FACTORS INFLUENCING THE USE OF LIBRARY INFORMATION SYSTEMS BY STAFF AND STUDENTS IN KABARAK UNIVERSITY

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A Research Project Submitted to School of Business in Partial Fulfillment of the Requirements for the Award of a Master of Business Administration (Strategic Management Option) Degree, of Kabarak University

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DECLARATION AND APPROVAL

DECLARATION.

This research project is my own original work and to the best of my knowledge, it has not been presented for the award of a degree in any university or institution of higher learning.

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Signature……. ……Date……...

APPROVAL.

This research has been submitted for examination with our approval as university supervisors.

Dr. Lawrence K. Kibet

Signature…….. ……..Date…….....

Dr. Cynthia J. Kipchillat

Signature…….. ……..Date…….....

DEDICATION

I dedicate this work to my beloved family members for their perseverance and understanding during the academic journey. May the lord Almighty bless you all.

ACKNOWLEDGEMENT

The success of this work would not have been complete without invaluable assistance from the following: My first gratitude goes to the Almighty God for His good plans for me and the provision, courage, strength and wisdom throughout this long academic journey.

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My sincere thanks to the Library staff and friends for their support, encouragement and understanding during the entire period of my studies.

ABSTRACT

Kabarak University Library has invested heavily in ICT resources and internet connectivity in the quest of gaining a competitive advantage but despite the heavy investment by the university, there seems to be low use by majority of staff and students of Kabarak University. The low usage highlights questions on the benefits that have accrued from the investment. The study therefore, sought to find out the extent of influence of various factors on the use of the library information systems with an aim of establishing difficulties in using the information systems in the day-to-day academic activities. Specifically, the study examined the factors influencing the use of library information systems by staff and students at Kabarak University for teaching, learning and research with a view to recommending measures for improvement. The study employed a survey research design to illustrate the phenomenon under examination. The target population of the study was staff and students in Kabarak University main campus.Primary data were collected using questionnaires and analyzed using both descriptive and inferential statistics. Findings from the study indicated that University ICT centre was most popular point of access for the users followed by the library and in most instances availability of resources were associated with increased information systems' usage frequency. The study further found out that there were significant usage differences between staff and students where students had more usage preference than their staff counterparts. In addition, both information quality and system quality contributed to increased library information system usage. Based on the findings, the study concluded that demographic background of the respondents, resources availability, and user satisfaction influenced the use of the library information systems. Finally, the study recommended measures which include modalities to ensure remote access to library information systems so as to facilitate varied modes of learning, teaching and research in order to meet the needs of the varied user demographic segments; promotional campaigns (user education) to library users for availability of electronic information sources in the library; and further research be carried out to compare the influence of the factors examined in this study involving both public and private universities.

Key words: Use; Information Systems; Academic Library; Kabarak.

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ABBREVIATIONS AND ACRONYMS

CD-ROM – Compact disk read only memory

CSFs – Critical Success Factors

ICT – Information and Communications Technology

ILS – Integrated Library System

IS - Information System

IT - Information Technology

LIS – Library Information systems

LMS – Library Management System

MIS – Management Information System

SISP – Strategic Information System Planning

SWOT – Strengths, Weaknesses, Opportunities and Threats

VCA – Value Chain Analysis

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CHAPTER ONE

INTRODUCTION

1.1.Background to the study

Businesses today are facing increased competition, global challenges, and market shifts, together with continuing, rapid technological developments. Thus, few managers can afford to ignore how information is handled by their organizations. Indeed, information is a basic resource that is so critical to an organization like materials, money, personnel and energy, all of which are vital to the wellbeing of individuals and organizations in the modern world (Adeoti-Adekeye, 1997). Hence, managers need information to run the day-to-day operations in order to spur growth and ultimately to gain a competitive advantage.

Technology is changing the ways in which information is captured, processed, stored, disseminated and used. According to Post and Anderson (2005), almost all companies rely on information technology. The dynamic context of business is characterized by the digital economy, which has resulted from the convergence of computing and telecommunications technologies. This has had a significant effect on businesses and society in general and is epitomized by the impact of the internet and the World Wide Web. According to Avision and Fitzgerald (2003), organizations have found that their operations, products, services, information, markets, competition, and economic environment are all potentially affected by the digital economy. As organizations take on expanded functions and grow in size, it is important for them to be equipped with a good information system from which data can be accessed for analysis by executives and managers at different levels. The advent of computerized information system has presented a new world of doing business, one that will greatly affect future business careers. Laudon and Laudon (2009) asserts that "No matter whether you are a finance, accounting, management, marketing, operations management, or information systems major, how you work, where you work, and how well you are compensated will all be affected by business information systems. Today's business professionals need more than the ability to do personal work on a computer and a general familiarity with business and technical terms. Anyone who intends to

play an important role in today's business needs to understand information systems in order to understand the work systems through which organizations operate (Alter, 2002). Contributing fully to current organizations requires an ability to participate in e-business systems, evaluate them, and contribute to system development effort. An understanding of information systems is essential for today's managers because most organizations need information systems to survive and prosper. Laudon & Laudon (2010) contend that the entire sectors of the economy are nearly inconceivable without substantial investments in information systems and today's service industries such as education could not operate without information systems. Indeed, information systems and technology can be centrally instrumental in achieving corporate goals and has been absorbed into the mainstream of commercial life to the point where there is hardly a company of any size that does not depend on information systems for its operational success (Daniels, 1998).

Today, many libraries are confronted with the challenging dynamic technological environment demanding the extensive and effective utilization of information and communication technologies (ICTs) in order to survive and meet the changing complex information needs of user community (Moorthy, Rao, and Goud, 2006). Indeed, information technology (IT) is a driving force for change in libraries and modern technologies have brought dramatic changes in today's library management and users expectations. Libraries are facing variety of issues, problems, threats and challenges in the introduction, use and management of new technologies. This implies that identifying the problems, understanding the issues and formulation of sound strategies are key to the successful management of technological changes in libraries.

1.2. **Statement of the problem**

In pursuit of the specific strategies to enable Kenya become a regional centre for research and development in new technologies, the Social Pillar of the Kenya Vision 2030 endeavours to establish a computer supply programme that will equip students with modern IT skills as one of its flagship projects for education and training (The Kenya Vision 2030, 2007). In order to comply with this requirement, academic institutions both public and private must make adequate progress toward ensuring that the libraries, as sources of knowledge dissemination, are well equipped with new technologies to enhance reliable information management. This therefore implies that there is need for all the academic libraries in universities to invest in information systems so as to significantly contribute to the attainment of this objective. In the quest to fully

utilize the use of information systems, staff and students in the academic institutions are expected to play a pivotal role to ensure that the existing information systems are optimally used to gain strategic advantage. According to Alter (2002), when applied thoughtfully, information technology and information systems can bring important benefits for individuals, organizations, and customers. When misapplied, however, they can waste tremendous amounts of time, effort, and money. Thus, Strategic information systems must, by definition, contribute significantly to the achievement of an organization's primary objectives.

Kabarak University has invested in information systems that provide processes and information useful to its members and clients, and enables the efficient operation of different subsystems within the organization. Kabarak University Library, being a fast growing academic library has invested heavily in ICT resources and internet connectivity in the quest of gaining a competitive advantage. The Library aims to increasingly use electronic systems during the 2011-2015 strategic plan period to alleviate the high cost of printed information resources, and enjoy the great advantages of modern databases. Despite the heavy investment in information systems and information technology by the university, there seems to be low use by majority of staff and students of Kabarak University which may imply less benefit accrued from the investment. This study hopes to establish the extent of usage and the factors influencing the use or non-use of information systems by staff and students at Kabarak University library.

1.3.Objectives of the study

1.3.1. General Objective

The main objective of this study was to examine the factors influencing the Usage of Library Information Systems by Staff and students in Kabarak University with a view to recommending strategic measures for improvement.

1.3.2 Specific Objectives:

i. To find out influence of demographic characteristics of staff and students on the use of library information systems at Kabarak University.

ii. To establish influence of ICT resources' availability and user skills on the use of library information systems by staff and students at Kabarak University.

iii. To assess the influence of information quality and system quality on the use of library information systems among staff and students at Kabarak University.

1.4. Research questions

i. What influence does demographic characteristics of staff and students at Kabarak University have on their use of Library information systems?

ii. How does availability of ICT resources and user skills influence the use of library information system by staff and students at Kabarak University?

iii. Do the information quality and system quality influence the use of library information systems by staff and students at Kabarak University?

1.5. Justification and Significance of the Study

In an attempt to enhance service provision to clients, most organizations have developed strategies to support their corporate missions and have incorporated information systems/technology to improve efficiency and effectiveness. Organizations recognize IT as not merely a resource to support day-to-day operations but as a tool that can have significant impact on an organization's long-term strategic position in national and global markets. Kroenke (2011) asserts that information systems are an accepted and integral part of strategic planning for nearly all organizations and as such, organizations are now investing heavily in information systems and information technology. According to Laudon and Laudon (2010), a few innovative companies have used IT for strategic advantages and with the growth of the internet, and the development of e-business, IT has become a strategic tool in every industry. Information systems and global networks allow companies to extend their reach to far away locations, offer new products and services, reshape jobs and work flows, and perhaps profoundly change the way they conduct business.

The findings and recommendations of the study may particularly be useful to the library users (staff and students) due to reduced errors, improved speed and access, a wide range and variety of information resources and services. The Management in the institutions of higher learning will enjoy benefits such as improved productivity, reduced staff, reduced unit cost of operation, improved control, and increased range and depth of service, etc. The study will also benefit the Government and policy makers in assessing and coming up with sound strategies relating to the

use of information systems and ICT resources. Finally, the study will make significant contribution to the research literature in the field of information systems.

1.6.**The scope of the study**

The study was conducted at Kabarak University Library as a case study and the population of study was the staff and students of Kabarak University. The location is chosen due to proximity and convenience.

1.7. **Limitations and delimitations of the study**

The study was carried out in one academic library (Kabarak University Library) which was relatively young in terms of growth and therefore, the findings may not give a general conclusion of the usage of library information systems in all the academic libraries in the Kenyan private and public Universities that are widely distributed in the country. The study recommended further study to cover both public and private universities.

The researcher faced lack of cooperation and willingness to answer the questionnaires by few respondents. To alleviate this problem, the researcher involved class representatives to administer the questionnaires to students in lecture halls and personal visits to lecturers in their offices to administer the questionnaires

1.8. Definition of operational terms

Academic Library – A library that is an integral part of a college, university, or other institution of post secondary education, administered to meet the information and research needs of its students, faculty, and staff (Reitz, 2004).

Computer hardware is the physical equipment used for in-put, processing, and output activities in an information system (Laudon and Laudon, 2010). It consists of the computer processing units; input devices (printers, video display terminals, plotters, audio output); and storage devices (magnetic disks, optical disk, magnetic tape).

Computer software consists of the detailed preprogrammed instructions that control and coordinate the computer hardware components in an information system (Laudon, et al., 2010).

Database. The Oxford dictionary of computing, 6th edition, defines a database as a body of information held within a computer system using the facilities of a database management system. The purpose of a database is to keep track of things.

Electronic resource - Material consisting of data and /or computer program(s) encoded for reading and manipulation by a computer by the use of peripheral device directly connected to the computer or remotely via a network such as the internet (Reitz, 2004).

Information age – refers to the age of smart machines, intelligent corporations, total quality, globalization, and continual change and re-engineering (Alter, 2002).

Information and communications technology (ICT) – According to the international encyclopedia of information and library science (2003), ICT is used to describe the design and application of systems and equipment for exchanging data by electrical means between two or more stations.

Information Management is the discipline that analyzes information as an organizational resource. It covers the definitions, uses, value and distribution of all data and information within an organization whether processed by computer or not (dictionary of information technology).

Information represents data that has been processed, organized, and integrated to provide insight (Post and Anderson, 2005).

Information System can be defined as a set of interrelated components that collect, (or retrieve), process, store, and distribute information to support decision making and control in an organization (Laudon & Laudon, 2010). It is an assembly of hardware, software, data, procedures, and people that produce information.

Information Technology – refers to the products, methods, inventions, and standards that are used for the purpose of producing information. IT pertains to the hardware, software, and data components. IT drives the development of new information systems.

Library – is a collection or group of collections of books and/or other materials organized and maintained for use (reading, consultation, study, research, etc) (Reitz, 2004).

Management Information System (MIS) is the development and use of information systems that help businesses achieve their goals and objectives (Kroenke, 2011).

Strategic information system - Any information system that changes the goals, processes, products, or environmental relationships to help an organization gain a competitive advantage or reduce a competitive disadvantage (Kroenke, 2011).

Strategic use – means having significant long-term impact on a firm's growth rate, industry, and revenue. (McNurlin and Sprague, 2004).

Strategy- is a plan designed to help an organization outperform its competitors. (OZ & Jones, 2008).

System – A system is a group of components that interact to achieve some purpose. (Kroenke, 2011).

Telematics – Convergence of telecommunications and information processing (Dictionary of computing, 2007).

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

The first part of this chapter covers the theoretical review on the overview of Information Systems (IS) which includes strategic uses that help firms to achieve competitive advantage, as well as obstacles when applying information technology in the business; and on Information Systems in libraries with emphasis on the key factors in strategic technology planning, technology adoption patterns**,** changes in user behaviors and demands, and the impact of technology on library services. The second part reviews the empirical literature on the application/adoption and use of information and communication technologies in library management.

2.2. Theoretical Literature Review

2.2.1. Concept and definition of Information Systems

The nature and role of information systems (IS) have developed over the years (Daniels, 1998). The original conception and practice involved the automation of simple, and single, existing manual and pre-computer mechanical processes. The next stage saw information systems deployed to achieve integration and rationalization of these separate, single systems. In each of these approaches, IS was (and largely still is) used primarily as an operational support tool. There may have been "management information" produced, but this was often almost an afterthought and certainly a secondary consideration in the system design.

An information system is a group of components that interact to produce information (Kroenke, 2011). Information systems and technology can be centrally instrumental in achieving corporate goals but only where the organization has a clearly defined corporate and competitive strategy, and understands the information needs that underpin these strategies.

An information system comprises of five components that are present in every information system, from the simplest to the most complex. They include computer hardware, software, data, procedures, and people.

2.2.2. Classes and types of information systems

According to Laudon and Laudon (2010), four categories of information systems that serve different organizational levels can be identified: operational –level systems, knowledge-level systems, management level systems, and strategic-level systems. Operational-level systems are information systems that support operational managers by keeping track of the elementary activities and transactions of the organization such as sales, receipts, cash deposits, payroll, credit decisions, and the flow of materials in a factory. Knowledge-level systems support knowledge and data workers in an organization and help the business firm discover, organize and integrate new knowledge into the business and to help the organization control the flow of paperwork. Management-level systems are designed to serve the monitoring, controlling, decision-making, and administrative activities of middle managers. The management control information systems mainly center on providing managers with information to control operations and make decisions that optimize the delivery of products/ services to customers (Kanter, 2002). The goal of management control systems is to manage the resources and facilities that control the total process. Examples of these systems include production scheduling and inventory control systems. The strategic planning information systems show the interaction of internal factors (Past sales movement, relative product line acceptance) with external factors (inflation rates, unemployment statistics) to project the impact of different strategic directions. An example of a planning system is the mathematical planning model.

There are six types of information systems that apply in any functional area in an organization (Alter, 2002). These include: Office automation systems (OAS); Communication systems, Transaction processing systems (TPS); Management information systems (MIS); Executive information systems (EIS); and Decision support systems. It is important to note that most functional areas in the library utilize the communication systems and the management information systems for the day to day operations. Whereas communication systems help people work together by exchanging or sharing information in many different forms such as teleconferencing, intranets and extranets, instant messaging and chat rooms, groupware, etc., Management information systems generate information for monitoring performance, maintaining coordination, and providing background information about the organizations operation.

2.2.3. Characteristics of a Good Management Information System

According to Vitez, (2012), Management information systems (MIS) are an organized approach to gathering information from company operations and making a strategic management decision. Developing quality characteristics for gathering information is essential to making solid management decisions. A good MIS therefore should be relevant, accurate, timely, exhaustive, and cost-effective.

*Markgraf (2012) further concurs with Vitez (2012) by stating that t*he most important characteristics of an MIS are those that give decision-makers confidence that their actions will have the desired consequences. These characteristics include relevance, accuracy, usefulness, timeliness, and completeness.

2.3. Strategic perspective of Information systems

2.3.1. Strategic business objectives of information systems

The purpose of a management information system is to help executives of an organization make decisions that advance the organization's goals ***(****Markgraf, 2012)****. He says that*** an effective MIS assembles data available from company operations, external inputs and past activities into information that shows what the company has achieved in key areas of interest, and what is required for further progress.

According to Laudon and Laudon (2010), there is a growing interdependence between a firm's ability to use information systems and its ability to implement corporate strategies and achieve corporate goals. What a business would like to do in five years often depend on what its systems will be able to do. Specifically, business firms invest heavily in information systems to achieve six strategic business objectives: operational excellence new products, services, and business models; customer and supplier intimacy; improved decision making; competitive advantage; and survival. On the strategic perspective of information, Talukder (2012) asserts that there are many objectives of management information systems. These are data capturing, processing of data, storage of information, retrieval of information and dissemination of information.

The strategic objective of Kabarak University for use of ICT as a key result area is to improve information management and communication systems. More specifically, the Library aims to increasingly use electronic systems during the 2011-2015strategic plan period to alleviate the

high cost of printed information resources, combined with the great advantages of modern databases.

2.3.2. Strategic uses of information systems

The potential use of information systems technology (IST) as a competitive weapon has been of enormous interest to many academic scholars and practitioners, (Kim and Michelman, 1990). It should therefore come as no surprise that use of the internet by businesses in the mid-to-late 1990s set off a revolution in the use of IT. According to Sprague (2004), there are three strategic uses of IT in business namely working inward (Business – to - employee); working outward (Business - to - customer); and working across (Business – to – business). Working inward is the use of IT strategically inside the enterprise with the focus on improving business processes and involves use of the internet internally by building intranets. In working outward, the strategic use focuses outward on using IT to gain competitive advantages via use of the internet for business in today's business environment.

McNurlin (2004) identifies numerous advantages of e-business. These are global accessibility, reduced order process, greater availability, closer customer relationships, increased customer loyalty, new products and services, and direct marketing. Working Across focuses on the efforts of linking to suppliers, customers, and other parties in one value chain or business ecosystem i. e. streamlining processes that cross company boundaries. It involves coordinating with co-suppliers establishing close and tight relationships and building a virtual enterprise.

Post & Anderson (2005) argue that organizations presumably see information systems as contributing to some of their goals - but they tend to be those associated with financial performance rather than with performance on the key and core strategic goals. Several studies conducted by Post & Anderson, and Dell (1999), identified productivity; teamwork and communication; business operations and strategy; Competitive intelligence; and Competitive weapon as the main reasons why information technology is important.

2.3.3. Achieving a competitive advantage using information systems

In recent years, the strategic use of computerized information systems (IS) and their use to achieve competitive advantage has received much attention (Roberts and Wood, 2002). The use is considered strategic because competitive advantage is achieved by using IS for internal operational improvements in creating efficiency and in gaining wider and larger improvements within the environment that the organization operates. As emphasized by Kroenke (2011), a strategic information system helps an organization gain a competitive advantage through its contribution to the strategic goals of an organization and / or its ability to significantly increase performance and productivity. Organizations seek to gain competitive advantage in their selected markets via a number of competitive approaches; based primarily on product and service, differentiation and pricing policies (Kroenke, 2011). Information Systems is used to configure the organization appropriately and to ensure effective communication between the various components and within the extended value chain involving suppliers and the distribution network.

The internet, e-business, and e-commerce are important forces in today's business and are also the object of enormous hype and wishful thinking (Alter, 2002). However, it is worth noting that information technology and information systems when applied thoughtfully can bring important benefits for individuals, organizations, and customers; and, when misapplied, they can waste tremendous amounts of time, effort, and money. According to Oz and Jones (2008), an organization achieves competitive advantage when its profits increase significantly, most commonly through increased market share. Thus, there are eight basic initiatives that can be used to gain competitive advantage namely reduced costs, raised barriers to market entrants; established high switching costs; creation of new products or services; enhanced products or services; established alliances and lock-in suppliers or buyers.

2.3.4. Obstacles when applying information technology in the business

Alter (2002), identifies some of the obstacles to applying IT successfully in the real world of business. These obstacles include unrealistic expectations and techno-hype, difficulty building and modifying information systems, difficulty integrating systems that are built for different purposes, organizational inertia and problems of dealing with change, and genuine difficulty anticipating what will happen.

Relating unrealistic expectations and techno-hype, computer technology has always received more than its share of speculation and hype (Alter, 2002). In the information age, separating hype from reality is sometimes difficult, especially when the message is conveyed in a loosely disguised infomercial for technology vendors or consulting firms. For instance, a newspaper headline may read: "Big electronic gadget proves machines smarter than men." Hardware and software vendors often add to the confusion by claiming that they "sell solutions," and yet technology is almost never a solution by itself. The most difficult issue related to building and maintaining IT-based systems is the requirement that these systems be integrated with the organization's other systems. This issue arises frequently when hardware and software best suited for one purpose must be used in conjunction with hardware and software acquired for a different purpose. On the organizational inertia and problems of change, the reality for those who are enthusiastic about any particular technology-based innovation is that it is simply difficult to change the way an organization operates. In terms of systems within organizations, any particular change that has positive consequences in some areas may have negative consequences in other areas. Differences of opinion and uncertainties about the positive and negative impacts of proposed changes often contribute to organizational inertia- the tendency to continue doing things in the same way and therefore to resist change. Inertia related to information systems start with the fact that formal systems are only a component of organizational operations and decision processes. Just changing an information system may not have much impact unless other things are changed, such as the way work is organized and the incentives that are established for the participants. As pertaining genuine difficulty anticipating what will happen, a real-world limitation to IT-based innovation is no one really knows how any particular innovation will develop or will be adapted over time. For example, the electronic transfer of money seemed like a good idea and has had numerous advantages for legitimate businesses; however, it also allows criminals to move drug money surreptitiously.

2.4. Information Systems in Libraries

2.4.1. The origins of library information systems

Computer-based systems that automate one or all functional areas of a typical library have had a history of evolution going back to the mid 1950s. This is referred as Library Management System (LMS) and also been referred to as Integrated Library Systems (ILS) in later years to reflect the fact that all functions are managed via a central database with processes that transparently exchange data between functional components such as catalogue records and circulation transactions. The term information system is defined to include a wide array of solutions that previously might have been considered separate industries with distinctly different market places. This includes the integrated library system marketplace and the online database industry (Kochtanek and Matthews, 2002). The phrase Library information systems capture the basic elements of the application of computing solutions aimed at bringing the user and content together-which is the essence of service within the libraries of all type and sizes.

Libraries have traditionally performed a role of physical repository, housing print materials, with a catalogue that provides access to these locally held resources. The accessibility of the web has seen this shift, and catalogue records describing local print materials now sit side by side with records providing links to external web resources. Libraries need to incorporate the best features of commercial services into the best aspects of their own services. Pace (2002), suggests “not until consumer sites' features are folded into our traditional interfaces can libraries hope to make a library experience as engaging as an online experience”. Thus library information system (LIS) is not only automating existing processes within libraries (such as Cataloguing, circulation, acquisitions, etc) but also include access to materials not held by the library but available in electronic form. In an academic library, information management applications provide library staff, educators and students with the necessary means to find relevant information, communicate and conduct effective research. A fully featured Integrated Library System facilitates the circulation of materials, acquisitions, serials management, cataloging and inter-library loan (ILL). Library users, on their part, enjoy an easy-to-use search interface to find information in library catalogs, subscription databases and Internet resources. The Library Management System is a utility for processing, accessing and retrieving information to support scholarship and decision-making process. It contends that without an organised approach to the Management of Information, in the context of information exploitation scenario, organisations would suffer from information accessibility and retrieval while the clientele may actually find it equally hard to

access and make decisions based on the right packaged information. The library MIS is thus considered a utility in the management of knowledge for access and exploitation. It is therefore argued that the library MIS would provide the means and method to manage multimedia computer-based Information Systems to help gain useful, complete and timely information through its objective of satisfying scholarly, academic and administrative information needs of the University.

According to Kochtanek and Matthews (2004), MIS supports the library information management process and postulates the library MIS strategy as well placed and advantageous for accessing, retrieving and sharing information in technologically oriented University environment and more recently, libraries have sought to implement increasingly complex solutions that involve distributed networking and access to remote information resources.

2.4.2. Changes in user behaviors and demands

According to Mulla (2012), the emergence of new forms of information and the plethora of formats in which information objects occur has led to significant changes in behavior and demands of library users. For instance, users want greater freedom in managing their access to information and also access not only to just library -held information but also to other material types and on the web in general; users seek a simple search interface that is not only easy to use but also retrieves items ranked by relevance and points to related items, reviews, recommendations, and allows a degree of a cited searching; users want access to full-text and other digital content and expect the library to assist them in obtaining the full text or other digital content via the LMS; and most interestingly, users changing from the young to the aged or from the aged to the young. Malliari & Kyriaki-Manessi (2007) contends that libraries, having stated their intention of satisfying their users, realized that their first task is to be informed about their needs and problems. Exploring users' behaviour, measuring users' satisfaction, meeting users' needs, even before they are expressed, has become an art and a science in a library's quality services.

2.4.3. Composition of Library Information system domain

As library and information systems developers created the technological landscape, several separate applications were established to support end user access to information. Some of these

developments were about content and dissemination and, all support increased end user access to digitally recorded document surrogates on primary knowledge records. These developments form the basis behind LIS and include: Integrated library systems, online databases, Web-Based resources, Digital library collections and E-books and E-journals.

Kochtanek (2002) emphasizes that not all libraries embrace each of these separately developing domains nor are they using the same steps towards developing a one-stop Website for access to all the resources identified by the library. This is what makes libraries distinct from one another, as the primary motive behind incorporating technology solutions should be to improve services to the communities served by the specific library system under consideration.

2.4.4. Functions of libraries in an electronic age

According to Moorthy, et al (2006), Libraries are undergoing a profound transformation reflecting a sea change in the nature and type of their roles, functions and services due to the application of new technologies. The four basic functions of libraries in an electronic age include: Providing access to the content of local resources that are part of the library's collections; Offering gateway access to remote resources including the ability to obtain copies in print and electronic formats; Facilitating off-site electronic access to local and remote resources from users' homes, offices and schools; and Providing access to human assistance in locating information.

2.4.5. Technology adoption patterns

Organizations, including Libraries, have adopted technology at different rates. According to Kochtanek (2002), some of the possible adoption patterns can be categorized as follows:

Bleeding edge – some libraries are willing to be the first in technology adoption and experiment with technologies and software. In some cases, these organizations will have the scars and bandages testifying to their adventuresome efforts. Leading edge libraries are willing to embrace new technologies, but they are a bit more cautious than bleeding edge organizations. These types of libraries will adopt new technologies on a systematic and incremental basis. The wedge libraries will embrace new technologies when there is ample evidence that it is stable, proven, and well tested while libraries in the Training edge will be true laggards and continue to use

older technologies and applications software well past the time they should have migrated to newer products.

2.4.6. Key factors in strategic information planning in libraries

Strategic information systems planning (SISP) has become an accepted part of the overall corporate strategic planning process (Rogerson and Fidler, 1994). As such many techniques have been advocated for use within the SISP process, including critical success factors (CSFs), SWOT analysis (strengths, weaknesses, opportunities and threats) and value-chain analysis (VCA). Strategic planning is therefore a key to the successful management of technological use in libraries. Libraries intending to use IT have to plan systematically well in advance for successful implementation to derive maximum benefits and to minimize problems. They (Libraries) should develop some strategies to make use of new technologies in an efficient and cost effective manner.

According to Moorthy, et al (2006), the following are some of the key factors that should be considered for effective planning and successful implementation of new information technologies in libraries: Conducive and supportive organizational environment; Management support; Leadership; Financial resources; Staff competence; Staff involvement; Staff training; User education; Effective communication; and Security and safety.

2.4.7. The impact of technology on Library Services

According to Kochtanek (2004), information technology has had a clear and persuasive impact in almost every area of the library, be it online catalog used by a library user, in technical services, or in administrative services. Lynch (2002) suggests that technology incorporates two cultures of change: innovation where the application of technology improves what is currently being done, and transformation, where technology changes fundamentally what is done, or is applied to new things. There are several possible benefits that may accrue to a library as the result of using network and information technologies. These benefits will vary depending upon the functional area and how well the library has revised its manual procedures and processes to complement the automated system. They include: Improved productivity; Reduced Staff; Reduced unit cost of operation; Improved control; Reduced errors; Improved speed; Improved access; Increased range and depth of service; Facilitated corporation; and wide range of By – products

2.4.8. Demographic characteristics of users

Kumar (2012), on the impact of demographic characteristics of users on patterns of usage on search engines found that significant differences exist between system usage patterns and demographic characteristics of user categories and age groups while significant variations were noticed among user age groups for awareness about differences between the inner-workings of the system search engines. A significant relationship was also found between male and female users vis-a-vis their viewpoint after unsuccessful use of system for searches. Certain variations were also observed among academic staff with regard to perceptions of users after failed searches.

Additionally according toYu and Young (2004), convenient and quick retrieval of required information through systems has influenced users' information search skills. As a result, these users are influenced by the practice and the manner of using the system for searching on the web. The general presumption was that user's demographic characteristics and experience of working with computers, and other information systems, tend to change their information search pattern.

2.4.9. User perceptions on the information quality and system quality

DeLone & McLean's (2003) model of IS success suggested that higher levels of information quality resulted in increased user satisfaction. Based on this model, satisfaction was jointly determined by information quality, systems quality, service quality, system use, distributive fairness, procedural fairness and interactional fairness.

The model highlighted the three main components of an information service namely information, system, and service. Each of these factors has an impact on the user; their intention to use a system and their actual usage of a system; institutional strategies such as policies equally play a significant role on the use of information systems. Chiu, et al. (2007) says with any other information system (IS), the success depends largely on users' intentions to continue using the service. These factors in turn influence user satisfaction and this provides an indication of the ultimate impact of the system on the user/group of users/organization/industry. DeLone & McLean (2003) argued that 'use and user satisfaction are closely interrelated' and that positive experience with use will lead to greater user satisfaction and similarly, increased user satisfaction will lead to increased intention to use. As a result, a high-quality system will be associated with

more use, more user satisfaction, and positive net benefits. The proposed associations would then all be positive.

2.5. Empirical Literature Review

Several authors have conducted studies relating to the application and use of information and communication technologies in library management. For instance, Alireza and Mohsenzadeh (2009), conducted a study on the application of information technologies in academic libraries whose main purpose was to define the status of the application of information technology in academic libraries located in Kerman, the center and largest city of Kerman Province, Iran, and to understand the problems and difficulties in using information technology in these libraries. The results showed that the level of application of information technology in Kerman academic libraries was acceptable but they should improve their status to match with ever increasing demand for better library services at universities; the most important problem and serious difficulty is the lack of educated librarians, which needs a suitable investment and planning.

Hong (2002), in a study on determinants of user acceptance of digital Libraries: an empirical examination of individual differences and system characteristics. This study investigated the effect of a set of individual differences (computer self-efficacy and knowledge of search domain) and system characteristics (relevance, terminology, and screen design) on intention to use digital libraries. This study revealed that explosion in internet usage and huge government funding initiatives in digital libraries has drawn attention to research on digital libraries. Whereas the traditional focus of digital library research has been on the technological development, there is now a call for user-focused research. Although millions of dollars have been spent on building usable systems, research on digital libraries has shown that potential users may not use the systems in spite of their availability. There is a need for research to identify the factors that determine users' adoption of digital libraries.

The work of Paraman and Marimuthu (2011) *was designed* to measure the use of IT in the academic libraries of Kuwait and to establish some co-relation between quality in libraries and use of IT. The study found that the significance of IT lies in its role as a catalytic agent and today, there is no area which has not been influenced by IT. Information technology mainly

helps to provide timely information and facilitates real-time access to remote databases, hence technology remains one of the primary drivers of change in the ways that people work, seek information, communicate, and entertain themselves. In an academic environment, no unit has been transformed by technology than the library. This implies that library and information professionals today need to add new ICT skills to their current capabilities as the services of more and more libraries are now centering on information technology (IT), especially in educational institutions.

Majid and Tan (2002) on usage of information resources by computer engineering students: a case study of Nanyang Technological University, Singapore, investigated the information needs and information seeking behaviour of computer engineering undergraduate students at Nanyang Technological University (NTU), Singapore. The purpose was to investigate the types of information sources used by the students, their preferred information formats, the importance of and reasons for using certain information sources and the use of various electronic information sources. The study found that printed materials were the most preferred information format among the students. The top five most preferred information sources, in the order of importance, were books, lecturers, the Internet, friends and manuals. Unexpectedly, the use of databases and electronic journals was quite low among the computer engineering students. The study recommends a promotional campaign for introducing electronic information sources to the library users.

Adela, et al (2008) notes that little research had been conducted to explore how information systems (IS), as one of the defining technologies in human society, can help organizations develop sustainability. *The study* advocated that under different institutional pressures, IS could be leveraged to achieve efficiency, equity and effectiveness through automating and transforming organizations. On the value of information systems, Bailey (2011) conducted a research on how Library Management Systems can demonstrate value for money from information and library services. The research looked at how the different modules of integrated library management software could be used to increase operational efficiency thus providing the best value from current investment. It further considered how the integrated library management system could be used to demonstrate how library and information services (LIS) were aligned with the wider organization's business objectives and was therefore a necessary function for the

organization. The author also looked at the potential of library management systems for enabling the library and information service to contribute to income generation so changing the perception that they are a drain on resources.

The research study by Rosenberg (1998) on IT and university libraries in Africa, revealed that the level of IT adoption and the use of the new technologies differ widely between libraries. The use of automated networks, for the acquisition of information and for resource sharing, does not feature largely in the IT services offered. There is no doubt that the introduction and use of IT had brought demonstrable benefits to all the libraries surveyed together with their users.

Makori (2009) conducted a study on reinventing academic libraries in Kenya whose purpose was to review recent initiatives by academic libraries in Kenya aimed at reinventing, re-engineering, and providing innovative information products and services to support learning and research activities or aspirations of their institutions. The review provided some answers to the various challenges facing academic libraries in Kenya in the process of providing adequate information services. The review also provided useful information on how academic libraries in developing countries including Kenya could withstand the ever-changing information environment by adopting entrepreneurial approaches to managing information. The study revealed that academic libraries in Kenya were facing daunting challenges in their effort to provide knowledge to support learning and research activities in their institutions. These challenges include: changing information environment and media landscape, technological innovation, user expectations, and economic forces. These forced most of them to adopt innovative approaches to manage and deliver information products and services. These approaches included: building new learning resource centers or refurbishing existing academic libraries, creation and development of digital institutional repositories, providing technological systems, understanding the information audience, and innovative information products and services.

Mutula (2001) did a research on the IT environment in Kenya: implications for libraries in public universities. He argued that Kenya, like other countries of the world, was making efforts to modernize its telematics infrastructure to take advantage of emerging information technologies such as the internet, virtual libraries and distance education, just to mention a few. Most public university libraries in Kenya largely used conventional methods of acquiring, storing, managing and retrieving information. This implied that these libraries have fallen way behind the rapid

developments in information technology. The use of IT in the university libraries was limited to standalone computers for accessing information on CD-ROM, while library automation had not been adopted in many libraries.

Kasalu and Ojiambo (2012) on the application of ICTs in collection development in private university libraries in Kenya found that with the changing information environment and users' information needs, libraries were being compelled to adopt ICTs in order to remain relevant and increase their value to meet the changing needs of the users. The study recommended different ways of applying ICTs in all the processes of collection development to make the process more efficient and effective in meeting the needs of the users. Further study by Odero and Mutula (2007) on internet adoption and assimilation in Kenyan university libraries showed that students and staff in higher education were increasingly gaining access to the internet and other new technologies and the future of universities depended on their capacity to institutionalize new technologies to meet the complex needs of the academic populace. The presence of ICTs in academic libraries, especially the internet and its potential impact on learning, teaching, and research, implied that any effort that would shed light on this technology was laudable. This underscored the need to understand the underlying factors that impede or promote individuals' response to the internet-based technology in university libraries not only in Kenya but elsewhere.

From the foregoing empirical review, it is evident that some authors like Hong (2002) recommended a call for user-focused research and a need for research to identify the factors that determine users' adoption of digital libraries. However, most studies did not address the local situation experienced by Kenyan universities in the use of ICTs except a few that focused on the initial aspects of IT application and use. The study is therefore in tandem with the concerns raised by the authors to find out why users of academic libraries, especially in Kenyan universities, are not able to fully utilize the information systems for teaching, learning and research purposes.

2.6. CONCEPTUAL FRAMEWORK

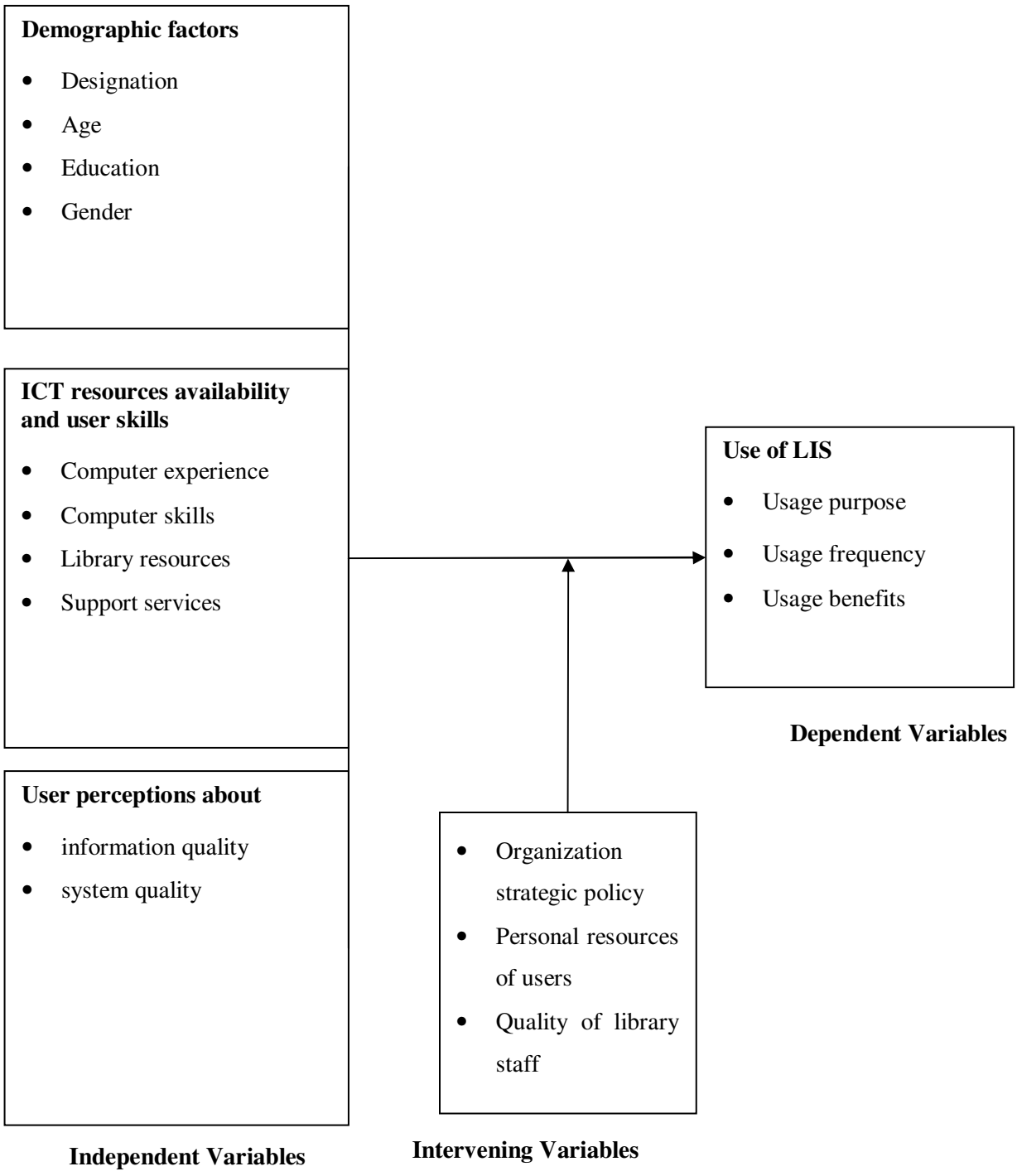

Figure 2.1: Schematic diagram of the relationship among the study variables.

Source: Author, 2013.

As shown in the conceptual model, the independent variables in this study were internal factors relating to the user and each of these factors had an impact on the user, their intention to use a system and their actual usage of the system. For instance, user competencies such as the computer experience, skills, and library resources were variables which may affect the dependent variable. Demographic characteristics of the user such as the designation/category, age, gender and education will determine either the positive or negative interaction with the information systems. User satisfaction in terms of the quality of information and system quality determined user motivation to use the system. A high-quality system was associated with more use, more user satisfaction, and positive net benefits to the parent organization such as increased variety of information/teaching materials; increased number of users and progressive growth in knowledge of users due to improved speed and access; improved research and innovation; and the realization of the return on investment (ROI).

Institutional strategies, personal resources and quality of library staff became the intervening variables. The extent to which the institution had employed adequate strategies in terms of developing policies and training programmes; and installation of quality ISs in the library will had a significant impact on the usage of information systems. Computer ownership (with access) and usage within a given environment such as outside the university or home implied that the user had more time to interact with the computer which equally impacted on the information systems' use. Computer ownership also showed whether the user relied heavily on the computers in the university library or home.

The dependent variable in this study was the usage of library information systems. This was measured in terms of purpose of use such as learning, teaching, research and administrative use; usage frequency and benefits accrued from using the system.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

The study investigated the use of library information systems by staff and students in Kabarak University. The study was conducted at Kabarak University Library with staff and students being the main participants and the data was collected in the Library premises, lecture halls and staff offices.

The chapter comprises of an outline of the procedures used to carry out the study which include the research design, target population, sampling procedure, data collection methods and procedure; and finally, the data analyses and presentation.

3.2. Research Design

The research employed a survey methodology to illustrate the phenomenon under examination. The participants of this study included the teaching staff, non-teaching staff and regular students in Kabarak University main campus. The study involved the staff and students in Year 3, Year 4 and postgraduates.

3.3. Target population

The target population of this research study comprised two hundred and eighty seven (287) staff and three thousand two hundred and ten (3,210) students at Kabarak University.

3.4. Sampling procedure and sample size

The elements of the study were categorized in to eighty nine (89) teaching staff, one hundred and ninety eight (198) non-teaching staff and one thousand six hundred and seventy three (1,673) students (undergraduates Year 3 & 4, and postgraduates). These various strata were purposively formed and Stratified sampling applied to obtain the desired sample size. Thereafter, proportionate stratified sampling was adopted to select respondents from each stratum.

The total sample size for the study according to Yamane (1967) was obtained using the following formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where, **n** is the sample size, **N** is the population size, and **e** is the level of precision (0.05).

The sub-sample size for each stratum of library users (staff and students) was determined using the proportionate stratified sampling as shown in the formula below:

$\mathbf{n_n = (n/N)\ N_n}$

Where, $\mathbf{n_n}$ is the sub-sample size for each stratum, **n** is the sample size, **N** is the population size and $\mathbf{N_n}$ is the population size for each stratum.

Table 3.1. Sample size determination.

Category of Library Users		Population size	Sample size
Staff	Teaching staff	89	15
	Non-teaching staff	198	34
Students	Postgraduates	210	36
	Undergraduates Year 4	760	129
	Undergraduates Year 3	703	119
Total		**1,960**	**333**

Source: Registrar's office, Kabarak University, September, 2013.

3.5. Data collection and procedure

The data was collected from both the primary and secondary sources. The primary source of data was collected using questionnaires while secondary source of data relating to staff and students was obtained from records in the Registrar's office, Kabarak University.

The questionnaires were administered to students in the Library premises and lecture halls while staffs were reached in their respective offices in various schools.

3.6. Validity and Reliability of the measurement instruments

According to Bui (2009), validity refers to the extent to which the instruments measure what it was intended to measure. Expert knowledge and secondary sources of information were sought for the validity of the measurement instruments. Reliability refers to the extent to which an instrument consistently measures what it was intended to measure. A pre-test was carried out to ascertain the reliability of the data collection instruments. This involved administering the questionnaires to the Nakuru Town Campus staff and students selected purposively.

3.7. Data Analysis Methods and Presentation

The data collected was transcribed, organized, coded and statistical tests run and interpreted in line with the objectives of the study.

Data analysis used both descriptive and inferential statistics. The descriptive statistics were used to present the distributional properties of the data and explain the respondents' characteristics while inferential statistical tests were performed to investigate the nature, direction and strength of relationship between the variables. The analyzed data was presented through graphical illustrations in form of tables, graphs and charts.

CHAPTER FOUR
RESULTS, ANALYSIS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results from the data collected for the study. The chapter provides general library information system background information, the respondents' profile, data description of responses as per study objective, inferential statistics and relevant discussions placing the key findings of the study in context.

4.2 Descriptive Statistics

The descriptive statistics were used for two purposes: To present the distributional properties of the data and explain the respondents' characteristics.

4.2.1 General Information

The general information provides descriptive data regarding three items that were deemed necessary for proper functioning of the digital library services. These items included user access to the digital library information services, user source of knowledge regarding digital library information services use, and availability of electronic resources to the user to practically use the resources. According table 4.1 below, it was found that a large majority of the respondents of 93.2% actually accessed the Kabarak University Library home page while only 6.8% of the respondents did not. Of these users, the majority learned how to use the system on their Own which comprised 59% of the respondents, Training session was applicable to 12.9% of the respondents, 3.6% learned through Friend/relative, 14.5 learned through Written instructions provided within the Kabarak University learning environment while 1.6% of the respondents indicated having learned the system usage through Other way. A total 8.4% of respondents did not answer the question. A chi-square test showed that these differences were significant at $\alpha=0.05$ ($\chi 2 = 298.886$, df = 4, p = 0.000). Similarly, the paths to primary use of the digital library information systems were varied, where the respondents indicated that the University Library provided 26.9% point of access to users, University ICT centre 45.8%, Cybercafes outside the university were used 12%, while Home as a point of access used another 12%, non-response was at 3.2%. Again, a chi-square test of independence showed that there were significant differences

regarding the point of access to library information system ($\chi 2 = 79.083$, d.f = 3, p = 0.000). (See Table 4.1 below).

Table 4.1: General Digital Environment Information

	Response category	Frequency	Percent (%)
Have you ever accessed the library home page?	Yes	232	93.2
	No	17	6.8
	Total	249	100
How did you as a user learned to use Kabarak University online library services?	On own	147	59
	Training session	32	12.9
	Friend/relative	9	3.6
	Written instructions	36	14.5
	Other way	4	1.6
	Missing	21	8.4
	Total	249	100
Where do you usually use the electronic resources?	Library	67	26.9
	University ICT centre	114	45.8
	Cybercafe	30	12
	At home	30	12
	Missing	8	3.2
	Total	249	100

How did you as a user learned to use Kabarak University online library services? ($\chi 2 = 298.886$, df = 4, P = 0.000).

Where do you usually use the electronic resources? (Chi-Square = 79.083a, df = 3, P = 0.000).

4.2.2 Demographic Information

Since the study also sought to find the influence of the demographic factors on the use of library information system, descriptive statistics were used to provide information regarding the demographic composition of the respondents. In respect of respondents' designation, Students made up 79.5% of the respondents with the remainder of 18.5% consisted of Staff, 2% never responded to the question. Regarding the age brackets of the respondents, majority were in the age group 18-25 years making up 73.9% of the respondents, in the age group 26-35 years

consisted of 16.5%, between 36 and 45 years were 6.8%, those in the bracket 45-55 years were 1.6% while 55+ years comprised 1.2%. The respondents' education ranged from those pursuing or have completed Undergraduate degree who made up 75.5%, those who had completed or pursuing Masters degree comprised 14.1%, while those who were either studying for or have completed PhD degree were 1.6%. Nonetheless, 8.8% of the respondents did not answer this question. (See Table 4.2 below).

Table 4.2: Demographic Profile of Respondents

	Response category	Frequency	Percent (%)
Designation	Student	198	79.5
	Staff	46	18.5
	Total	244	98
	Missing	5	2
	Total	249	100
Age	18-25 years	184	73.9
	26-35 years	41	16.5
	36-45 years	17	6.8
	45-55 years	4	1.6
	55+ years	3	1.2
	Total	249	100
Education	Undergraduate degree	188	75.5
	Masters degree	35	14.1
	PhD degree	4	1.6
	Missing	22	8.8
	Total	249	100
Gender	Male	118	47.4
	Female	131	52.6
	Total	249	100

4.2.3 Availability of Electronic Resources and user skills

Regarding the availability of electronic resources (table 4.3 below), the items asked for the respondents' Computing experience Less than 2 years 59.4% 3-4 years 12.9%, 5-6 years 6.8%, Over 6 years 14.1%, Missing 6.8%. Respondents were also asked regarding the extent to which they believed they possessed the skills to navigate the digital landscape, those who responded Very low were 1.2%, Low 2.4%, Moderate 28.9%, High were 39%, while Very high 27.3%. The remaining 1.2% did not respond. On the question of how the respondents were satisfied with the resources provided by Kabarak University library generally, 6% indicated being Very dissatisfied, 6.4% were Dissatisfied, 13.7% were Neither dissatisfied nor satisfied. However, a higher number of 26.5% Satisfied while the majority consisting of 44.6% Very satisfied, Missing responses were 2.8%. Alternatively, the respondents were asked to rate the extent to which library resources were adequate to support their needs. Strongly disagree responses were at 8.8%, Disagree 12.0%, Neutral 14.1%, Agree 26.9%, Strongly agree 32.1% while Missing 6%. Therefore the study found that overall, respondents were largely in possession of both skills and resources to enable them navigate the library information system landscape. This view is informed by observation that the first task of the library is to be informed about the needs and problems of the users so as to help satisfy them (Malliari & Kyriaki-Manessi, 2007). (See Table 4.3 below).

Table 4.3: Electronic Resources Availability and user skills

	Response category	Frequency	Percent (%)
How long do you estimate you have had experience related with information technologies?	Less than 2 years	148	59.4
	3-4 years	32	12.9
	5-6 years	17	6.8
	Over 6 years	35	14.1
	Missing	17	6.8
	Total	249	100

Do you have skills to navigate the digital information landscape	Very low	3	1.2
	Low	6	2.4
	Moderate	72	28.9
	High	97	39
	Very high	68	27.3
	Missing	3	1.2
	Total	249	100
Are you satisfied with resources provided by Kabarak University library generally?	Strongly dissatisfied	15	6
	Dissatisfied	16	6.4
	Neutral	34	13.7
	Satisfied	66	26.5
	Strongly satisfied	111	44.6
	Missing	7	2.8
	Total	249	100
Overall, do you feel that Kabarak University library resources are adequate to support your needs?	Strongly disagree	22	8.8
	Disagree	30	12.0
	Neutral	35	14.1
	Agree	67	26.9
	Strongly agree	80	32.1
	Missing	15	6
	Total	249	100

4.2.4 User Satisfaction with Library Information Systems

User satisfaction was composed of two components with sub-items measuring them (table 4.4 below). The two components were information quality and system quality. Information quality related to the desirable characteristics of the system outputs and included dimensions such as Completeness which had a mean of 3.31 on a scale that ranged from 1 to 5 where a majority (50%) were indifferent on completeness of information provided by the library information system at Kabarak University; Accuracy of the information provided by the library information system had a mean of 4.19 with majority of respondents indicating that they were satisfied with the information accuracy (52.5%); Information format or presentation had a majority of 42.4% indicating satisfaction corresponding to a mean of 3.55; likewise, 50% of the respondents were satisfied with the information they got in terms of it being Recent or up to date, corresponding to a mean of 4.31; and Reliability of information had a mean of 4.12 with majority indicating being satisfied (53.8%). On the other hand, system quality related to the desirable characteristics of the information system. Particularly, factors such as Accessibility with mean = 3.38 had majority being indifferent to its satisfaction at 38.1% , Adaptability had mean = 3.57 with a majority of 39.8% being satisfied, Integration had mean = 4.32 where 37.8% were satisfied, and finally regarding Timeliness the mean was 4.01 while majority were satisfied at 43.4%. Overall, in most instances respondents were satisfied with the library information system, however, there were also instances that they were indifferent. This leads to a conclusion corresponding with Malliari and Kyriaki-Manessi (2007) noting the importance of exploring users' behavior, measuring users' satisfaction, meeting users' needs, even before they are expressed in a library's quality services.

Table 4.4: Description of Satisfaction with Library Information System Quality

	Strongly dissatisfied	Dissatisfied	Neutral	Satisfied	Strongly satisfied	Mean
Provides me with a complete set of information	1.3	7.6	50	41.1	0	3.31
The information provided is clearly presented on the screen	1.7	1.7	8.1	52.5	36	4.19
The information provided is accurate	9.3	8.1	20.8	42.4	19.5	3.55
Provides me with the most recent information	0	1.3	7.6	50	41.1	4.31
Operates reliably	3.2	4.5	4	53.8	34.4	4.12
Provides readily accessible information	8.1	10.6	38.1	22	21.2	3.38
Digital library services can be adapted to meet a variety of needs	3.3	18.4	17.2	39.8	21.3	3.57
Integrates data from different sources	3.8	3.8	2.1	37.8	52.5	4.32
Provides information in a timely fashion	4.3	7.2	8.5	43.4	36.6	4.01

4.2.5 Library Information System Usage

According to the respondents, nearly half of them used the library information systems for research (49.1%), followed by education related uses (40.7%). The other uses included work related (7.7%), personal needs such as personal communication (1.7%), and recreation such as games (0.9%). The statistics revealed that library information systems were strategically used as per the University's goal of enhancing education and research activities (See Figure 4.1). These results were further reinforced by Post & Anderson (2005) who argued that organizations

presumably see information systems as contributing to some of their goals - but they tend to be those associated with financial performance rather than with performance on the key and core strategic goals.

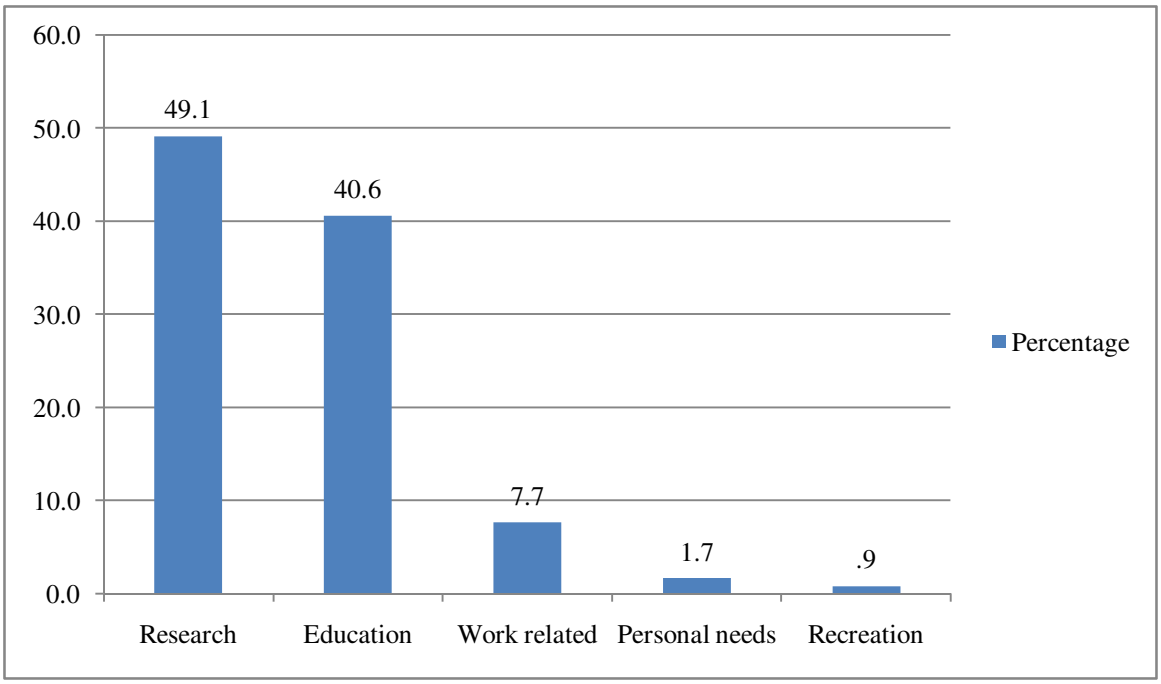

Figure 4.1: Uses of Library Information Systems

According to figure 4.2 below, usage frequency ranged from daily usage to rarely. In respect of this question, most respondents indicated they used the system a few times a week (40.2%). This was followed by daily usage where 31.4% of the respondents indicated this preference. Still, 12.2% of the respondents indicated that they used the system a few times a month, another 8.7% showing a few times a year preference while a minority of 7.4% showed rare usage of the system. (See Figure 4.2 below).

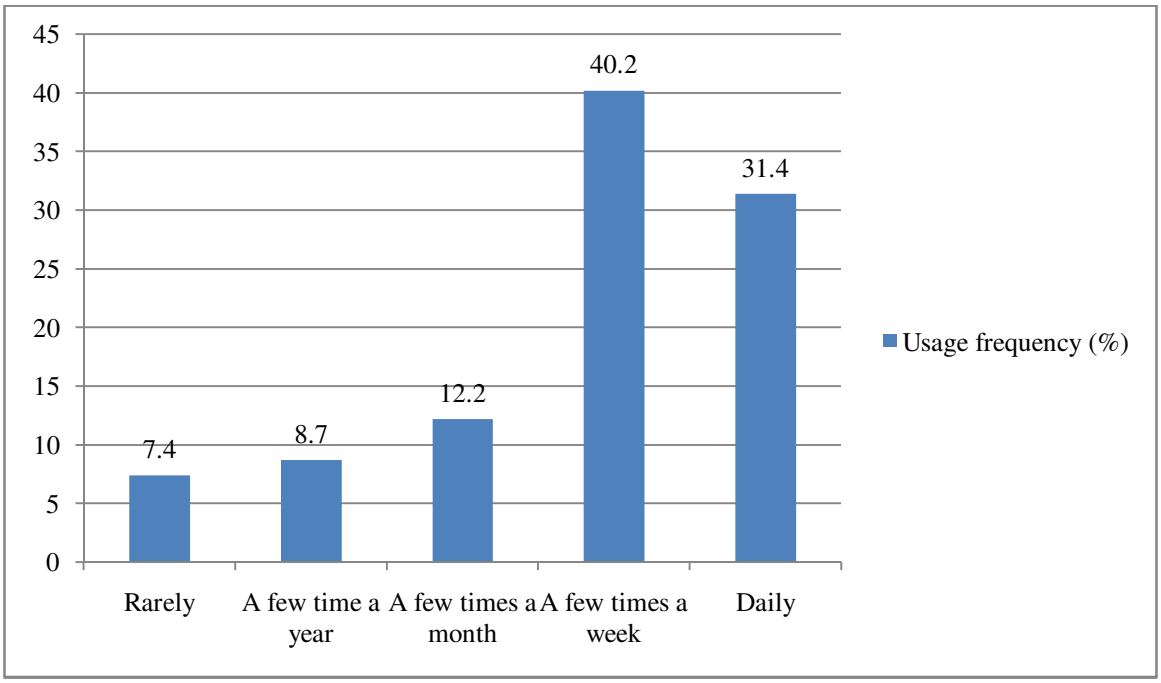

Figure 4.2: Usage Frequency

In terms of the system benefits as per the respondents, it was found that 66.7% indicated that they actually benefited from the system while 24.5% showed that the system was not beneficial to them. There was 8.8% non-response regarding the question (figure 4.3 below).

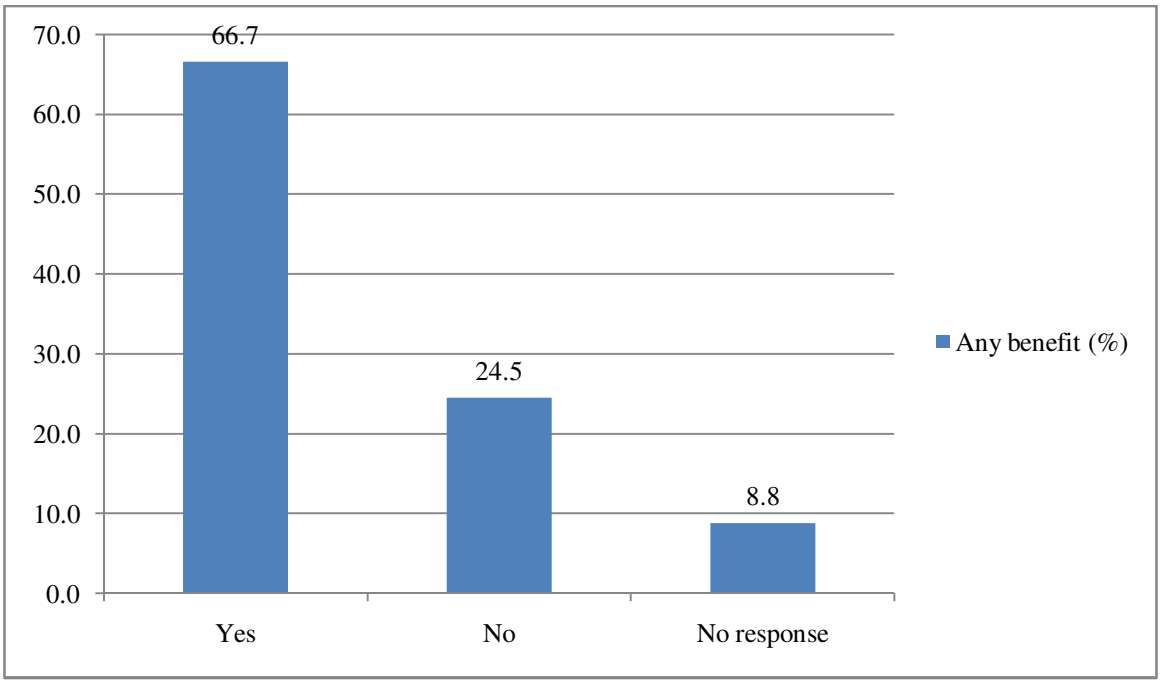

Figure 4.3: System benefits.

4.3 Inferential Statistics

Three inferential statistical tests, namely, chi-square test of independence, correlation analysis and multiple regression analysis, were performed to investigate the nature, direction and strength of relationship between variables.

4.3.1 Influence of user Demographic Characteristics

Chi-square tests were conducted to assess whether or not there were any relationship or association between the demographic factors and the dependent variable use of library information systems. The tests were conducted at the confidence interval corresponding to 95%, or alternatively, at the significance level $\alpha = 0.05$.

Regarding the influence of the demographic factor Designation, the cross-tabulation in Table 4.5 shows the frequency distribution of students with the corresponding staff library information system usage preferences. Accordingly, majority of students had library information system usage a few times a week (38.5%) followed by daily usage comprising 29.7% of respondents. This was compared to staff who had majority library information system usage of 52.4%, also a few times a week followed by daily usage at 38.1%. The test was not significant at $\alpha = 0.05$, indicating that there was not enough evidence to conclude that designation of the respondents influenced the use of library information system usage $\chi 2 = 9.322$, df = 4, p = 0.054. (See Table 4.5).

From the results, the high use by staff and students (90.0%) is a commendable progress in terms of the utilization of information systems. Therefore, the result that designation of the user as either staff or student being associated with the use of the library information systems supported the view of Dinpanah and Javanmard (2013), that the library information system should be conceptualized as an individual-oriented system where each individual may have a different orientation and preferences leading to varied uses based on those needs. The system should therefore present information in such a form and format that it creates an impact on its user, provoking a decision or an investigation. Further, the library system should seek to gain an understanding of how to promote the use of information technology for strategic benefits to its user groups (Ranganathan, et al., 2004). Thus the system need to continually assess its user base to ensure that it provides information and materials that is focused on the needs of those users. Likewise, assessing the user needs, the system need also to anticipate and provide for future

needs ahead of time so that the user groups do not feel alienated due to lack of versatility or adaptability.

Table 4.5: Influence of User designation

			Usage frequency					
			Rarely	A few time a year	A few times a month	A few times a week	Daily	Total
Designation	Student	Count	22	19	17	70	54	182
		% within Designation	12.1%	10.4%	9.3%	38.5%	29.7%	100.0%
	Staff	Count	2	0	2	22	16	42
		% within Designation	4.8%	0.0%	4.8%	52.4%	38.1%	100.0%
Total		Count	24	19	19	92	70	224
		% within Designation	10.7%	8.5%	8.5%	41.1%	31.3%	100.0%
$\chi 2 = 9.322$	df = 4	p = 0.054						

Where, d.f - Degrees of freedom; P- Probability; r - Pearson product-moment coefficient; α – Confidence level; $\chi 2$ - Chi-square test.

In respect of age, the data showed in Table 4.6 below that in all age brackets, the majority of the respondents used the library information systems either a few times a week or daily. Thus in the age bracket18-25 years 39.1% of the respondents indicated a few times a week, similarly, in the age group 26-35 years, a majority of 48.7% indicated a few times a week. In the bracket 36-45 years the majority usage was daily at 57.1% of the respondents, likewise, another daily usage peaked at 75.0% for those in the group 45-55 years. The age group 55+ years was characterized by multimodal usage at 33.3% for rare, a few times a week, and daily usage. In order to find out if the influence of the age on the usage was statistically significant, the chi-square value was examined which showed that it was not significant indicating that age of the respondents was not associated with their usage preference ($\chi 2 = 15.362$, d.f = 16, p = 0.498). (See Table 4.5 below). The findings that use of library information systems was not significantly related to participant's library information system usage, however, did not support Abedalaziz, et al., (2013) prior findings that indicated that lower age related to higher system use preferences where the youngest participants (< 30 years old) significantly scored higher than the participants in the

older groups of age in usage preferences of digital information systems. However, the study also focused on one user group, post graduate students, therefore providing a point of divergence with the present study. As such, the present study points to the fact that as the system expands to serve varied user groups, age becomes a lesser factor for demarcating the user needs in the university setting. Further more, the results were also in conformity with Mulla's (2012) interesting finding on user behaviors and demands that users change from the young to the aged or from the aged to the young.

Table 4.6: Influence of User Age

			Usage frequency					
			Rarely	A few time a year	A few times a month	A few times a week	Daily	Total
Age	18-25 years	Count	19	18	18	66	48	169
		% within Age	11.2%	10.7%	10.7%	39.1%	28.4%	100.0%
	26-35 years	Count	4	2	2	19	12	39
		% within Age	10.3%	5.1%	5.1%	48.7%	30.8%	100.0%
	36-45 years	Count	0	0	1	5	8	14
		% within Age	0.0%	0.0%	7.1%	35.7%	57.1%	100.0%
	45-55 years	Count	0	0	0	1	3	4
		% within Age	0.0%	0.0%	0.0%	25.0%	75.0%	100.0%
	55+ years	Count	1	0	0	1	1	3
		% within Age	33.3%	0.0%	0.0%	33.3%	33.3%	100.0%
Total		Count	24	20	21	92	72	229
		% within Age	10.5%	8.7%	9.2%	40.2%	31.4%	100.0%

$\chi 2 = 15.362$ d.f = 16 p = 0.498

The level of education currently being pursued by the students and the completed education level for the staff were also assessed as to whether it influenced the use of the library information systems. The cross tabulation in Table 4.7 below indicated that the majority of the undergraduate respondents (39.9%) described their library usage as falling in the category a few times a week while masters respondents indicated that they had majority daily usage (37.5%). Meanwhile, Phd respondents were equally distributed between a few times a week usage and daily usage (50.0%). However, the chi-square test showed that the level of education did not significantly influence the level of use of the library digital information system ($\chi 2 = 7.528$, d.f. = 8, p = 0.481). (See Table 4.7 below).

The level of education was thus found not to be related with the use of library information systems. Hence in order to increase the level of use of the library information systems, greater availability of titles, promotion, and better integration within teaching and learning emerge as key requisites for effective service delivery and enhancement of the system, and this need to be undertaken across board targeting all the levels of education in the university (Mulholland & Bates, 2014).

Table 4.7: Influence of User Education

			Usage frequency					
			Rarely	A few time a year	A few times a month	A few times a week	Daily	Total
Education	Undergraduate degree	Count	19	18	14	69	53	173
		% within Education	11.0%	10.4%	8.1%	39.9%	30.6%	100.0%
	Masters degree	Count	4	2	6	8	12	32
		% within Education	12.5%	6.3%	18.8%	25.0%	37.5%	100.0%
	PhD degree	Count	0	0	0	2	2	4
		% within Education	0.0%	0.0%	0.0%	50.0%	50.0%	100.0%
Total		Count	23	20	20	79	67	209
		% within Education	11.0%	9.6%	9.6%	37.8%	32.1%	100.0%

$\chi 2 = 7.528$ d.f. = 8 p = 0.481

Regarding the respondents' gender displayed in Table 4.8 below, males had majority indicating preferences tied at 36.8% in the categories a few times a week and daily usages. Meanwhile, the majority of females had usage preference of a few times a week representing 43.1% of the females. Chi-square test indicated that there were no significant differences between males and females as far their usages of digital information systems were concerned ($\chi 2 = 2.899$, d.f = 4, p = 0.575). (See Table 4.8 below).

This result was consistent with Omotayo (2006) finding that there was no evidence of a significant difference in the use of library information system between male and female group. This statement contradicted the findings according to Koohang (2004), that female users find it harder to learn to operate and explore the digital library system than male users and that female participants were significantly more satisfied than their male counterparts with the library's online resources (Blackman, 2003).

Table 4.8: Influence of User Gender

			Usage frequency					
			Rarely	A few time a year	A few times a month	A few times a week	Daily	Total
Gender	Male	Count	10	8	10	39	39	106
		% within Gender	9.4%	7.5%	9.4%	36.8%	36.8%	100.0%
	Female	Count	14	12	11	53	33	123
		% within Gender	11.4%	9.8%	8.9%	43.1%	26.8%	100.0%
Total		Count	24	20	21	92	72	229
		% within Gender	10.5%	8.7%	9.2%	40.2%	31.4%	100.0%
$\chi 2 = 2.899$		d.f = 4	p = 0.575					

4.3.2 Influence of Electronic Resource Availability and User Skills

Pearson product-moment coefficient was used to explore the relationship between resources available to the user to facilitate the system use and system usage. The results showed that in

most cases the relationship was moderately positive and significant, with the exception of Adequacy of online library resources (r = 0.317, p = 0.055, n = 218) which was positive, though not significant. Experience with computers had a positive correlation with usage, which was highly significant (r = 0.325**, p = 0.007, n = 214); Information technology skills also had a positive relationship with usage that was significant at α = 0.05, (r = 0.216*, p = 0.011, n = 227); similarly, satisfaction with resources provided by Kabarak University library generally showed significant positive correlation with usage frequency (r = 0.223*, p = 0.021, n = 225). The correlation relation relationship between the independent variables were all not significant, though positive. However, they have not been discussed as their relationships were not integral to the study at hand. (See Table 4.9 below).

Overall, the results showed that as more resources become available or skills improved, there was more likely to be increased library information system usage increase in tandem with such improvements. For instance, with regard to skills, Klaib (2009) offers suggestion that there is need to offer the required lectures that inform users about the importance of libraries and libraries' departments, the practical training of online access to databases through internet, or training on the usage of periodical indexes as this is likely to improve their confidence in the usage of the information system. Further, the curricula offered should have courses or exercises that support use of the library, with the program concentrating on theoretical aspects as well as practical aspects.

Regarding the resources, Oyeniyi (2013), noted that electronic resources were vital for effective use of library information system, with the resource items including non paper – based electronic information formats like CD-ROM , the Internet, and all web –based resources which offer a variety of reference and literary sources. These electronic resources provide off-line and online access to information by CD-ROM databases, Internet, as well as online databases. Other needed resources include shortage of labour force due to the failure of training institutions to produce ICT technicians and professionals needed, unreliable electricity supply, fixed telephone networks and number of computers, few usable computers, lack of policy framework, inadequate infrastructure and cost of bandwidth, and inadequate in-service training on ICT integration in education (Mwalongo, 2011). Further, the availability of infrastructure with social support inside the learning environment is very important. The context of environment has three identifiable aspects, namely human infrastructure (technical staff, administrative staff, and institutionalized

policies), technological infrastructure (resources, facilities, and access), and social support (colleagues and administrators). However, a learning environment rich with technology is insufficient and inadequate to guarantee successful utilization and implementation of technology in higher education. Their ready acceptance of such a system would lead to increase in usage and motivate user to increased LIS usage (Asiri, et al., 2012)

Table 4.9: Influence of electronic resources availability and user skills

		1	2	3	4	5
How long do you estimate you have had experience related with information technologies?	r	1				
	p					
	n	232				
Do you have skills to navigate the digital information landscape	r	.167	1			
	p	0.111				
	n	230	246			
Overall, do you feel that the Kabarak University library information system resources are adequate to support your needs?	r	0.131	.181	1		
	p	0.052	0.206			
	n	219	232	234		
Are you satisfied with resources provided by Kabarak University library generally?	r	0.115	0.05	.279	1	
	p	0.085	0.443	0		
	n	227	240	232	242	
Usage frequency	r	0.325**	0.216*	0.317	0.223*	1
	p	0.007	0.011	0.055	0.021	
	n	214	227	218	225	229

Note: * Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

1=How long do you estimate you have had experience related with information technologies?

2=Do you have skills to navigate the digital information landscape

3=Overall, do you feel that the Kabarak University library information system resources are adequate to support your needs?

4=Are you satisfied with resources provided by Kabarak University library generally?

5=Usage frequency

4.3.3 Influence of Information quality and System quality on the use of LIS

Given that it had been established that use of LIS varied as per the designation of the user, at this stage it was necessary to find out if the satisfaction of the user was also related to their designation. As for the students, the levels of satisfaction with information quality were: Low satisfaction corresponding with 5.6%, moderate satisfaction was associated with 41.4% of the students whereas a majority of 53.0% were indicated high satisfaction. This was in comparison to staff members who showed Low satisfaction, 6.5%, Moderate satisfaction with information quality was 56.5%, which was the majority while the remaining 37.0% indicated that their satisfaction with the information quality of the Kabarak Universisty information system. This distribution of responses was then subjected to chi-square test of independence and it was found that there was indeed no relationship between designation and the level of satisfaction ($\chi 2$ = 3.914, d.f. = 2, p = 0.141).

Regarding satisfaction with the system quality of the Kabarak University library information system, the findings nearly mirrored those of the information quality. As for the students, those who indicated low satisfaction with the system quality made up 11.1% of the student respondent, those who indicated moderate satisfaction were 29.3% of the student respondents while a majority of 59.6% responded as being highly satisfied with the system quality. The staff members had 12.3% being in Low satisfaction category, 30.3% being moderately satisfied and finally a majority of 57.4% that were highly satisfied. A chi square test showed that there were no statistical evidence for differences between the students and the staff ($\chi 2$ = 2.470, d.f. = 2, p = 0.291).

The lack of differences in user satisfaction can be attributed to the fact that, as Petter, DeLone and McLean (2008) point out, the study utilized instruments that contained items related to system quality and information quality, rather than only measuring overall user net benefits from the system. Therefore, it was possible that users may be satisfied with the system as it was currently configured without regard to overall job impact. Therefore, an area that needs to be reviewed in future studies would include research on satisfaction with the user net benefits derived from the library information system. This is in contrast to studies measuring overall library user satisfaction as a function of two independent sources: Satisfaction with the information product received and satisfaction with the information system and library services

used to retrieve the information product where both factors contribute independently to satisfaction in library users (Shi, et al., 2004). (See Table 4.10 below).

Table 4.10: User Satisfaction Levels

			Information quality (Binned)			
			Low	Moderate	High	Total
Designation	Student	Count	11	82	105	198
		% within Designation	5.6%	41.4%	53.0%	100.0%
	Staff	Count	3	26	17	46
		% within Designation	6.5%	56.5%	37.0%	100.0%
Total		Count	14	108	122	244
		% within Designation	5.7%	44.3%	50.0%	100.0%
$\chi 2 = 3.914$			**d.f. = 2**		**p = 0.141**	
			System quality (Binned)			
			Low	Moderate	High	Total
Designation	Student	Count	22	58	118	198
		% within Designation	11.1%	29.3%	59.6%	100.0%
	Staff	Count	8	16	22	46
		% within Designation	17.4%	34.8%	47.8%	100.0%
Total		Count	30	74	140	244
		% within Designation	12.3%	30.3%	57.4%	100.0%
$\chi 2 = 2.470$			**d.f. = 2**		**p = 0.291**	

4.3.3 Composite Influence of Designation, Resource availability and Satisfaction on use of LIS

To investigate the relationship between the user demographic factors (designation), resource and skill availability and satisfaction on library information system usage, a multiple regression analysis was used (Table 4.11 below). In order to perform the test, a preliminary test was run to ensure that the basic assumptions for running regression analysis were valid in the case. The first assumption about non-existence of multicollinearity problem was examined using the Variance

Inflation Factors (VIF) and tolerances for each of the independent variables. The results showed there was no concern for multicolinearity problem since all the Tolerance values were higher than the allowed minimum of 0.1 (Designation = 0.980; Resource availability = 0.996; and User satisfaction = 0.976), or alternatively, none of the VIF values exceeded 10 (Designation = 1.020; Resource availability = 1.004; and User satisfaction = 1.024). However, the fact that multicolinearity did not present a problem in the study does not mean that the independent variables had no correlation relationships with each other.

The other assumption to be examined was about the existence of linear relation among the variables. This was established through ANOVA test that was significant indicating that at least one of the independent variables related linearly with the dependent variable [$F(3, 215) = 42.178$, $p < 0.01$]. The model therefore showed that satisfaction with both the Information quality and the System quality explained 0.390 or 39% (as per the adjusted R^2) of the total variation of Usage of the digital library information system. The multiple correlation coefficient was 0.628 while the R^2 was 0.394.

Regarding the regression coefficients, one of the independent variables, Designation, showed negative relationship with usage frequency of the library information system ($\beta 1 = -.036$, $p > 0.05$). From the initial coding of this variable, 1 represented students while 0 represented staff, thus the negative coefficient indicated that higher usage was associated with students than the staff, though this was not statistically significant. However, variable Resource availability had positive coefficient indicating that more resources were associated with increased LIS usage, though the relationship was not significant ($\beta 2 = 0.046$, $p > 0.05$). The result therefore offered no proof that increased resources led to increased LIS usage. Indeed other factors besides resource availability determined the extent of utilization of the system, such as user attitude towards ICT in general and user routine work requires wider range of resources besides the traditional library sources (Asiri, et al., 2012). On the contrary, a highly significant positive coefficient was found in relation to User satisfaction ($\beta 3 = 0.840$, $p < 0.01$) indicating that as users became more satisfied with both information and system quality, their usage of the LIS was likely to increase. This finding accords with results that the Technology Acceptance Model (TAM) provides a framework for determining user satisfaction with the resources and services of the library information system. Therefore, satisfaction or acceptance equates to meeting the needs of the LIS patrons accessing the online library's resources and services. Hence it predicts that users

who are more satisfied with the resources and services of the library tend to have increased usage of the information system.

Table 4.11: Regression Analysis Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.609[a]	.370	.362	.84968

a. Predictors: (Constant), User satisfaction, Resource availability, Designation

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.351	3	30.450	42.178	.000[b]
	Residual	155.219	215	.722		
	Total	246.570	218			

a. Dependent Variable: Use of LIS

b. Predictors: (Constant), User satisfaction, Resource availability, Designation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.015	.469		2.164	.032		
	Designation	-.036	.152	-.013	-.239	.811	.980	1.020
	Resource availability	.046	.094	.027	.490	.625	.996	1.004
	User satisfaction	.840	.076	.604	11.037	.000	.976	1.024

a. Dependent Variable: Use of LIS

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter provides a summary of findings, draws conclusion from such findings upon which recommendations are made, and then finally concludes with a suggestion for further research.

5.2 Summary of Findings

The study sought to find out the extent of influence of various factors on the use of the digital library information system. Accordingly, influences of demographic factors, availability of resources, and satisfaction with the digital library information system were examined. From the descriptive statistics, University ICT centre was most popular point of access for the users. In respect of user categories, there were significant usage differences between students and staff, even though age differences did not account for any differences in the system usage. Also accounting for no differences in the usage of the system was the users attained level of education and gender. Though in most instances availability of resources were associated with increased usage with library systems usage frequency, it was also found that adequacy of resources and usage was not significant indicating that this may have been brought about by lack of access to resources especially when users were outside the campus. In respect of the relationship between user satisfaction with the library information and usage, it was found that both information quality and system quality contributed to increased use of library information systems.

5.3 Conclusion

In conclusion, the study found that library information systems bring many benefits and advantages to users including having a direct access and downloading of full text articles via computer devices, providing current, latest and complete information resources, easier tracking of resources stored in digital form; remote, fast and fair access of digital library collections (Dinpanah & Javanmard, 2013). However, various factors influenced use of the library information system, including demographic background of the respondents, resources availability and skills, and user satisfaction with the library information system. As far as user demographics are concerned, the library information system should be designed to promote the use of information technology for strategic benefits to its user groups (Ranganathan, et al., 2004),

through though understanding of the needs of the various user groups. In the present study, it was found that among the demographic factors tested, the only factor that was found to significantly influence the use of the library information systems was the designation of the users where students had more usage preference than their staff counterparts.

In regard to resources, a survey of the literature showed that the degree of computer experience encourages or discourages users' to use technology. Therefore, Klaib (2009) offers suggestion that there is need to offer the required lectures that inform users about the importance of libraries and libraries' departments, the practical training of online access to databases through internet, or training on the usage of periodical indexes as this is likely to improve their confidence in the use of the information systems. The study therefore found that the major problem of LIS related to remote access where it was showed that the most popular point of access is the University ICT center. The resource items assessed had significant positive relationship with LIS usage indicating that they were indeed integral in enhancing the LIS usage rate. According to Asiri, et al. (2012), the major resources needed to operationalize optimum usage included human infrastructure (technical staff, administrative staff, and institutionalized policies), technological infrastructure (resources, facilities, and access), and social support (colleagues and administrators).

In relation to user satisfaction with LIS, the study utilized measures of overall library user satisfaction as a function of two independent sources: Satisfaction with the information product received and satisfaction with the information system and library services used to retrieve the information product where both factors contribute independently to satisfaction in library users (Shi, et al., 2004). However, it was found that by using such an instrument, there were no differences between the various user groups that had initially provided evidence of different user needs, that is, student versus staff. This led to the adoption of Petter, DeLone and McLean (2008) suggestion that rather using the two measures of user satisfaction, measuring overall user net benefits from the system provides emphasis on overall job impact which need to be adopted in future studies. Therefore, the users were largely satisfied with qualities of information and system being used in the university leading to higher use among the various categories of users.

5.4 Recommendations

Based on the aforementioned observations, the study therefore recommends that the library to work on modalities to ensure equality and access to resources and skills necessary to navigate the LIS environment. This inevitably will require taking into account the various user group demographics as well as their needs. While the present study found usage differences only in respect to user designation where students had more intense usage rate than staff, it would be important to keep in mind other factors such as gender, age group, and level of education. For instance, it had been found in Nigeria that females were more likely to lack access to online resources due to low computer ownership than their male counterparts (Oyeniyi, 2013).

The study also recommends a promotional campaign (user education) to library users for availability of electronic information sources in the library. This may lead to increased use of library information systems and hence make library the most preferred point of access than the ICT centre. Resources availability and skills are another group of issues that must be tackled by the university to ensure open and equal access to library information system. As such efforts should be made not only to improve the skills required to maximize the LIS usage rate but also access to resources such as computers, internet, e-books, e-journals, and databases that can be accessed remotely. Finally the user groups must be understood in terms of their LIS needs so as to ensure that their likely needs are met even before they made demand for it. This is likely to improve their satisfaction with the system and therefore their usage rate. The library therefore is likely to be immensely aided in this endeavor through programs such as benchmarking as well user satisfaction surveys.

5.5 Suggestion for further research

The study pointed that as a way of validating and developing on the findings of this study, further research should be carried out to compare the influence of the factors examined in this study involving both public and private universities. In doing so, differences in demographic factors may become more explicit since the demographics of users in public and private universities are hypothesized to be different in significant ways, besides the differences in resource availability in both types of institutions.

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Appendix 1. Research Questionnaire.

Dear Respondent,

I am a postgraduate student in the School of Business, Kabarak University pursuing Master of Business Administration. As part of the course requirement I am carrying out a research on ``***Factors influencing the usage of Library Information Systems by Staff and Students in Kabarak university''***. You have been identified as a key respondent in this study and I kindly request you to assist me in filling this questionnaire. All the information collected will be treated with utmost confidentiality and used only for the purpose of this study.

Thank you very much for your time and cooperation.

Peter Pembee.

Part A: General Information

1. How did you as a user learn to use Kabarak University online library services?

On own ☐

Training session ☐

Friend/relative ☐

Written instructions ☐

Other way ☐

2. Where do you usually use the electronic resources?

Library ☐

Universiyt ICT centre ☐

Cybercafe ☐

At home ☐

Part B: Demographic Information

3. Designation

Student ☐

Staff ☐

4. Age group

18-25 years ☐

26-35 years ☐

36-45 years ☐

45-55 years ☐

55+ years ☐

5. Education level

Undergraduate degree ☐

Masters degree ☐

PhD degree ☐

6. Gender

Male ☐

Female ☐

Part C: Availability of Resources

7. How long do you estimate you have had experience related with information technologies?

Less than 2 years ☐

3-4 years ☐

5-6 years ☐

Over 6 years ☐

8. Do you have skills to navigate the digital information landscape

Very low ☐

Low ☐

Moderate ☐

High ☐

Very high ☐

9. Are you satisfied with resources provided by Kabarak University library generally?

Strongly dissatisfied ☐
Dissatisfied ☐
Moderate ☐
Satisfied ☐
Strongly satisfied ☐

10. Overall, do you feel that Kabarak University library ICT resources are adequate to support your needs?

Strongly disagree ☐
Disagree ☐
Neutral ☐
Agree ☐
Strongly agree ☐

Part D: User System Satisfaction

11. Library Information System (LIS) Provides me with a complete set of information

Strongly disagree ☐
Disagree ☐
Neutral ☐
Agree ☐
Strongly agree ☐

12. The information provided is clearly presented on the screen

Strongly disagree ☐
Disagree ☐
Neutral ☐
Agree ☐
Strongly agree ☐

13. The information provided is accurate

Strongly disagree ☐
Disagree ☐
Neutral ☐
Agree ☐
Strongly agree ☐

14. Provides me with the most recent information

Strongly disagree ☐
Disagree ☐
Neutral ☐
Agree ☐
Strongly agree ☐

15. Operates reliably

Strongly disagree ☐
Disagree ☐
Neutral ☐
Agree ☐
Strongly agree ☐

16. Provides readily accessible information

Strongly disagree ☐
Disagree ☐
Neutral ☐
Agree ☐
Strongly agree ☐

17. Library information system can be adapted to meet a variety of needs

Strongly disagree ☐
Disagree ☐
Neutral ☐
Agree ☐
Strongly agree ☐

18. Library information system integrates data from different sources

Strongly disagree ☐

Disagree ☐

Neutral ☐

Agree ☐

Strongly agree ☐

19. Provides information in a timely fashion

Strongly disagree ☐

Disagree ☐

Neutral ☐

Agree ☐

Strongly agree ☐

Part E: Library Information System Usage

20. Primary usage purpose

Research ☐

Education ☐

Work related ☐

Personal needs ☐

Recreation ☐

21. Usage frequency

Rarely ☐

A few times a year ☐

A few times a month ☐

A few times a week ☐

Daily ☐

22. Is using library information systems beneficial?

Yes ☐

No ☐