor is describing SaaS. If the library purchases the software but the vendor hosts the software on its servers, then the vendor is describing a hosted system (Webber and Peter, 2010).

Hosted systems are cost-effective choices for libraries that do not want to invest in server hardware or that do not have adequate space to house a server. It can also be a good choice for libraries that want or require minimal interaction with software issues. The vendor's technical-support department troubleshoots any software problems and installs all updates at its location. A dependable, high-speed Internet connection is required so that the staff workstations and public-access catalogs can communicate with the vendor's servers (Webber and Peter, 2010).

Depending upon the ILS product, there may be client software that needs to be installed on the library's staff workstations and public-access catalogs in order to communicate with the vendor's server. This software may be installed remotely but staff interaction may be required in assisting technical support with this process. Sometimes the workstations access the ILS software simply through a Web browser, and often there is a mixture of both PC-based and Web-based modules. For example, the circulation module may be PC-based with client software loaded onto the workstations at the circulation desk, but the reports module is Web-based and is accessed by typing in a URL, such as http://www.your libraryreports.com. The latter is password-protected so only library staff can access the module (Webber and Peter, 2010).

2.3.2.4 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. Instead, it pays an initial fee for the ILS software along with an annual or monthly subscription fee to the vendor. The vendor uses the Internet to deliver software functionality instead of installing software on the library's hardware. Staff

access the modules—circulation, reports, cataloging, and the like—via a Web browser. The bibliographic and patron data are stored on the vendor's servers (Webber and Peter, 2010).

A specialized form of SaaS is ''cloud computing.'' (Many times, the two terms are used interchangeably.) Technically, cloud computing refers to the way the vendor structures services. In a SaaS environment, the vendor installs a separate instance of the software for each library subscriber. In a cloud-computing environment, the vendor runs a single instance of the software for all libraries and manages the separation of all the data by configuration within the software itself (Webber and Peter, 2010).

2.3.3 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 and Peter, 2010).

2.3.3.1 Open-Source ILS Software

Open-source ILS software is software that has either been developed by communities of libraries, such as Evergreen, or is a product in which its source code can be accessed and adapted by others. In all instances, the open-source ILS software is free for libraries to download, use, and modify. An OPAL (Open-Source Automated Library System) is an example of an OSS in which the library does not pay for the software but pays an annual subscription fee to use it (Webber and Peter, 2010).

Some of the more well-known OSS integrated library systems are Koha, Evergreen, and OPALS (Open-Source Automated Library System). If you go to Evergreen's Web site at http://www.evergreen-ils.org, there is a link to download the ILS software for both the server and the client. If you go to the Web site for Koha at http://koha.org, there is a link to download software to the server. OPALS, at http://www.opals-na.org/, however, is an Internet-based system. There is no software to download. Instead, there is a set-up and annual subscription fee to use the software. Open-source software is being developed specifically for

research and academic libraries in the open library environment (OLE) project (Webber and Peter, 2010).

2.3.3.2 System Functionality

All integrated library systems discussed are modular in design. Vendors offer suites of interrelated programs, called "application modules," that automate specific library operations. As described above, one or more required modules provide core functionality, including data base management, data entry, and system administration. Other application modules are usually offered as extra cost options to be implemented at the customer's discretion. Some optional modules automate operations, such as acquisitions or media booking, that a given library may prefer to computerize in some other way. Others, such as reserve room management or homebound access, appeal to specific types of libraries. Certain modules, such as authority control or MARC record interfaces, are supported as standard capabilities with some integrated systems but as optional components by others. The following discussion surveys are important capabilities and features associated with specific application modules (Saffady, 1997).

2.3.3.2.1 Cataloging

Cataloging is a core application module that permits the creation, updating, and management of a library's bibliographic data base. Certain cataloging capabilities are so widely implemented that they provide little basis for product differentiation, although system-specific variations can affect the convenience with which particular tasks are performed. All minicomputer- and mainframe-based integrated systems support MARC records for those types of library materials for which USMARC formats have been developed. Some systems also support other national implementations of the MARC format, such as CANMARC, UKMARC, UNIMARC, OR-AUSMARC. One integrated library system, Unicorn from SIRSI Corporation, supports the COSATI/CENDI format developed by the U.S. Department of Defense for technical reports and similar documentation.

2.3.3.2.2 Online Catalog

The introduction of effective online public access catalog (OPAC) modules in the late 1970s and early 1980s signaled the transition from single-purpose circulation control systems to

truly integrated library systems. For many libraries, the implementation of an online catalog as a substitute for a card or book-form catalog is the principal motive for installing an integrated system, (Saffady, 1997).

2.3.3.2.3 Circulation Control

The circulation control modules of integrated library systems automate a variety of tasks, including check-out, check-in, and renewal of library materials; placement of holds; fines calculation, collection, and recordkeeping; creation, maintenance, and retrieval of borrower records; and printing of reports and notices. Drawing on three decades of library experience with computer-based circulation management, most circulation control modules are very well developed and highly parameterized. Libraries define loan periods, fine rates, renewal restrictions, and other circulation characteristics for specific types of items and borrowers. For maximum flexibility, circulation parameters can be defined separately for individual participants in consortia or other multi library arrangements (Breeding, 2008).

2.3.3.2.4 Acquisitions and Serials Control

Cataloging, online public catalog access and circulation control are core components of most integrated library systems. They are included in the price of a basic system configuration. While other application modules may automate important operations, such as acquisition and serials control, they are usually offered as extra-cost options. In new integrated system installations, they are seldom accorded the highest priority for implementation. They may be added at a later time, following installation and stabilization of core components. Alternatively, a library may prefer to automate acquisitions and serials control through locally developed programs, microcomputer-based products, or timesharing services (Breeding, 2008).

2.3.3.3 Added Features of ILS

When considering which integrated library system to purchase, it is vitally important to look at what added features each ILS will support. The term ''added features'' is used for equipment and software that is outside of the standard modules of circulation, catalog, reports, and the online public-access catalog (OPAC). ''Added features'' are modules or functions that are requested and purchased in the contract as additions to the basic system offered by the ILS

vendor includes Online Acquisitions Module, Serials Management Module ,Interlibrary Loan Management, Automated Notification Systems, Federated Searching Tools, RFID and Self-Checkout, Public Computer Reservation and Print Management and E-Commerce (Webber and Peter, 2010).

As (Sani, 2006) described in her thesis; Circulation, Acquisition, Serials and data logging modules:

1) Should be fully integrated with the web OPAC;
2) Streamlined workflow with point and click functionality;
3) Be simple and institutive to use;
4) With effortless navigation; and
5) Seamless integration

These requirements are presented in (figure-1 of) the model below.
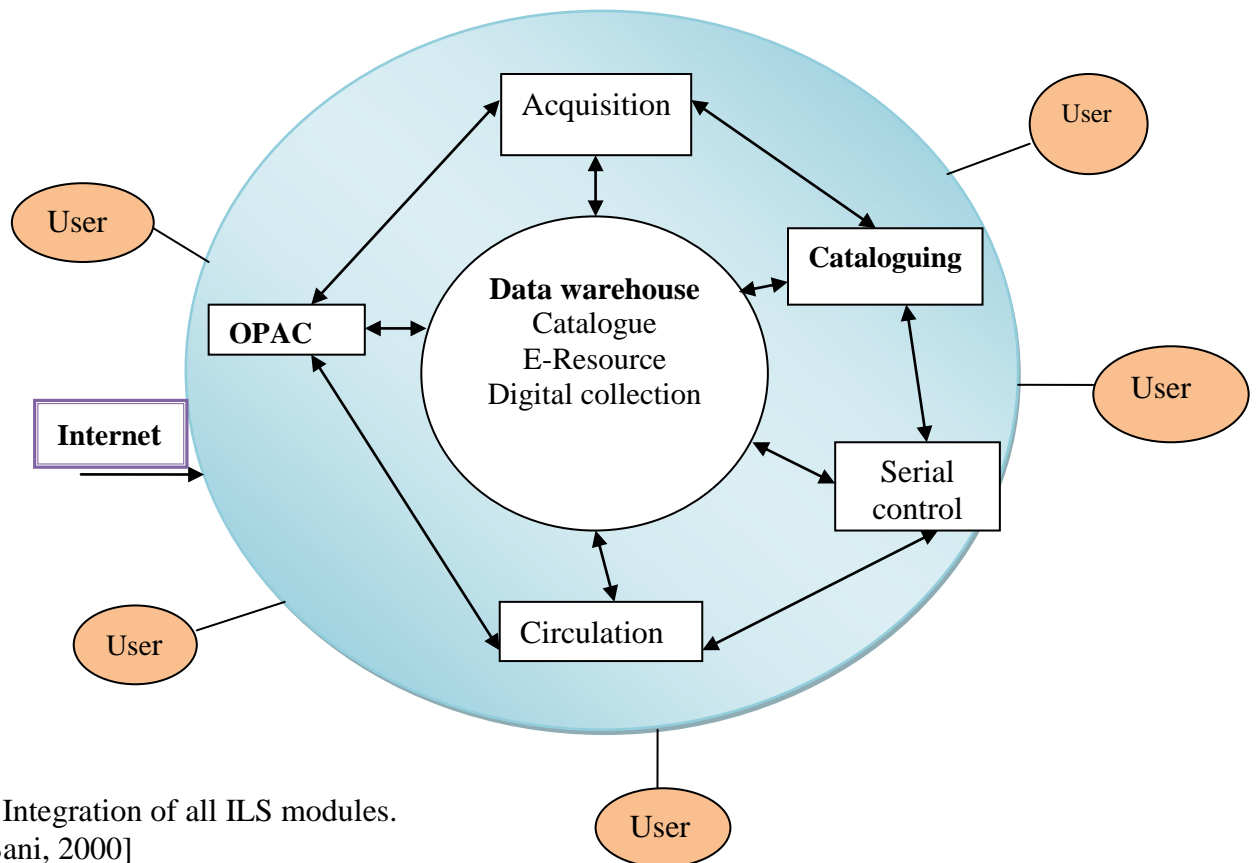
Figure2. 1: Integration of all ILS modules.
(**Source:** Sani, 2000]
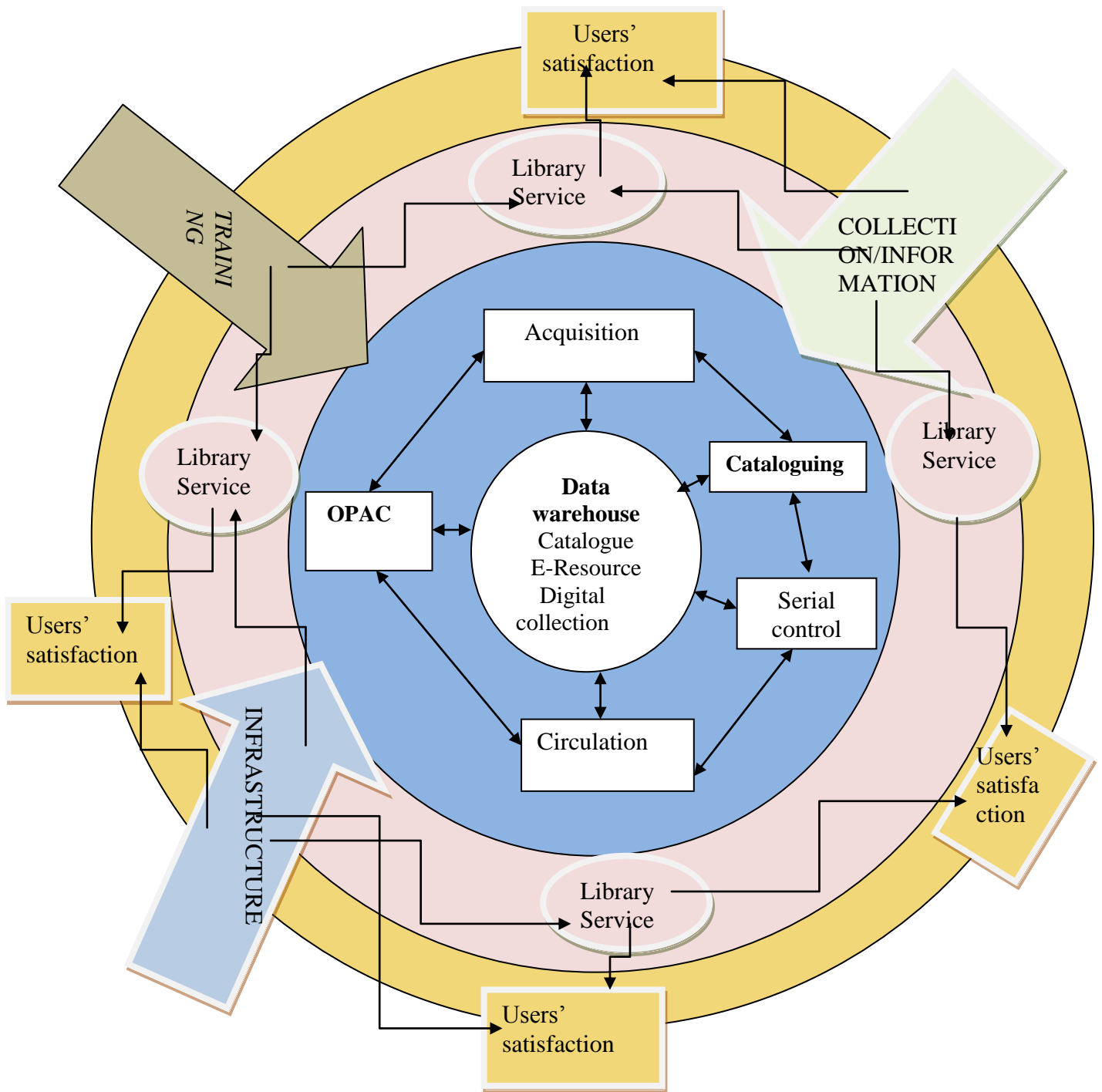
Figure: 2.2 ILS Users' Satisfaction Conceptual Framework

Various have been done on satisfaction in various aspects of academic library services in different countries but studies on user satisfaction in connection with integrated library system is not done widely indifferent countries of the world.

This paper attempts to describe the results of a survey type quantitative study that investigates students' satisfaction on using integrated library system services in selected higher institutions libraries in Ethiopia.

The study aimed to assess users' satisfaction on integrated library system regarding library services, infrastructure and collection/information. Major objectives of the study were:

- To identify the satisfaction level of the users on using integrated library system regarding the services, infrastructure and collection/information provided by the academic libraries.
- To compare the differences on the satisfaction level of students from the four faculties/colleges in the selected higher institutions libraries regarding integrated library system.

CHAPTER THREE

3. METHODOLOGY

3.1 Introduction

The research method is the heart of a research because it helps researchers to decide how they are going to achieve their stated objectives, what new data they need in order to shed light on the problem they are going to address and how they are going to collect data and process the data. Therefore, it needs much attention on choosing the appropriate methods, which can provide the desired outputs.

Research designs are the plans and procedure that cover the decision from broad assumption to detailed methods of data collection (Creswell, 2009). According to Creswell (2009), there are different types of research designs: qualitative, quantitative and mixed research. Qualitative research approach is one of the main approaches of research methodology. It studies about experiences, behaviors and attitudes from the respondents. Qualitative methods include interview, participant observation, case study and content analysis. As compared to quantitative research approach, it does not use mathematical and statistical methods.

However, qualitative research method uses logic to interpret gathered data. Quantitative research approach uses survey and questionnaire. Information dealing with numbers and anything that is measurable, statistics, tables and graphs are used to present the results of this study. The qualitative methods is based on smaller sample sizes and are often not representative of the population, which makes it difficult to achieve reliability and validity (Marshall, 2006).

In order to back up the research process extensive literature review was conducted to assess the users' satisfaction on using integrated library system regarding with library services, infrastructure and collection/information that exists. However, users satisfaction related with

the ILS(automation system) services in Ethiopia is not yet studied, due to this fact, the researcher decided the study area to be higher institutions libraries in Ethiopia, which consists of Addis Ababa University and Jimma University.

3.2 Research Design

A survey research method was adopted to address the research questions. The use of questionnaires (quantitative method) was employed in this study for the collection of data from the two public universities. After the data gathered from the data sources, the data preparation for analysis and discussion was performed. Then data analysis and discussion followed. Finally, based on the findings and discussion the conclusion and recommendation for future work was drawn.

3.3 Research population

The aim of this study was to assess students' satisfaction on using integrated library system services, infrastructure and collection/information in selected higher institutions libraries in Ethiopia. Higher institutions in Ethiopia encompass those public university and private university. Thus, this study focuses on only public universities in Ethiopia. There are 34 public universities in Ethiopia but from these universities Addis Ababa University and Jimma University were selected by purposive method among the eight first generation universities due to their large number of students' population and the better infrastructure facilities they have. In addition, the researcher selected colleges/faculties by purposive method to distribute data collection instruments for the respondents.

According to the data/information found from Ministry of Education Statistics Annual Abstract (MoE, 2012/13) and colleges/faculties registrar list of students, the selected two government universities had 51,627 students from Social science and Humanities, Engineering and Technology, Natural and Computational Science and Medical and Health sciences colleges/faculties.

3.4 Sample Design Process

It is necessary to take sample from the population because the researcher does not investigate by taking the whole population. Due to cost associated with the inclusion of each unit of the study, cost of time, and cost of equipment and material constraints the researcher has to take sample. The other is the issue of quality; concentration of effort on a sample can increase the

quality of the research, which may then lead to results that are more accurate. The other is feasibility of the research and time (Greenfield, 2002). As a result, designing the sampling process of the research is essential to achieve the objective of the research. Accordingly, the following sample design of the research was undertaken.

3.4.1 Sampling size

The sample size is an important feature of any empirical study in which the goal is to make conclusion about a population from the sample. Larger sample sizes generally lead to increased precision when estimating unknown parameters (Kumar, 1996). Sample size calculation is concerned with how much data we require to make correct decision on particular research. If we have more data, then our decision will be more accurate and there will be less error of the parameter estimate. This does not necessarily mean that more is always best in sample size calculation. A statistician with expertise in sample size calculation will need to apply statistical techniques and formulas in order to find the correct sample size calculation accurately (Bartlett et al., 2001). For this study, the samples were mainly selected from Addis Ababa University and Jimma University. Respondents were selected by convenience sampling method among the under graduate students and postgraduate students including all years based on their faculties/colleges. Thus, respondents were from the Faculty/college of Natural and computational science, Medical and Health science, Social science and Humanities, and Engineering and Technology Institute. The samples were chosen based on the reason that they are the main users of four colleges/faculties libraries in the two universities. The first library was the main library (social science library) and the second was the Medical and Health science library, the third was Natural and computational science library and the fourth library was that served the Engineering and Technology.

(Cochran, 1963:75) and (Kothari, 2004, p.63) were developed equation to yield a representative sample for populations that are large (more than 10,000). According to this formula the sample size for the strata was 385. Hence, the researcher used this formula (see Appendix-II) to determine the sample size for each stratum based on the proportional allocation method.

To ensure generalization of the study findings, the questionnaires were administered based on convenience sampling method to Addis Ababa University and Jimma University library users (regular students). A total of 384 surveys were distributed to the students who fulfill the inclusion criteria. A total of 330 questionnaires were returned.. The final Numbers of usable questionnaires were 330, representing 85.9% response rate.

3.4.2 Sampling method

Based on organizational structure of the higher institution this study used a purposive sampling technique to select universities and colleges/faculties. Stratified sampling technique was used to categorize students by college/faculty. The advantage of stratified sampling in a case like these is clear. It ensures that the resulting sample would be distributed in the same way as the population in terms of the stratifying criteria. Considering the faculties of Addis Ababa University as one stratum and colleges of Jimma University as second stratum, the colleges/faculties sample is selected by convenience sampling method.

3.5 Data Collection Methods

There are different types of data collection methods used for research studies. The selection of the data collection methods will depend on the research objective and research design. Data collected from two or more sources will help to support and improve the quality of the research result (Kumar, 1996). The goal of data collection is to gain rich data that suits to achieve the research objective. Generally, there are two types of data sources: primary data sources that are the data collected by the researcher from original sources. On the other hand, secondary source of data that is the data collected and compiled by others.

This study is used primary data collection methods through questionnaire. Therefore, questionnaires were employed for the collection of data from large and varied groups of students of Addis Ababa University and Jimma University.

3.5.1. Questionnaires

Questionnaire is a written list of questions, the answer to which is recorded by respondents (Kumar, 1996). Questionnaire is an appropriate method of data collection in case of large sample size, which can be prepared in close and open-ended format. Close ended questions

limit respondents answer by forcing them to choose from pre-existing set of answers, such as yes/no, true/false, multiple choice, ranking scale and Likert scale. The other format of questionnaire is open-ended format in which respondents are encouraged to explain their answers to the question by writing sentences or paragraphs.

The questionnaire in this study was adapted from (Savathaasan et al., 2007) and (Kassim, 2009), some modifications and contextualization were made in order to meet local context and the questionnaire had two parts: part I consists of the background of the respondents, Part II contains questions requesting the respondents to state their satisfaction or dissatisfaction on using integrated library system regarding services, infrastructure and collection/ information. In this study, the 5 point (5 =highly satisfied, 4 = satisfied, 3 = moderately satisfied 2 = dissatisfied, 1 = highly dissatisfied) Likert Scale that was developed by Rensis Likert had been chosen and applied.

The questionnaires were distributed to a sample of 384 undergraduate and postgraduate regular students of public university libraries in Ethiopia, particularly Addis Ababa University and Jimma University. Data collection for this study was done from April 15, 2014 to April 20, 2014. The samples were taken by convenience method according to the actual student population of each faculty/college, but within each faculty/college, the respondents were selected among the under graduate students and postgraduate students including all years based on their faculties/colleges. Thus, respondents were from the Faculty/college of Natural and computational science, Medical and Health science, Social science and Humanities, and from Engineering and Technology Institute. The samples were chosen based on the reason that they are the main users of the four colleges/faculties libraries in the two universities. The first library was the main library (social science library) and the second was the Medical and Health science library, the third was Natural sciences library and the fourth library that was served the Engineering and Technology. The research instrument in this study was a questionnaire and the response rate was 85.9% (330).

3.6 Data Processing

Data processing is an intermediary stage of work between data collection and data analysis. The completed data collected using questionnaires; they cannot directly provide answers to research questions. They are like raw materials that need to be processed. Hence, data

processing involves classification and summarization of data in order to make it ready for analysis (Alemayehu, 2009).

Data processing consists of a number of closely related operations: The data collected was edited and corrected for errors and omissions of information. After editing classification and coding were took place. Finally, the data summarized and arranged in a compact form for further analysis.

3.6.1 Procedures on data analysis

After the raw data has processed, data analysis was done. A combination of descriptive and inferential statistics was used in analyzing the data from this study. Mean ranking, median and standard deviation were performed to analyze the descriptive part of the analysis. For the inferential statistics, the one-way analysis of variance (ANOVA) tests was used. The data analysis was done using SPSS software version 16.0.

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CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

4.1 Response Rate

To assess students' satisfaction on using Integrated Library/Automation/System services in selected higher institutions libraries in Ethiopia, questionnaires were distributed to regular students of Addis Ababa University and Jimma University.

Table 4.1 below shows the total number of questionnaires distributed and collected from Addis Ababa University and Jimma University. Questionnaires were distributed to students across the College's/Faculty's branch libraries.

Table 4.1: Number of distributed and collected questionnaires

No.	Name of Institution	Respondents	Number of Questionnaires		
			Distributed	Collected	Percentage
1	Addis Ababa University	Students	189	162	85.7%
2	Jimma University	Students	195	168	86%
	Total		384	330	85.9%

4.2 Background of Respondents

4.2.1 Distribution of Respondents by University/Faculty/College

Distribution of respondents by University (Figure 1) shows that (51%) of the sample is made up of students from Jimma University and followed by Addis Ababa University (49%). Distribution of respondents by faculty/College of both Universities (Figure 2) shows that (63.9%) of the sample is made up of students from Engineering and Technology, (16.4%) of respondents were students from Social Science and Humanities, (13.3%) of respondents were students from Medicine and Health Science and (6.7%) of students were from Natural and computational Science.

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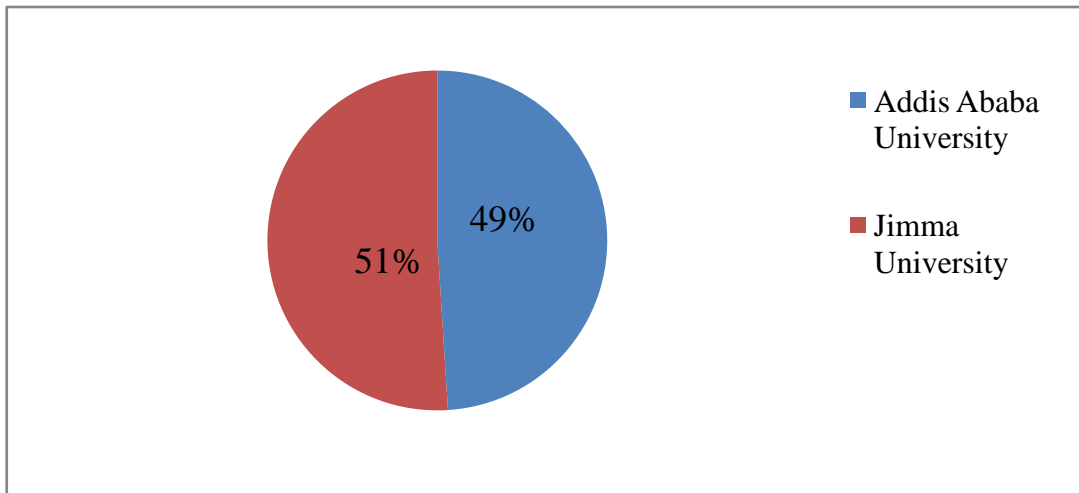
Figure 4.1: Distribution of respondents by University
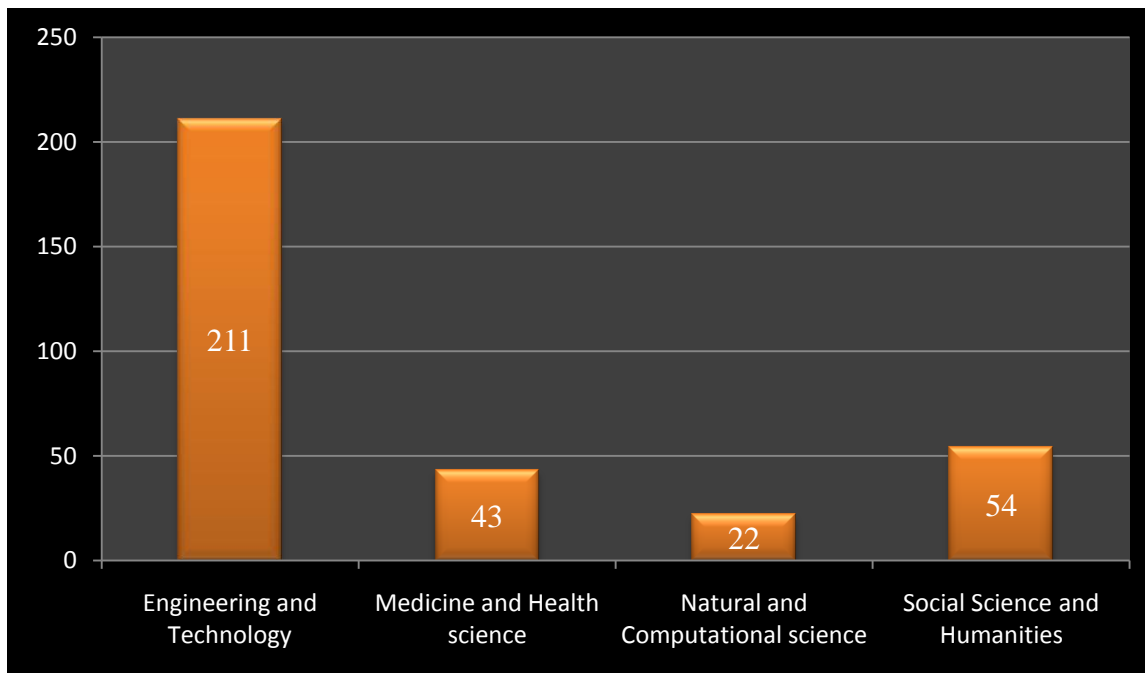
Figure 4.2: Distribution of Respondents by Faculty/College

4.2.2 Gender

When we see respondents by age range as depicted in figure 3, 86.1 % (284) respondents were male stuents and 13.9 %(46) were female students. This shows that more of the respondents were male users.
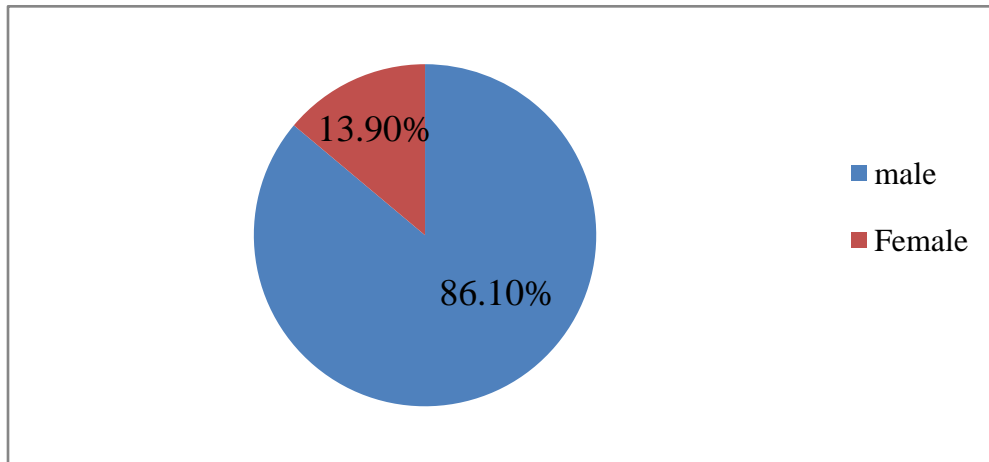
Figure 4.3: Respondents' gender

4.2.3 Age Range

When we see respondents by age range as depicted in figure-4, 49 % (162) respondents are categorized in age range under 25 years. 45% (149) respondents are in the age range between 25– 34 years and 4% (13) respondents are in the age range of 35 – 44. Only 1.2% (4) of the respondents is found in the age range of 45-54. But respondents greater than 54 years are .6%(2). This shows that more than 94% of the respondents are below the age range of 34 years.
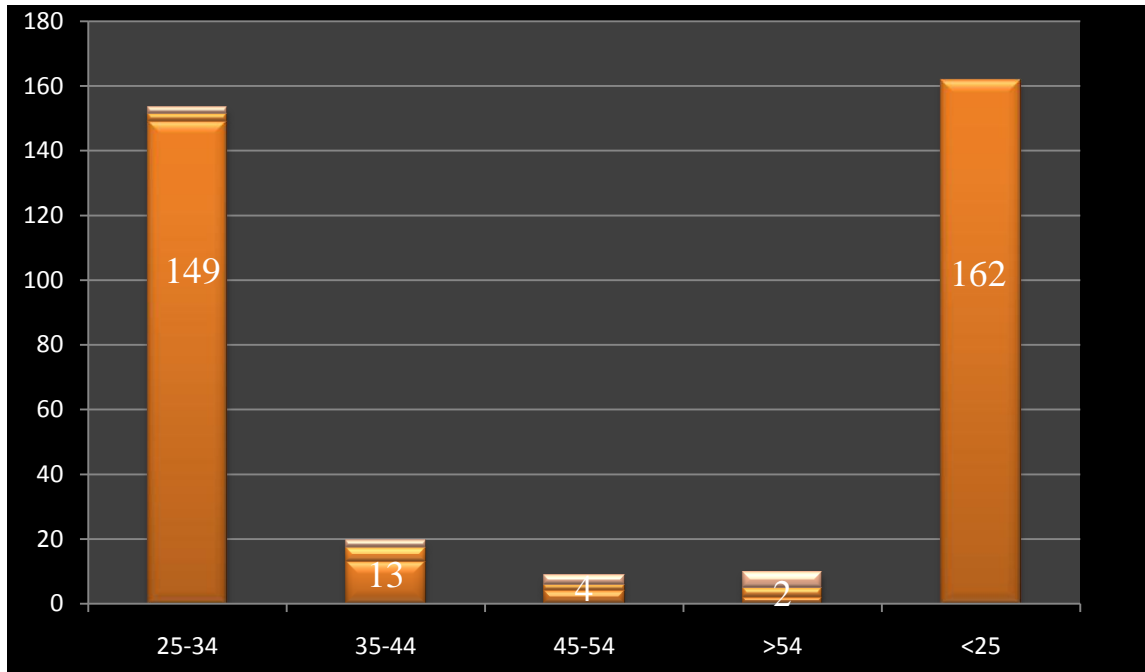
Figure: 4.4 Age range of respondents

4.2.4 Level of Education

As it is depicted in figure 5, the distribution of respondents by the level of education showed that 80 %(264) of the respondents were undergraduate regular students followed by 17.3 %(57) regular Masters Degree students and 2.7 % (9) doctorate degree regular students. This shows that the majority of the participants in this study were undergraduates followed by Masters Degree see figure 5.
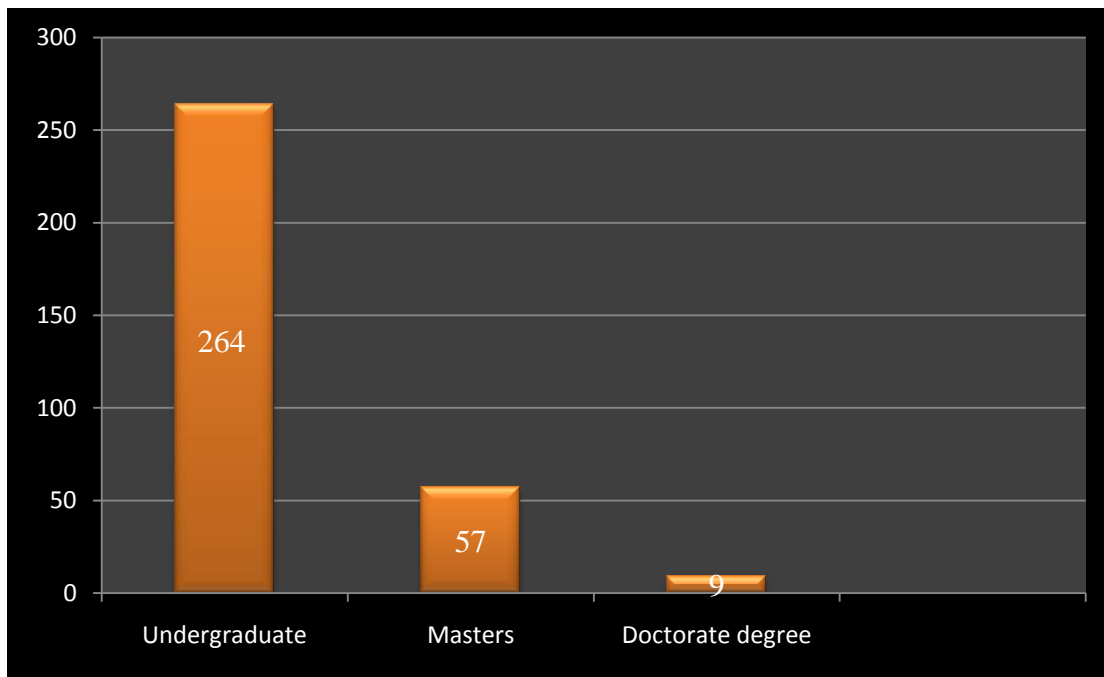
Figure4. 5: Respondents level of education

4.3 Students' Satisfaction

This research paper reports users' satisfaction through three dimensions: (i) Integrated Library System Services to users; (ii) Integrated Library System Infrastructure; and (ii) Integrated Library System Collection/Information. The level of satisfaction for each of the three dimensions is measured using group of statements on a five-point Likert scale of 1 (Highly dissatisfied), 2 (Dissatisfied), 3 (moderately satisfied), 4 (Satisfied) to 5 (Highly satisfied). The numbers of statements under the three dimensions vary from 12 for *Services of Integrated Library System (ILS)*, 13 for *Infrastructure of Integrated Library System* and 7 for *Collection/ Information of Integrated Library System.*

4.3.1 Satisfaction with integrated library system (ILS) services

Table 4.2 presents the median, the mean, and the standard deviation of the scores of the individual statements to measure the satisfaction of respondents on Integrated Library System services. Based on the overall mean of 3.6 and median of 3.8, it can be concluded that the respondents have similar opinion on the integrated library system services provided by the libraries to users. The individual measures indicate that the respondents are moderately satisfied with all 12 integrated library system service aspects. The users moderately satisfied

with broadband internet connection, which has the highest value (md = 4.0; M = 3.74) and services for students with disabilities, which has the lowest value (md = 3.0; M = 3.48) . The 12 group of services, which are moderately satisfy users and generally perceived to be important. This conclusion is based on the median values of 4.0 and mean values between 3.48 to 3.74. In descending order of satisfaction, these are: There is broadband internet connection, OPAC service is available, Electronic loan system is available, Electronic check out system is functional, On line book reserve system is possible, It is possible to access the ILS/automation / services on the library portal , the library has proper signage for automated library system(ILS) services, On line loan charge/discharge system is always functional, the ILS enables users to access Electronic database collections, OPAC Service station is convenient, Provides longer hours for Internet access and Provide services for students with disabilities.

The respondents are least satisfied with the Provision of services for students with disabilities (md = 3.0; M = 3.48). This opinion indicates that the integrated library system services should take consideration to students with disabilities.

The results also show that the opinions of the respondents are quite consistent across all the 12 items as indicated by the small variation in the values of the standard deviations which range from 0.630 (The library has proper signage for automated library system(ILS) services) to .717(Electronic check out system is functional).

Table 4.2: Mean Scores for Services

No.	Statement	Median	Mean	Stan. Deviation
1	There is broadband internet connection	4.0	3.74	.655
2	OPAC service is available	4.0	3.65	.708
3	Electronic loan system is available	4.0	3.65	.668
4	Electronic check out system is functional	4.0	3.63	.717
5	On line book reserve system is possible	4.0	3.62	.698
6	On line loan charge/discharge system is always functional	4.0	3.59	.709
7	It is possible to access the ILS/automation / services on the library portal	4.0	3.62	.661

8	OPAC Service station is convenient	4.0	3.57	.700
9	The ILS enables users to access Electronic database collections	4.0	3.58	.681
10	The library has proper signage for automated library system(ILS) services	4.0	3.61	.630
11	Provides longer hours for Internet access	3.0	3.51	.676
12	Provide services for students with disabilities	3.0	3.48	.681
	Overall mean	**3.8**	**3.6**	**0.682**

4.3.2 Satisfaction with integrated library system (ILS) infrastructure

Table 4.3 presents the mean scores of the 13 statements which collectively and individually reveal the respondents' satisfaction on the library's integrated library system infrastructure. The overall median (3.0) and mean (3.32) indicates that the overall level of satisfaction towards the library's infrastructure is just average, but lower than for the integrated library system services discussed earlier (md = 3.8; M = 3.6). Also, the individual median and mean scores are examined and compared as follows.

Based on the mean score of 3.32 above and a median of 3.0, we can conclude that the respondents are moderately satisfied with thirteen statements of the infrastructure aspects of the integrated library system. Specifically, they are moderately satisfied with Lighting, good network ICT space, Online electronic loan system, A convenient location for OPAC service, Computers number is compatible with the users' number, Sufficient Air conditioners (AC) availability, a place for concentration to use the services, Provision of comfortable sitting workstation, temperature is just nice, library portal is available, Comfortable and inviting location and provide facilities for users with disabilities are listed in descending order of satisfaction.

The item with the lowest mean score (3.15) is the facilities provided for users with disabilities. However, this response may not be reliable as only those with disabilities will be able to provide a more accurate evaluation of the situation. The responses across the 13 items were also consistent as indicated by the small variation in the values of the standard deviation. The

values range from 0.606 (Computers number is compatible with the users' number) to .717 (Provide facilities for users with disabilities).

Table 4.3: Mean Scores for infrastructure

No.	Statement	Median	Mean	Stan. Deviation
1	Lighting is appropriate (no frequent light interruption)	3.0	3.47	.648
2	A good network ICT space	3.0	3.42	.667
3	Computers number is compatible with the users' number	3.0	3.37	.606
4	A convenient location for OPAC service	3.0	3.40	.656
5	Online electronic loan system is available	3.0	3.41	.692
6	library portal is available	3.0	3.25	.675
7	Sufficient Air conditioners (AC) are available	3.0	3.36	.636
8	A place for concentration to use the Integrated library system services	3.0	3.33	.641
9	Safety features are available	3.0	3.23	.675
10	Comfortable and inviting location	3.0	3.24	.672
11	Provide comfortable sitting workstation	3.0	3.29	.647
12	Temperature is just nice	3.0	3.27	.674
13	Provide facilities for users with disabilities	3.0	3.15	.717
	Overall mean	**3.0**	**3.32**	**0.662**

4.3.3 Students' satisfaction with Collection/ Information

Table 4.4 shows the overall and individual mean scores of the seven statements to measure the satisfaction of respondents on the library's collection/information. Overall, the level of satisfaction is near to average (moderate) as indicated by the median score of 2.8 and the mean score of 3.00. Compared with the previous two dimensions, collection/information is third next to services and infrastructure. Based on the median and mean scores of (md = 3.0; m = 3.25) the majority of the respondents are moderately satisfied with   electronic book loan

system, OPAC's collection information (md = 3.0; M = 3.19), searching electronic data bases on the library website (md = 3.0; m = 3.14), and Comprehensive electronic books availability on the library website (md = 3; m=3.02).On the other hand, users are dissatisfied with searching any information on the internet in the library internet service rooms (md = 3.0; m = 2.91), electronic journals availability on the library website (md = 2.0; m= 2.67), and Electronic Resources added to collection regularly (md= 2.0; m=2.45). Compared to the above two dimensions users are dissatisfied with collection/information particularly on the above three mentioned aspects of collection issues.

Table 4.4: Mean Scores for Collection/Information

No.	Statement	Median	Mean	Stan. Deviation
1	OPAC has sufficient information about the library collection	3.0	3.19	.694
2	I can loan books by electronic system	3.0	3.25	.723
3	I can search electronic data bases on the library website	3.0	3.14	.788
4	Comprehensive electronic books are available on the library website	3.0	3.02	.766
5	I can search any information on the internet in the library internet service rooms	3.0	2.91	.748
6	electronic journals are available on the library website	2.5	2.67	.789
7	Electronic Resources added to collection regularly	2.0	2.45	.701
	Overall mean	**2.8**	**3.00**	**.744**

4.4 Differences in satisfaction among Faculties/colleges.

This section determines whether there are significant differences in the level of satisfaction between respondents of different faculties/colleges in the three aspects of the integrated library system. Prior to conducting the appropriate statistical tests, a test of normality (Kruskal Wallis Test) was carried out on the distribution of the respondents' scores, and the results are shown in Table 4.5.

It can be seen that the significant level for the three satisfaction scores is greater than 0.05 therefore normality is assumed. The satisfaction scores for services (p-value = 0.180 > 0.05), infrastructure (p-value = 0.123 > 0.05) and collection/ information (p-value = 0.05 = 0.05) are normally distributed. Therefore, the use of parametric test to compare the mean satisfaction scores (one-way analysis of variance) are justified.

Table 4.5: Test of Normality

No.	Satisfaction for	Test statistics	P-value
1	Integrated Library system services	7.881	0.180
2	Integrated Library System Infrastructure	7.881	0.123
3	Integrated Library System Collection	7.881	0.05

*Significant at .05

4.4.1 Differences in Satisfaction with ILS Services, Infrastructure and Collection/

Information among Faculties/Colleges

Analysis on the differences in the level of satisfaction on services, infrastructure and collection/information among faculties/colleges is carried out using one-way analysis of variance (ANOVA) and Duncan Multiple Range Test (to determine among which groups the true differences lie) based on the fact that the respective variables are normally distributed. The results are presented and discussed in the following sections.

4.4.1.1 Comparison of Satisfaction with ILS Services among Faculties/colleges

Table 4.6 presents the results of the comparison of means between faculties. The result shows that on the average, the levels of satisfaction on the integrated library system services between the respondents from the four colleges/faculties are statistically significant at the 5% level. The P-value of 0.026 in this relationship is less than the pre-set level of significance in this study which is 0.05 (P=0.02<0.05). The Duncan Multiple Range Test confirms that all the mean scores are different from one another. On the average, students from Natural and Computational science (M=3.214), students from Social science and Humanities (M=3.207) and students from Medicine and Health Science (M=3.116) are moderately satisfied by the integrated library system services and students from Engineering and technology (M = 2.467)

dissatisfied by the integrated library system services and their level of satisfaction is the lowest compared with that of respondents from the other three colleges/faculties. Thus, it can be concluded that there is a relationship between integrated library system services and users' satisfaction among colleges/faculties.

**Table 4.6: Comparison of Satisfaction with ILS Services among Faculties/Colleges (*ANOVA)*

		Sum of the squares	df	Mean Square	F	Sig.
Overall means for services	Between groups	8.946	3	2.895	6.495	.026
	Within groups	131.418	326	0.886		
	Total	153.233	329			

*Table 4.6.1 Overall means for services (**Post Hoc Tests (**Duncan))*

College /Faculty		Subset for alpha=0.05		
	N	1	2	3
Natural and Computational Science	22	**3.214**		
Medicine and Health Science	43	**3.116**		
Social Science and Humanities	54	2.033	**3.207**	1.179
Engineering and Technology	211		**2.467**	1.244
Sig.		0.243	0.250	0.072

4.4.1 2 Comparison of Satisfaction with ILS Infrastructure among Faculties/Colleges

The results of the comparison of integrated library system infrastructure mean satisfaction scores between faculties/Colleges are presented in Table 4.7. The levels of satisfaction showed that there is no significant relationship between respondents from the four faculties/colleges on using integrated library system infrastructure. Since the P-value of 0.311 is greater than the pretest level of significance (P =0.311 > 0.05). The Duncan Multiple Range Test confirms that all the mean scores are not significantly different from one another. In particular, respondents from Medical and Health sciences (M=3.171), Natural and

Computational Science (M=3.112) and Social Science and Humanities (M=2.998), who are found to have been moderately satisfied with the library services are also moderately satisfied with the library's infrastructure compared with respondents from Engineering and Technology (M = 1.597) who are dissatisfied with both cases.

**Table 4.7: Comparison of Satisfaction with ILS Infrastructure among Faculties/Colleges (*ANOVA)*

		Sum of the squares	df	Mean Square	F	Sig.
Overall means for infrastructure	Between groups	4.213	3	1.404	3.385	0.311
	Within groups	140.049	325.615	0.430		
	Total	156.284	278			

*Table 4.7.1 Overall means for infrastructure (**Post Hoc Tests *(Duncan))*

College /Faculty		Subset for alpha=0.05		
	N	1	2	3
Natural and Computational Science	22	**3.112**		
Medicine and Health Science	43	**3.171**	0.75	
Social Science and Humanities	54	**2.998**	1.527	0.259
Engineering and Technology	211	1.529	**1.597**	0.269
Sig.		0.230	0.172	.028

4.4.1.3 Comparison of Satisfaction with Collection/Information of ILS among Faculties/Colleges

Table 4.8 presents the mean satisfaction scores on the library's collection/ information of Integrated Library System by faculty/College and the results of the comparison of means test using ANOVA. The results show that there are significant differences in the level of satisfaction on the library's collection/information between respondents from the four faculties'/ colleges   P-value of 0.039 less than the pre-set level of significance of 0.05.(P=0.039 <0.05)

The Duncan Multiple Range Test confirms that the mean scores are all significantly different from one another. Based on the mean score for each faculty/college, it is concluded that respondents from four colleges are dissatisfied with the library's collection/information as indicated here in descending order of their mean score: Social Science and Humanities (M =2.828), Medicine and Health Science (M =2.741), Natural and Computational Science (M = 2.681) and Engineering and Technology (M =2.258) . The above conclusion contradicts with the first, second and the third but the fourth conclusion, respondents from engineering and technology coincides with the fourth comparisons discussed above.

Table 4.8: Comparison of Satisfaction with Collection/Information among Faculties (*ANOVA)*

		Sum of the squares	df	Mean Square	F	Sig.
Overall means Collection/Information	Between groups	6.828	3	2.785	4.12	0.039
	Within groups	175.737	325.857	0.539		
	Total	182.565	328.857			

Table 4.8.1 Overall means for **Collection/Information** *(Post Hoc Tests (*Duncan))

College /Faculty		Subset for alpha=0.05		
	N	1	2	3
Natural and Computational Science	22	**2.681**	0.403	
Medicine and Health Science	43	**2.741**	0.874	
Social Science and Humanities	54	**2.828**	2.097	
Engineering and Technology	211	0.787	**2.258**	
Sig.		0.230	0.092	

4.5 Discussions

4.5.1 Satisfaction of students' related with ILS services

The analysis of the data about users' satisfaction with major integrated library system services showed that they were not fully satisfied with their respective library services. It was also found that the users' perception about the library broadband internet connection is relatively the highest from all 12 variables that moderately satisfied users. OPAC service availability and Electronic loan system were next to broadband internet connection, which moderately satisfied users. The Electronic check out system is the third service provision measurement that satisfied users moderately. Moreover, Online book reserve system, possibility to access ILS/automation / services on the library portal, proper signage for automated library system (ILS) services, On line loan charge/discharge system functionality, accessibility of Electronic database collections on ILS, conveniences of OPAC Service station and Provision of longer hour Internet service access were also integrated library system service statements that satisfy users moderately according to their descending order. However, integrated library system service provision for students with disabilities is the least from all measurements that moderately satisfied users.

These findings confirm the earlier findings of (Simmonds and Andaleeb ,2001),(Abagai,1993), (Martensen and Gronholdt,2003), (King,2005), (Hiller, 2001), (kumar,2010) and (Andeniran,2011). These studies found that if services rendered to users correspond with their needs, if users' needs are identified and satisfied and if easy access point to library resources is provided, if conducive- environment is created for teaching and research activities, readers will be encouraged to visit and use the library resources frequently. Hence, this research finding of students' satisfaction on using integrated library system service showed that respondents are moderately satisfied but it indicates that there are a lot of tasks to be done by higher institutions libraries to satisfy studens to the highest level.

4.5.2 Satisfaction of students' related with ILS infrastructure

Users' satisfactions with integrated library system regarding infrastructure facilities are important because reader's dissatisfaction means that the service provided by the library is not good. In order to have satisfactory integrated library system service for users', infrastructure should promote the use resources. So, the findings in this study indicated that from the 13

variables regarding infrastructure aspects of the integrated library system; Lighting is the first in moderately satisfying users from all measurements. The next infrastructure measures that moderately satisfied users are good network ICT space, online electronic loan system availability and a convenient location for OPAC service. Moreover, other measures, which moderately satisfied users according to their descending order are Computers number compatibility with users' number, availability of sufficient air conditioners (AC), a place for concentration, provision of comfortable sitting workstation, library portal availability, library temperature suitability,   comfortable and inviting location of the library, safety features availability and provide facilities for users with disabilities. As (Sivathaasan and Chandrasekar , 2013) discussed on their study " users highly satisfied with the infrastructure facilities such as, opening hours, security of personal belongings, reading table and chair, study area, lighting and quietness available in the library" confirms with this study. Infrastructural facilities were found to be positively related with IS success and adoption (Grover, 1993). In an empirical study by Grover 1993, IS infrastructure was found to be one of the top predictors of IS success among several factors investigated. In a related study, (Wixom & Watson, 2001) also found that the technology used for development was associated with technical implementation success. These discussions gives credence to findings that technological and infrastructural issues are positively correlated, hence, good predictor of integrated library system users' satisfaction.

4.5.3 Satisfaction of students' with ILS collection/information

This study finding showed that the scores of the seven statements to measure the satisfaction of respondents on integrated library system collection/information. Overall, the level of satisfaction is average (moderate). Compared with the ILS services and infrastructure, collection/information is ranked thirdly by the respondents. Based on the median and mean scores the majority of the respondents are moderately satisfied with   electronic book loan system, OPAC's collection information, searching electronic data bases on the library website and Comprehensive electronic books availability on the library website .On the other hand, users are dissatisfied with searching any information on the internet in the library internet service rooms , electronic journals availability on the library website, and Electronic Resources added to collection regularly. Compared to overall ILS services and infrastructure users are relatively dissatisfied with collection/information.

A study which is related with this finding is a study of (Andaleeb and Simmonds, 1998) which indicated that fulfilling the library users' needs around information products plays an important role in shaping customers' feelings of satisfaction. Thus, understanding library user needs and delivering information products that meet these needs is important.

In addition, the work of (Andaleeb and Simmonds, 1998) coincides with this study said " In today's dynamic environment of information availability, *resources* does not mean only the size of a library's collections but, rather, also includes a variety of other resources that, to the users, make access to information, the key to judging resource adequacy. Moreover, their study relates with this research findings ILS collection/information on the point that says Students' preference for how the needed information is packaged (i.e., CD-ROMS, journals, microfiche, audiovisuals, Internet, etc.), and related administrative use of information (e.g., career planning and development), etc.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

This study has presented information on the users' satisfaction towards the integrated library system services, infrastructure and collection/ information in Addis Ababa University and Jimma University. The study found that users are moderately satisfied with the services, infrastructure and collection/ information of the integrated library system in both universities.

Respondents are moderately satisfied with services of integrated library system (M= 3.6) followed by infrastructure (M= 3.32) and lastly with minimum satisfaction by collection/information (M=3.0).

The results of the comparison of means test using ANOVA show that the levels of satisfaction on ILS services and collection are significant among the four faculties/colleges but the libraries' infrastructure levels of satisfaction among the respondents from the four faculties/colleges are not significant and all the mean scores are significantly different from one another.

The differences in satisfaction with ILS between faculties/colleges shows that satisfaction on services, infrastructure, collection/ information, on the average students of Social science and Humanities, Medical and Health science and Natural and Computational science are moderately satisfied than students of Engineering and Technology, which are dissatisfied with all the three dimensions.

5.2 RECOMMENDATIONS

From the results of the study, the following suggestions are presented. These suggestions can be recommendations for the management of the academic libraries and other university libraries to improve their libraries' services, infrastructure and collections. The practical implication of the study is that the libraries need to give serious attention in giving the best service ever. The findings suggest that libraries should improve their integrated library system service, infrastructure and collections to serve users' learning and research needs. The

findings also suggest the availability of books on OPAC should be increased in number to be compatible with the users' number, particularly in Engineering and Technology fields it needs serious attention by considering the education policy of the country. In addition, infrastructure like network connection and lighting should be continuously available without interruption. Also the computers number should be compatible with the users' number with adequate space to accommodate the client of the library.

The other indicator is librarians should also do research on client focus and user Satisfaction. A university library renowned for its research works is normally supported by the extensive and quality library services and activities. The library facilities, infrastructure, collections, activities and services can be improved gradually if research is being done continuously. The findings of the research can be an important to the library management to make decisions based on research inputs.

It is essential that the library do benchmarking to compare the library's performance with that of other libraries nationally and internationally, which helps to improve the library's performance by adopting the best practices of other libraries.

This study has presented information on the students' satisfaction towards the integrated library system services, infrastructure and collection/ information. It is hoped that the information produced through this study will be of use to the development of library services and betterment of the library profession, and serve as a contribution to the body of knowledge in the area of user satisfaction on libraries' contribution and their services to users.

University library administrators and higher officials should use this study finding to take corrective measures to satisfy their users' needs related with integrated library system services, infrastructure and collection/information.

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APPENDIX-I

QUESTIONNAIRE

Dear Respondent,

I am a post-graduate student in Information Science Department at Jimma University, currently working on a thesis on the topic **"Assessment of students' satisfaction on using Integrated Library System in Selected Higher Institutions Libraries in Ethiopia".**

The purpose of this self-administered questionnaire is to collect data from library users of Addis Ababa University and Jimma University in order to assess the users' satisfaction on using Integrated Library System (ILS) services, infrastructure/facilities and the library collection/information and to identify whether there is any significant difference among users of different colleges/faculties.

Your responses will not be identified with you personally, nor will anyone be able to determine which faculty or college you study your education. All responses that you provide will be treated confidentially.

I would, therefore, like to request you to fill this questionnaire carefully. The information that you provide me would be of paramount importance to the research I am undertaking.

Thank you in advance for taking some of your precious time in completing the questionnaire.

PART 1:

DEMOGRAPHIC PROFILE OF THE RESPONDENT

Instruction-1 Answer the following questions by putting a tick (√) on the following boxes or write in the space provided.

1. Specify your gender?   ☐   Male   ☐   Female

2. Your age?   ☐ 25–34   ☐ 35–44   ☐ 45–54   ☐ 55–64   ☐ <25

   Others (specify) _____

3. Your Level of education a) diploma   b) Under graduate c) Masters degree d) Doctorate

   Degree   e) others (specify)---------------------------------------

4. Specify which university you are from? a) Addis Ababa University   b) Jimma University

5. Specify the College/ Faculty you are enrolled? _____

PART-II:

Instruction-2: *Please indicate the extent to which you satisfied or dissatisfied with the following statements by putting a tick (√) in the appropriate box for question items in part-ii.*

A) SATISFACTION WITH INTEGRATED LIBRARY SYSTEM (ILS) SERVICES

No.	Question items	Highly satisfied=5	Satisfied=4	Moderate=3	Dissatisfied=2	Highly dissatisfied=1
1	There is broadband internet connection					
2	OPAC service is available					
3	Electronic loan system is available					
4	Electronic check out system is functional					
5	On line book reserve system is possible					
6	On line loan charge/discharge system is always functional					
7	It is possible to access the ILS/automation / services on the library portal					
8	OPAC Service station is convenient					
9	The ILS enables users to access Electronic					

	database collections				
10	The library has proper signage for automated library system(ILS) services				
11	Provides longer hours for Internet access				
12	Provide services for students with disabilities				

B) SATISFACTION WITH INTEGRATED LIBRARY SYSTEM (ISL) INFRASTRUCTURE

No.	Question items	Highly satisfied=5	Satisfied =4	Moderate= 3	Dissatisfie d=2	Highly dissatisfied =1
1	Lighting is appropriate (no frequent light interruption)					
2	A good network ICT space					
3	Computers' number is compatible with the users' number					
4	A convenient location for OPAC service					
5	Online electronic loan system is available					
6	library portal is available					
7	Sufficient Air conditioners (AC) are available					
8	A place for concentration to use the Integrated library system services					
9	Safety features are available					
10	Comfortable and inviting location					
11	Provide comfortable sitting workstation					
12	Temperature is just nice					
13	Provide facilities for users with disabilities					

C) SATISFACTION WITH INTEGRATED LIBRARY SYSTEM (ILS) COLLECTION/ INFORMATION

No.	Question items	Highly satisfied=5	Satisfied= 4	Moderate= 3	Dissatisfied=2	Highly dissatisfied =1
1	OPAC has sufficient information about the library collection					
2	I can loan books by electronic system					
3	I can search electronic data bases on the library website					
4	Comprehensive electronic books are available on the library website					
5	I can search any information on the internet in the library internet service rooms					
6	electronic journals are available on the library website					
7	Electronic Resources added to collection regularly					

APPENDIX-II

3.1.2.1 Sample Size Calculation

For populations that are large (Cochran 1963:75) developed the following Equation to yield a representative sample for proportions.

$$n_0 = \frac{Z^2 pq}{e^2}$$

Which is valid where n_o is the sample size, "Z^2" is the abscissa of the normal curve that cuts off an area "α" at the tails (1 - α equals the desired confidence level, e.g., 95%), "e" is the desired level of precision, "p" is the estimated proportion of an attribute that is present in the population, and "q" is 1-p. The value for Z is found in statistical tables which contain the area under the normal curve.

To make an assessment of users satisfaction on using integrated library system services in selected higher institutions libraries in Ethiopia, assume there is a large population but that we do not know the variability in the proportion that will adopt the practice; therefore, assume p=.5 (maximum variability). Furthermore, suppose we desire a 95% confidence level and ±5% precision. The resulting sample size is demonstrated as follows.

$$n_0 = \frac{Z^2 Pq}{e^2} = \frac{(1.96)^2 (.5)(.5)}{(.05)^2} = 385$$

The result of sample size based on the above calculation i.e 385 is not greater than 5% compared with the total population; therefore, no need of using correction or adjustment formula, then, it is taken as it is (Cochran, 1977).

According to the data/information found from Ministry of Education Statistics Annual Abstract (MoE, 2012/13) and colleges/faculties registrar students' list, the selected two government universities had 51,627 students from Social science and Humanities, Engineering and Technology, Natural and Computational Science and Medical and Health sciences colleges/universities.

(Cochran, 1963:75) and (Kothari, 2004, p.63) were developed equation to yield a representative sample for populations that are large (more than 10,000). According to this formula the sample size for the strata was 385. Hence, the researcher used this formula to determine the sample size for each stratum based on the proportional allocation method.

According to C.R Kothari, 2004, p.63, the sample size for the strata is 385. Hence, use the following formula to determine the sample size for each stratum based on the proportional allocation method.

Then, to calculate sample the formula used was $(n_1/N*p)$, $(n_2/N*p)$, $(n_3/N*p)$ and $(n_4/N*p)$

Where " N" represents total population,

Where "n_1"represents total number of students in Social science and Humanities,

Where "n_2" represents total number of students in Engineering and Technology,

When "n_3" represents total number of students in Natural and Computational Science,

When "n_4" represents total number of students in Medical and Health Sciences,

Where "p" represents the proportion sample size i.e. 385. Therefore, based on the above formula the sample size for students in each University allocated proportionally based on each Faculty/College

Table 3.1: Selected sample size in each University by college/faculty

No.	**University**	Students' by College/Faculty	Students number by Gender		Total	Proportional allocation of sample size (n/N*p)
			Male	Female		
I	**AAU**					
	>.>	Social science & Humanities	4,231	2,014	6,245	46
	>>	Engineering and	12,104	3,152	15,256	114

		Technology				
	>>	Natural and computational Science	732	291	1023	8
	>>	Medicine and Health Science	1,874	951	2.825	21
		Sub total	**18,941**	**6,408**	**25,349**	**189**
II	**JU**					
	>>	Social science & Humanities	1,607	471	2,078	15
	>>	Engineering and Technology	15,466	3,364	18,830	140
	>>	Natural and computational Science	1,562	295	1,857	14
	>>	Medicine and Health Science	2,840	673	3,513	26
		Sub total	**21,475**	**4,803**	**26,278**	**195**
	AAU+JU	College/Faculty	M	F	Total	(n/N*p)
	>> >> >>	Social science & Humanities	5,838	2,485	8,323	61
	>> >> >>	Engineering and Technology	27,570	6,516	34,086	254
	>> >> >>	Natural and computational Science	2,294	586	2,880	22
	>> >> >>	Medicine and Health Science	4,714	1,624	6,338	47
		Grand total (AAU+JU)	**40,416**	**11,211**	**51,627**	**384**

Declaration

I declare that the thesis is my original work and has not been presented for a degree in any other university.

_____

January 2015

This thesis has been submitted for examination with my approval as a university advisor.

_____

Dr. Yared Mamo (Assis. Professor)

January 2015