

E- LEARNING IMPLEMENTATION: A SURVEY OF UNIVERSITY OF
NAIROBI ACADEMIC STAFF ATTITUDES AND READINESS TOWARDS
E-LEARNING

BY

MUGANDA, RUTH ANGULU

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DECLARATION

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

Signature..... Muganda.Date..... 29/11/06

Muganda, Ruth Angulu

This research project has been submitted for examination with my approval as the university supervisor.

Signed..... J. LeleiDate..... 29th Nov, 2006

Joel K. Lelei
Lecturer,
Department of Management Science,
School of Business,
University of Nairobi.

DEDICATION

I dedicate this project to my children Grace-
El-neema Nabwire Barasa and Faith
Khayanga Barasa. May this inspire you to
excel in the academia world.

ACKNOWLEDGEMENT

It has been a long road towards the achievement of this goal of undertaking and accomplishing this project. Along the road, many encouraged, inspired, and challenged me. To all of them I give my thanks. Special gratitude and appreciation particularly go to the following for contributing towards the achievement of this goal.

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Finally, I give thanks to the Almighty God through whom all things were made possible.

ABSTRACT

The advent of computers and the Internet is changing the face of education all over the world. Institutions of learning are frantically restructuring their old instructional methods to incorporate computers and the Internet. As mostly, used, the form of learning that utilizes computers and the Internet for delivery, interaction, and facilitation is e-learning. As institutions introduce e-learning, many do not receive the benefits promised by proponents of e-learning. Studies show that quite a number of e-learning initiatives fail.

This study investigates the attitudes and e-learning readiness of the University of Nairobi academic staff. The objective is to try to assess the possibility of success of e-learning initiatives being introduced by the University of Nairobi. The study was a survey study. Questionnaires were administered to members of academic staff of the University of Nairobi who were available and willing to respond to the questionnaire at the time of study. At least all the members of all the constituent colleges of the University of Nairobi were represented.

The results obtained from the analysis indicate that 75.4% of academic staff had a positive attitude towards e-learning. This means that they would support e-learning initiatives being undertaken. Most members of the academic staff however felt that the available e-learning facilities are not adequate. Of the

respondents, 73% felt the speed of Internet connection was slow for e-learning purposes while 78% felt computer maintenance is not satisfactory. Many of them also, felt that they needed training in the area of e-learning for them to be able to undertake e-learning.

In conclusion, e-learning initiatives at the University of Nairobi are likely to succeed if certain fundamental issues are addressed. These factors include provision of more computers, ensuring more connection of lecturers and training more staff into e-learning skills. The University should carefully dig deeper into each area of concern and modify its strategic plan to account for or leverage the issues of concern.

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CONTENTS

1.1 Background

The growth and changes in information and communication technology (ICT) has had a great impact on economic and social activities (Bass and Vaughan, 1996). ICT refers to computer hardware and software systems, computer controlled communication systems and the services all these systems provide (O'Brien, 2000; Laudon, 1996).

The spread of ICT in life is seen in the extent of its application. Today, ICT is applied in almost all areas of life, such as banking, trade, education, health, commerce, and even entertainment. In education, learning institutions all around the world are now engaging in e-learning in order to utilize the ever-growing ICT. Learning is the acquisition, retention and application of knowledge, skills, attitudes, and ways of thinking (Kolczak, 1993).

In imparting knowledge and skills during the learning process, some form of ICT is required. In its various forms, the communication used in learning involves a face-to-face verbal communication. Later on, radio broadcasting, television, films, and cassettes, compact and pocket video, telephone, and fax were developed and used at different times. Today, e-learning, which literally means electronic learning, is becoming a reality.

CHAPTER I

1.0 INTRODUCTION

1.1 Background

The growth and changes in information and communication technology (ICT) has had a dynamic impact on economic and social activities (Bass and Vaughan, 1996). ICT refers to computer hardware and software systems, computer controlled communication systems and the services all these systems provide (O'Brien, 2000; Laudon, 1996).

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In imparting knowledge and skills during the learning process, some form of ICT is required. In its earliest forms, the communication used in learning involved a face-to-face verbal communication. Later on radio broadcasting, television, films, radio cassettes, written and printed work, telephone, and fax were developed and used at different times. Today there is e-learning, which literary means electronic learning.

E-learning refers to use of electronic media for disseminating learning content, for interaction and facilitating learning. These include use of radio, television, overhead projectors, and films among others. It also encompasses the use of the Internet and computer-based delivery methods for learning (Carr and Willis, 2001; and Eklund and Kay, 2003). E-learning, however, as used in the context of this study is the form of learning that utilizes computers, the Web, the Internet and Intranets for delivery, interaction and facilitation of learning (Carr and Willis 2001; Eklund and Kay, 2003; Watkins, Leigh, and Triner, 2003). This form of learning has been spreading rapidly in institutions of learning around the world.

E-learning has been expanding and is expected to continue expanding. In 1997, nearly 50% of US universities were offering some form of e-learning education (Bell, Graeme, Martin, and Clark, 2003). In Europe, the market for e-learning content and services was expected to reach \$6 billion by 2005 (Bell, Graeme, Martin, and Clark, 2003). A report on e-learning training market by Screen Digest estimated the global corporate market for e-learning to be \$5 billion (Eklund and Kay, 2003). Screen Digest forecast e-learning market to reach \$50 billion by 2010.

The Kenya government in its ICT policy draft, (2003) officially released in January 2006, intends to be e-government and expand e-commerce. As part of this undertaking, the Kenya government through the Ministry of Education and in conjunction with New Partnership for Africa's Development (NEPAD) is integrating ICT education and training in its education system (Session Paper 1, 2005). As ICT grows and keeps permeating all areas of life, countries, organizations and individuals, begin to ask themselves whether

they are ready to participate in the Networked world. The readiness of an organization to participate in the Networked world is e-readiness. E-readiness is determined by the extent to which an organization has incorporated ICT in its operations and the mental readiness of users to embrace ICT (Computer Systems Policy Project (CSPP) Readiness Guide, 1998 and Watkins, Leigh, and Triner, 2003). For a learning institution e-readiness is the extent to which the institution has incorporated ICT in its learning activities, and the mental and physical readiness of users to adopt ICT (Watkins, Leigh, and Triner, 2003).

Advantages of E-learning

E-learning is in many cases preferred to other forms of learning because of the advantages and prestige associated with it. The use of e-learning is said to reduce the cost of learning by 40% to 60% (Shirley, 2001). In addition, e-learning is flexible; people can learn and teach at their own pace, at work places or at home (Shirley, 2001). E-learning is also regarded as an element of success of organizations (Clemons and Row, 1991). Institutions that predominantly apply ICT in their teaching operations are regarded to be better than those that do not.

Despite the benefits cited by the advocates of e-learning, studies show that many of the e-learning initiatives have a high rate of failure (Hill, 2000 and Norman, 1992). The initiatives fail because users do not have the skills they need to put e-learning into practice (Norman, 1992). The initiatives also fail because they are seen as challenging thousands of years of face-to-face classroom learning (Kearsley, 1985). Attempts to introduce change in the way people do things more often encounters resistance. This failures call for research in reasons for e-learning failure and as part of it, a survey of e-learning readiness.

E-learning readiness can be determined through a survey of attitudes, skills of users and the availability of e-learning facilities. Attitudes are regarded as part of indicators of e-learning readiness because by definition attitude is mental readiness (Alport, 1935). Mental readiness can therefore be assessed through the attitudes people hold towards e-learning. Knowledge on attitudes about e-learning and physical-readiness for e-learning is necessary to assess the possibility of success of e-learning implementation. This knowledge will be sought in respect to University of Nairobi, which is in the process of implementing e-learning.

1.2 University of Nairobi ICT and Teaching methods

The University of Nairobi has an information network (<http://www.uonbi.ac.ke>) where students and lecturers can access specific electronic libraries as well as surf the Net. Registration of students into the university can also be done online using the network. The University of Nairobi aims at achieving a 1:10 student computer ratio. Availability of computers is necessary for e-learning, as it is the medium through which one gets to the World Wide Web. Lecturers in their instruction job use the available ICT and other methods to facilitate learning.

Most of the learning in the University of Nairobi takes place in physical classrooms. This learning is based on same-time and same-place delivery methods. Electronic devices such as videotapes and overhead projectors are sometimes used in classrooms. Radio broadcasting, television, and telephone are used in distance education. Currently, advanced steps towards fully-fledged e-learning programs are taking place. Some members of the teaching staff have been trained on e-learning and have developed

learning content into modules that have been hosted onto the University of Nairobi Website for students. There are calls for the rest of the lecturers to prepare content for e-learning and post it on the University of Nairobi website for student learning use (<http://www.uonbi.ac.ke>).

The University of Nairobi has a Web Education Software (WEDUSOFT) that provides e-learning for a variety of courses ranging from Science oriented subjects to Art courses (<http://www.uonbi.ac.ke>). The form of e-learning design on WEDUSOFT is dominated with text, but an interview with an e-learning support technologist at the ICT center revealed that future e-learning designs would include face-to-face presentations, and online group discussions in addition to text. As the university moves towards online learning it is important to find out if the lecturers are ready for e-learning experience.

1.3 Problem Statement

The use of ICT is regarded as a necessary element for the success of a learning institution (Clemon and Row, 1991). In ranking world universities by Internet Lab, the universities that taught and incorporated ICT in their learning operations ranked best. The University of Nairobi therefore in pursuit of its vision 'to be a World Class African University' is expected to begin fully-fledged e-learning programs to be able to compete globally. In addition, introducing e-learning would expand learning opportunities for Kenyans wishing to continue with higher learning. E-learning would also enable the University to reduce its operation costs and still maintain quality education in the present situation of inadequate funding by the government (Bass and Vaughan, 1996).

To implement e-learning requires facilities and people's readiness to adopt it. A survey of institutions that embraced e-learning showed a high rate of failure (Hill, 2000 and Norman, 1992). According to Norman (1992), the reason for failure is that applications are developed having the use of technology in mind but ignoring the capabilities of users. An example is Air Canada, which introduced e-learning for its maintenance workers only to discover that some of them had never seen a [computer] mouse (Survillian, 2002).

Even where users have skills, they might not see the value of e-learning hence fail to adopt it. In a study of 40 global companies by Forester Group, 68% of workers would not sign up for voluntary online courses unless forced to, and even when forced, 30% still refused to sign up (Survillian, 2002).

This is an issue of readiness, thus, as part of e-learning implementation in University of Nairobi, there is need to survey the readiness of University Academic staff to adopt e-learning. It is upon the lecturers that the burden of development and implementation of a smooth and effective teaching program depends.

To the best of the researcher's knowledge, studies have not been done on attitudes and e-learning readiness of academic staff of University of Nairobi. Studies known to the researcher that are similar to this study are surveys of e-learning readiness of institutions of higher learning in Tanzania, by Baradyana (2004) and e-learning readiness of higher institutions in Kenya, a case study of Kenya Polytechnic by Gachau (2003). These studies were for other institutions, which faced different situations compared to the University of Nairobi.

The past e-learning studies by Baradyana. (2004) and Gachau, (2003) were case studies on other institutions, which therefore cannot be generalized for all learning institutions. In addition, the studies did not address the attitudes of the academic staff towards e-learning yet attitudes play a very important role in determining people's behavior and therefore whether they will accept e-learning or not.

The core business of the University, which is providing higher learning, heavily lies upon the lecturers for implementation. Their acceptance or rejection of new introductions will greatly determine the success or failure of e-learning. In that regard two research questions were addressed in that regard these were:

- a) What are the attitudes of the academic staff towards e-learning?
- b) Are the academic members of staff ready to adopt e-learning ?

These two questions gave rise to the objectives of the study.

1.4 Objectives of the study

1. To establish the attitude of University of Nairobi academic staff towards e-learning
2. To establish the readiness of academic staff of University of Nairobi towards e-learning.

1.5 Importance of the Study

1. The study can provide insight to the government on readiness of academic staff to adopt e-learning, and hence enable it to make appropriate decisions on e-learning implementation in universities.

2. The results can be used by the University administration as inputs into strategies for implementing e-learning.
3. The results would give the lecturers a view of their attitudes, and extent of their readiness for e-learning and hence take appropriate actions to correct their limitations if any.
4. The results would be used by other researchers as a basis of doing further research in the area of e-learning.

2.9 LITERATURE REVIEW

The use of ICT and particularly the use of the Internet in the provision services is found in almost all areas of life. The Internet is used in commerce and trade, finance, banking, provision of government services, voting, and in schools to facilitate learning among others. The use of the Internet to provide services is often referred to as electronic provision of the said services (Joshi, 2004). As the world goes electronic, governments, businesses, and individuals ask themselves if they were ready to work in the networked world. This refers to e-readiness.

2.1. E-readiness

According to CSST Readiness Guide (1998), e-readiness is the readiness of a community to participate in a networked world. It is determined by assessing the communities ICT availability, access to and utilization of ICT. Thus, the requirements of an e-ready society include: networked information technology availability and utilization, access to the internet, Web servers, Wide area network, and Local area network, Computers, Bandwidth, and Telephone lines. E-readiness of a society offers the platform for e-learning. A view of a country's e-readiness is necessary as it provides the backbone upon which learning institutions build their e-learning capacities.

CHAPTER II

2.0 LITERATURE REVIEW

2.1 Introduction

The use of ICT and particularly the use of the Internet in the provision services is found in almost all areas of life. The Internet is used in commerce and trade, finance, banking, Provision of government services, voting, and in schools to facilitate learning among others. The use of the Internet to provide services is often referred to as electronic provision of the said services (Joshi, 2004). As the world goes electronic, governments, institutions, and individuals ask themselves if they were ready to work in the networked. This refers to e-readiness.

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According to CSPP Readiness Guide (1998), e-readiness is the readiness of a community to participate in a networked world. It is determined by assessing the communities ICT availability, access to and utilization of ICT. Thus, the requirements of an e-ready society at least covers information technology availability and utilization, access to the Internet, Web servers, Wide area network, and Local area network, Computers, Bandwidth, and Telephone lines. E-readiness of a society offers the platform for e-learning. A view of Kenya's e-readiness is necessary, as it provides the backbone upon which learning institutions build their e-learning capacities.

E-learning is mostly carried out over the Internet. The Internet is the global network of computers linked through public telephone networks. In the year, 2003 there were 16, Internet Service Providers (ISPs) operating in Kenya and only 520,000 Internet users in Kenya (ICT Policy 2003). Considering the 16 active ISPs, it means that there is at least one ISPs for 32,500 people. This means a high Internet accessibility for Kenya and therefore for its institutions of learning as well.

The Internet needs transmission channel to move data along locations. The International Bandwidth available at EAFIX comprises of two routes: Telephone-2M bi-directional, BT-512K and USET 2M upstream and 8M downstream (final ICT policy, 2006). This is high bandwidth with adequate speed of communication for most services. This bandwidth is however, not expected countrywide given the poor distribution of telephone lines.

Statistics show that most parts of the country have a teledensity below 5%(Kenya National ICT Policy, 2003). Teledensity is the number of telephone lines in a place compared to the size of the place. Specific figures for a few provinces are as follows:

- Nairobi - By the year 2003, Nairobi alone had a teledensity of 7.92% which was the highest teledensity registered in the entire country.
- Coast province had a teledensity of 1.43%.
- Rift Valley had 0.45% teledensity and
- Western Kenya (Covering the region west of the Rift Valley including Nyanza Province and Western Kenya and Kitale region) had teledensity of 0.18%.

This situation shows that only a small proportion of Kenyans have good access to telecommunications. Evidently, not many people in Kenya may be in a position to benefit considerably from e-learning.

The Communication Commission of Kenya in an effort to improve ICT country wide intends to bring telephone lines density to 20 lines per 100 people in urban areas and one line per 100 people in rural areas by the year 2015 (final ICT policy, 2006). When this happens then both the rural and urban people will enjoy better ICT access. Nevertheless, availability of telephone lines or communication channels is not guarantee for better service. Communication channels must be of good quality for better e-learning services.

In the year 1992, a site survey of the Kenya Post and Telecommunications Corporation (KPTC) in a project to establish a telecommunications test and development center at KPTC (Project KEN/86/063) revealed that:

1. Spares of the most essential digital cards for digital exchange maintenance were not available.
2. Signaling checks for cross bar exchange maintenance was poor. Contacts and relays were worn out affecting call success rate adversely.
3. Transmission system tools had high fault incidences especially during lightning,
4. Power supply unit regulator and transistors were prone to faults. The power amplifier had low reliability, as power unit output would go to high values suddenly.

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5. Digital pulses could not be transmitted on long lines. Customers complained of frequency distortions, and cross talk, noise and low data transmission speeds.

Since 1992, various improvements have been made. An example is the installation of a new toll switch in Nairobi, which would ease connection of new telephone operators. The switch bar consists of 5,460 channels, which will enhance both International, and local telephone calls (Final ICT Policy, 2006). Despite various improvements, people still complain that the Kenya Power and telecommunication sector is unreliable, data transmission speed is still low, power unit out put still goes up suddenly, there are power failures and rationing of power in dry seasons hindering use of computers and hence the Internet. Since e-learning heavily depends on telephones and electricity, the above issues have to be resolved if e-learning has to be effective. Personal computers should also be available to be able to access the Net.

According to Final ICT Policy (2006), there were 4.9 personal computers per 1000 people in the year 2001. This means approximately 200 people per computer. This being the case, it would be difficult for e-learning to go on because of lack of computers. For effective e-learning to take place, each person would require a computer. Even though Personal Computers and telecommunication networks may be availed, the question of affordability also arises.

Kenya's cost for local calls by 2001 were US \$ 0.07 per three minutes for customer lines and US\$ 0.06 per three minutes for public payphones. For long distant calls, the charges were US\$0.22 for 60-230 Km, US\$ 0.27 for over 230Km and US\$ 0.48 in the East

African region. Internet access cost was US\$6.95 per month (Final ICT Policy, 2006). This dial up costs for Internet access is not affordable for most citizens especially in the rural areas, which carries up to 80% of the countries population. The income of such citizens are low and they would rather spend money on food than on ICT. The cybercafés however provide an alternative for those who cannot afford the Internet connection in their homes.

Most cyber cafes in Kenya charge a rate of Ksh1 per minute for surfing the Internet. At the time of writing the project, some cyber cafes were charging fifty cents per minute of surfing the Net. As costs go down to fifty cents per minute and hopefully even lower, then e-learning would be affordable to many. With the VOIP services by Telecom Kenya, costs of connection are becoming easier. Given the cost of Internet accessibility, in the past, not many people utilize the Internet.

In 29 million people, only 520,000 people used the Internet by 2003 (ICT Policy, 2003) that is less than a million of the Kenyan population. The low usage of the Internet indicates that few people would make use of e-learning if implemented. Considering the legal and regulatory policy framework in Kenya, there may be more users of the Internet in future. The costs of Internet services are expected to reduce even further with increased competition resulting from liberalization of telecommunication services.

Prior to June 1996, all telecommunication services were provided by a single operator, the 'Kenya Power and Lighting Company' (ICT Policy, 2003). This hindered the provision and access to telecommunication facilities. However in June 1997 trade in

telecommunication facilities was liberalized (ICT Policy, 2003) making telecommunication acquisition easier. With the liberalization of the telecommunication trade, it is expected that there will be increased availability of telecommunication services leading to increased competition, and hence cost reduction of cost of services.

2.2.1 E-Learning Readiness

E-learning is learning that is facilitated by electronic media. These media include use of electronic devices such as fax, telephone, radio, television, films, overhead projectors, computers, and the Internet to facilitate learning. In practice, however, though e-learning is regarded as use electronic media in learning, the kind of electronic media given focus is the computer, web, Internet and Intranets (Carr and Willis, 2001; Eklund and Kay, 2003; and Hill, 2000; Spiros and Angeliki, 2004; and Survillian 2002).

In this research, e-learning is defined as the use of the computer, web, Internet and Intranets for the delivery, interaction and facilitation of learning. E-learning in this case is more than just a delivery method. It is a form of learning methodology that encompasses learning practices from both the classroom face-to-face-learning and traditional distance education (Marson and Kaye, 1988), facilitated through electronic media.

Face to face, classroom learning is the kind of learning in which students regularly attend classes in the traditional classroom environment (Marson and Kaye, 1988). The learning methods include lectures, discussions, and experiments among others. The traditional classroom has the benefit of familiarity between the instructor and the learner. The learner can ask questions and the instructor can know the special difficulties of the

learner and assist him or her appropriately. Face to face, communication also facilitates group interaction. Despite the advantages of face-to-face classroom learning, there are limitations that when applied alone make it not effective.

Classroom learning has the disadvantage of the learner becoming passive and expecting the instructor to teach everything without the learners taking their own initiative. Classroom learning is also time and place dependent; it requires that participants be in the same place at the same time. This kind of learning does not favor the present highly mobile society. To cater for mobile society, distant learning was introduced in the nineteenth century (Glaser, 1965).

The traditional distant method of study involves use of self-study materials, and correspondence programs passed upon print (Kearsley, 1985). The program is inexpensive to develop as development skills of writing and production capabilities are widely available. Apart from being cheap, print is also highly portable and can be distributed easily. Like all other methods, traditional distance education does not lack its limitations.

The disadvantage of distance learning in form of print is that it is passive in nature. It is also easy for students to miss out key ideas and lose interest in the course. In addition, the instructor has no opportunity to clarify meanings and check whether participants really understand the material at an instant (Kearsley, 1985). The instructor has to wait until the learner communicates back asking for clarification, which may take over a day to reach the instructor and another day or more for the instructor to communicate back through

post. To reduce the limitations of distant learning by use of print, other faster methods of communication are in use today.

Faster and more interactive methods of distant learning such as use of radio broadcasting, the television, radio cassettes, and telephone conversations are now used in learning. Live Radio and television broadcasting are fast methods of communicating to so many students at the same time, but like print, the instructor has no opportunity to clarify meanings and check whether participants really understand the material at an instant. Participants may however asks questions by telephone and get feedback immediately. This method is expensive; people talk for as little time as possible and so elaborate discussions are not possible. The limitations of traditional classroom learning and the traditional distant learning can be reduced with a combination of face-to-face classroom learning together with e-learning, this is called blended or hybrid learning.

Blended or hybrid learning is a course or program that combines aspects of online and face-to-face instruction in a manner that reduces the number of face-to-face or traditional classroom meetings (Marson and Kaye, 1988). Blended teaching also refers to an educational situation in which face-to-face instruction is enhanced with other modes of distant education such as the use of CD-ROM, and Video conferencing that lead to reducing of the number of face-to-face meetings. Hybrid learning generates a unique learning method based on the needs of the users and implementers. Hybrid learning offsets the limitations of both face-to-face and distance learning techniques of instruction (Marson and Kaye, 1988). E-learning is a form of blended learning with over 80% of its course content delivered via the Internet (Marson and Kaye, 1988).

E-learning or learning by the use of the computer and the Internet is of two types: Synchronous and Asynchronous. In Synchronous, the instructor and students are online at the same time. The participants and an instructor interact in a live training session over the Internet. In Asynchronous, the instructor and the student are not online at the same time. Learning can range from reading plain type written text displayed on a computer screen, to text together with sound instruction and images displayed on the screen. An institution whose learning methods are dominantly traditional face-to-face classroom learning and wishes to change to full e-learning may meet some resistance.

2.2.2 E-learning and Change

E-learning represents a departure from thousands of years of learning in a face-to-face classroom situation. In e-learning, the role of the instructor changes from delivering instruction to instructional development (Kearsley, 1985). New job skills have to be learnt for e-learning to take place effectively. E-learning therefore brings to nothing the experience of the long serving instructor. This is likely to cause resistance towards e-learning initiatives.

Resistance could also be due to the effort that is required to adapt to or learn something new. The effort that is required to adapt to or learn something new could vary with age of users. Information available on the Internet shows that, Indian Internet users were chiefly found in the age group of 19-34 years (Joshi, 2004). Those above 40 years were reluctant to use Internet services. It may be possible that those above 40 years of age had not been exposed to computers and the Internet, and possibly found difficulties learning new skills.

Another possibility of resistance could be a result of the myth that with e-learning lesser lecturers would be required. This notion would cause resistance for fear of losing one's job. According to Henning and Jardim (1978), men and women view risk differently. While men look at risk as a loss or gain, winning or loosing, danger or opportunity, women view risk in a negative manner. They see risk as loss, danger, injury, ruin, or hurt. These differences in attitude to risk may also mean a difference in attitudes towards e-learning. If e-learning is viewed as a risk or chance of something undesirable occurring, then women are likely to have a negative attitude towards e-learning.

Not all people resist change however, some individuals thrive on new experiences and deliberately seek out change. Such will develop and nature learning programs in their organizations over a long period (Kearsley, 1985). To engage in e-learning, certain pre-requisites are needed. This is referred to as e-learning readiness.

2.3. E-learning Readiness Factors

E-learning readiness as defined by Watkins, Leigh, and Triner (2003) is the mental and physical preparedness for an e-learning experience. Alport (1935) defines attitude as a mental and neural state of readiness. Mental readiness can therefore be gauged by the attitudes people hold towards e-learning.

2.3.1 Definition of Attitude

An attitude is the sum total of a man's inclinations, feelings, prejudice, bias, pre-conceived notions, ideas, threats, and convictions about a specified topic (Mueller, 1986).

According to Tull and Hawkins (1993), attitudes are made up of three components:

1. The cognitive component, which is the beliefs or ideas, a person has about an object;
2. The affective component, which deals with a person's feelings of like or dislike towards the object, and
3. The behavioral component, which is the behavioral intentions or action tendencies a person has towards an object as a result of affective tendencies.

According to Tull and Hawkins (1993), attitudes affect people's behavior. This behavior could be non-verbal (such as body language) or vocally expressed. Social psychologists in the 1930s theorized that attitude included behavior and cognition and that attitude and behavior were positively correlated (Fishbein and Ajzen, 1980). A study of attitudes is therefore necessary to get a view of peoples' possible behavior towards something and take corrective measures if the reaction is not desirable. Proceeding are theories that try to explain the relationship between attitudes and behavior.

2.3.2 Theories of Attitudes

Cognitive Dissonance Theory

A cognitive element can be something a person believes about himself, a behavior he performs, or an observation in the environment. Cognitive dissonance theory is about situations that are inconsistent with one another. For example, one may know that too much intake of salt results into high blood pressure, yet still consume foods with too much salt is dissonant with one another.

Psychological inconsistency creates a feeling of discomfort that the person is motivated to reduce (Assael, 1981). Dissonance reduction can occur by eliminating, avoiding,

adding or changing elements (Assael, 1981). For example in the case of an occupation, one may quit the job for a more comfortable one or settle in the profession merely to keep the job and earn a living. When a decision is taken to remain in the job for the sake of earning a living, it may result into carelessness, and non-commitment to the job. Since a negative attitude would cost institutions resources, it is worth of concern to understand the attitudes people have towards e-learning or otherwise resources may just be wasted.

Self-Perception Theory

Self-perception theory assumes that people use observations of their own behavior to determine what their attitudes are. The theory states that we maintain consistency by inferring that we must have a positive attitude toward an object if we have bought or consumed it. Self-perception theory involves situations in which behaviors are initially performed in the absence of a strong internal attitude, afterwards the cognitive and effective components of attitude fall into line. Buying a product out of a habit may therefore result in a positive attitude toward it basing on the fact that you buy because you like it (Calder and Ross, 1973).

In the self-perception theory, attitudes are a result of behavior. Even though attitudes are a result of behavior and attitudes therefore do not influence behavior directly, a study of attitudes can still be done to understand what behavior one has and therefore how he/she is likely to behave in similar situations. For example if Mary likes a certain brand of coffee, then she definitely buys that brand of coffee. In the case of e-learning, if one has a positive attitude towards e-learning then that person must already be engaging in some form of e-learning and hence ready to adopt e-learning to a fuller scale. If he/she has a

negative attitude towards e-learning, then the person has never engaged in e-learning and would not be quick to adapt to e-learning.

Social Judgment Theory

This theory assumes that people assimilate new information about attitude objects in light of what they already know or feel. The initial attitude acts as a frame of reference and new information is categorized in terms of existing standards (Fishbein and Ajzen, 1980). One important aspect of the theory is the notion that people differ in terms of the information they will find acceptable or unacceptable.

According to social judgment theory, people form latitudes of acceptance or rejection around an attitude standard. Ideas that fall within that latitude are received favorably while those falling outside it are not. Messages within the latitude of acceptance tend to be seen as more consistent with ones position than they actually are. This process is called an assimilation effect. On the other hand, messages falling in the latitude of rejection tend to be seen as even farther from ones position than they actually are (Fishbein and Ajzen, 1980).

The social judgment theory is consistent with the notion that attitudes affect behavior. People accept or reject something depending on the attitudes they formed about the thing from their experience. The thing may not be bad now, but because a negative feeling formed in the past, he/she still regards it as bad and this will affect whether the person will deal with it well or not. Attitudes therefore have to be known and an effort made to change them to obtain the intended behavior.

Balanced Theory

Balanced theory considers relations among elements a person may perceive as belonging together. This perspective involves relations and so the resulting attitude structures are called triads. Each triad contains; a person and his or her perception, an attitude object, and some other person or object. Perceptions can be either positive or negative. People alter these perceptions in order to make relations among them consistent (Halloran, 1967).

The Balanced theory specifies that people desire relations among elements in a triad to be harmonious or balanced. If they are not, a state of tension will result until perceptions are changed and balance is restored. Elements can be perceived as going together in one or two ways. They can have either a unit relation, where one element is seen as belonging to or being part of the other or a sentiment relation, where the two elements are linked because one has expressed a preference or dislike for the other (Holloran, 1969). Illustrating using couples, Holloran argued that a dating couple has a positive sentiment relation, upon getting married, they will have a positive unit relation, and the process of divorce is an attempt to sever a unit relation.

Congruity Theory

Congruity theory specifically addresses how attitudes are affected when a person is linked to an object. Assuming that we can measure the appeal of an endorser and the favorability of a product, congruity theory can help to answer two questions, that is how big a boost would a product get by being paired with the endorser and how will the endorsers reputation be affected by his or her connection with the product?

Congruity theory predicts that the value of the more negatively valued element will rise when linked to a positively valued one. On the other hand, the positively valued element would be the one to be affected. Its association with the negatively valued element may diminish its rating. The implication here is that a person or organization that is linked to some other entity does so at some risk. This process helps to explain why some media outlets are careful to select advertisers whose images are congruent with their own (Kiesler, 1969).

In the case of e-learning, if it turns out that academic staff have a negative attitude towards e-learning, then a campaign to sensitize lecturers on the importance of e-learning should be done by the people the academic staff have respect for. In this way, they will be able to change their attitudes to liking e-learning.

Theory of Reasoned Action

Fishbein and Ajzen (1980) developed this theory in response to a study by Lapiere (1934) on attitudes of hotel managers towards Chinese people. The study by Lapiere (1934) proved that attitudes are not good predictors of behavior. In the study, hotel managers who responded to a questionnaire indicated that they would not rent a room to Chinese people, but in practice, they had actually rented rooms to Chinese people and treated them well (Fishbein and Ajzen, 1980).

The Theory of Reasoned Action says that individuals consider the consequences of their actions before they decide to act or not to act. Fishbein and Ajzen (1980) view a person's intention to perform or not perform an action to be the immediate determinant of

behavior (Fishbein and Ajzen, 1980). The theory of reasoned action is concerned more with the prediction of behavior intentions rather than traditional overt behavior, most commonly dealt with by other sociologists.

Both Fishbein and Ajzen (1980) acknowledge behavior's likelihood/intentions as being the result of various determinants with attitude being a key factor. Basing on the theory of reasoned action, this study set to investigate the attitudes of University of Nairobi academic staff and their intended actions to be able to estimate actual behavior. It is assumed that consequences of their behavior were considered before intentions to act were reported. From the theories mentioned above, it is clear that attitude influence behavior either directly or indirectly. The next step is to know how to measure attitudes and be able to predict behavior using the attitudes.

2.4 Attitude Measurement

2.4.1 Thurstone-Type Scales

Thurstone is considered the father of attitude measurement. Thurstone developed Thurstone type scales. They are developed using consensus scale approach. A panel of judges evaluates items in terms of whether they are relevant to the topic and unambiguous in implication. An attitude continuum of the items is then developed to determine the position of favorability on the issue. Respondents are then asked to check the statements with which they agree. The median value of the statements they check is worked out and this represents their opinion (Kothari, 1990). The scales are most appropriate when measuring a single attitude.

Thurstone type scales are more reliable than relying on researchers opinion, but the method is expensive, time consuming and requires fifty or more people to construct hence making its use limited (Cooper and Emory, 1995).

2.4.2. Scalogram Analysis/Cumulative Scaling (Guttman Scales)

Multidimensional scales have been developed, to measure the multidimensional view of an attitude construct (Guttman, 1944). Guttman developed the Scalogram Analysis usually referred to as Guttman Scalling. In this scale, items on a questionnaire are ordered in such a way that if a person finds one item acceptable, it is possible to know the persons response to all other items. A response to one item can therefore help to predict the responses to the other items. For instance, if an individual responds negatively to the item "I like oranges," he is not likely to respond positively to the item "oranges are great for breakfast." This method is useful in assessing behavior that is highly structured. The method however involves complex calculations making its construction difficult, (Cooper and Emory, 1995).

2.4.3 Social Judgment Involvement Approach

Social Judgment Involvement Approach method measures latitudes of acceptance, rejection, and none commitment. Subjects are instructed to indicate all statements they agree or disagree with from a continuum of nine statements. The statements chosen are then labeled as latitudes of acceptance, rejection, and none commitment with the number of statements in each being the measure of the latitudes (Fishbein and Ajzen, 1980).

2.4.4. Semantic Differential Technique

The psychologist Carl, Osgood, Suci, and Tannenbaum (1957) developed the Semantic Differential Technique. They were concerned with semantics and they devised a method to plot the differences between individuals' connotations for words and thus map the psychological 'distance between the words'.

Subjects are given a word, for example 'car' and presented with a variety of adjectives to describe it. The adjectives are presented at either end of a seven-point scale, ranging from, say, 'good' to bad 'or from 'fast' to slow. In this way one is able to draw up a 'map' of people's connotations for a given word. The intention is that this should differentiate between attitudes in a way that other methods do not and should shed more light on the links between attitudes and behavior. For example, the following connotations of the word Negro would lead to varying behavior:

Subject 1: Unfavorable, strong, active.

Subject 2: Unfavorable, weak, passive.

Both views are unfavorable, but the actual behavior of each subject towards Negroes may be different. Subject 1 may treat Negroes in appeasing manner to avoid conflict while subject 2 may treat them exploitatively.

2.4.5. Summated Ratings (Likert Scale)

Likert (1932) developed the method of summated ratings or Likert scale. The Likert technique presents a set of attitude statements. Subjects are asked to express agreement or disagreement of a five-point scale. Each degree of agreement is given a numerical value

from one to five, one to seven, or one to nine. Each response is given a numerical score and the scores are totaled to represent the respondents' attitude.

Fishbein and Ajzen (1975) found that scaling behaviors and attitudes on the same scale (such as Likert and Guttman,) resulted in dramatic improvements in the attitude/intention (behavior) correlation. In addition, the predictive power of general attitude measures, in particular Likert scales, improved when a number of behaviors were presented and subjects were asked how many behaviors they had performed or intended to perform. The Likert scale is therefore used in this study to establish the attitude of lecturers towards e-learning and a set of questions are also asked to determine their intentions in relation to e-learning. Having looked at attitudes an institution should also assess its readiness for e-learning by taking stock of its e-learning physical facilities.

2.5. Physical Readiness for E-learning

The physical aspect of e-learning readiness deals with whether necessary infrastructure for e-learning is in place and is accessible and whether the intended users have the necessary skills to use the technology. The physical issues to consider in a bid to implement e-learning described below is a pool of items developed from literature review as published by Watkins, Leigh, and Triner (2003) and Computer Systems Policy Project Guide (1980).

2.5.1 Infrastructure/Technology

E-learning is made possible through technological systems. This component of e-learning

focuses on the existence of technology and corresponding software applications. It also includes the degree of access to the Internet, availability, and accessibility to multimedia, personal Computers, Web applications, and availability of appropriate server's hosts (Brites, 1964). An institution can assess its readiness in terms of technology by determining the availability of computers, assessing the easiness to access computers and how fast one can access the Internet. Institutions should also determine whether the speed of the Internet connection is appropriate for e-learning and whether system maintenance is adequate. In addition, an institution should put into consideration the compatibility of her technology.

Most technology and hardware incorporated in technology for education is imported from outside Africa (Mutebi, 1993). Thus, institutions trying to incorporate e-learning in their teaching methods should ask themselves where to get spare parts should they be needed after their manufacture in the countries of origin has ceased. In other words, institutions should buy equipment that is compatible with similar equipment from different manufactures.

2.5.2 Content Readiness

Content readiness factor addresses issues relating to quality and the extent to which learning content can be presented on-line (Watkins, Leigh, and Triner, 2003). With the current developments in technology, virtually everything can be taught online, through assimilation, video, teleconferencing, and animation to mention a few (Kearsley, 1985). An institution that believes its learning content cannot be delivered wholly online is therefore not yet ready for e-learning.

Though an institution may be aware that all its learning content can be delivered online, other factors such as cost of developing content into e-learning content and quality learning programs should be considered. In this regard, questions of availability of content material either in internal or external libraries or if content will be purchased off shelf or will be developed internally should be addressed. E-learning readiness is low if learning content has not been developed for delivery online. Such an institution will have to spend time developing content before eventually adopting e-learning. Institutions should also consider whether available human resource could organize, deploy, and maintain e-learning functions.

2.5.3 Human Resource Readiness and Training Process Readiness

Human resource-readiness refers to the availability and design of human support system for organizing, deploying, and maintaining the e-learning functions, as well as offering technical support to those not skilled in e-learning (Watkins, Leigh, and Triner, 2003). It tries to determine whether there are organizers, manufactures, and maintainers of the system. This factor of readiness also assesses if the personnel have the necessary knowledge to serve in their jobs. If they do not have the knowledge, is there a training department to undertake the organization and administration in e-learning procedure?

Human resource and training process readiness factor is a significant parameter, as e-learning initiative would definitely fail if users do not adapt to e-learning from the beginning (Noe, 1998). Purchasing and installing technology does not translate into quality education without effort of faculty instructors. Question as to whether instructors are competent to conduct e-learning should therefore be addressed.

2.5.4 Facilitator / Instructor and Learner Readiness

The role of a facilitator in an online environment changes from delivering instruction to instructional development and management (Kearsley, 1985). To be an effective instructor according to Kearsley, certain competencies different from those of a classroom teacher are required. These include:

- a) Innovative development of questions and simulations that are able to motivate learners who have no contact with the instructor.
- b) Ability to converse online and to coordinate online discussion.
- c) Technical skills of using the computer hardware and applications such as word-processing, spreadsheets, database management among others, and posting and retrieving information on and from the Internet.
- d) Skills of online student supporter: An instructor needs to be patient, confident, have a sense of humor, empathy, and enthusiasm. An institution intending to engage in e-learning should ensure that there are facilitators with the required competencies before introducing e-learning (Kearsley, 1985).

An e-learner on the other hand should have hands-on computer and Internet skills, and be able to converse online as well. The learner should be well motivated to be able to carry on with learning despite many interruptions. Besides this, the learner should be disciplined enough to be able to manage his or her learning in the absence of an instructor physically.

2.5.5 Financial Readiness

Financial readiness parameter focuses on the budget. In order to achieve high level of e-learning readiness, the organization must set aside an e-learning budget and avoid looking for funds the time they are needed (Watkins, Leigh, and Triner, 2003). There have to be funds for training, installation, and maintenance costs. Innovations introduced from grants or project funds from some Aid agency or transnational organizations may only last for the duration of the project if the beneficiaries do not plan to finance themselves when financiers are not there any more. (Survillan, 2002).

The instructors should also be financially able to support e-learning as the university cannot meet some provisions. The instructors where possible should pay for connection in their homes and be able to instruct even when at home. Instructors should have funds to buy secondary storage facilities so that they can be able to store large amounts of their work away from the computer for back-up purposes. Many learning institutions are so concerned about e-learning that large proportions of their budgets go into the implementation of e-learning. This is because of the advantages associated with it.

2.6. Advantages of E-learning

The advocates of e-learning accept the following as advantages of e-learning:

- a) Universal accessibility: E-learning improves access to education and training. Once people have the necessary e-learning infrastructure, anyone can get access to education anywhere anytime, three hundred and sixty five days a year, twenty-four hours a day and seven days a week (Survillan, 2002).

- b) Cheapness: In e-learning education reaches a wider population with the same fixed costs. The costs apportioned among the many beneficiaries turns out to be less than in classroom learning where only a limited number of students benefit. E-learning therefore reduces the cost of education through economies of scale. Education also becomes cheaper in e-learning because accommodation and traveling costs are cut down when e-learning becomes predominantly online, and both instructors' learners are connected in their residential areas (Survillian, 2002).
- c) Empowerment: In e-learning, the learner is empowered. It is the learner who determines the pace of learning, what to learn and when to learn. In so doing, he is able to remain in employment while learning (Clemons and Row, 1991). In addition, e-learning is flexible because of its availability, 24hrs a day, seven days week, and 360 days in a year.
- d) Quality: E-learning improves the quality of teaching. It uses both audio and visual senses in the acquisition of knowledge. Studies have shown that a person acquires only 15-20% of information through the auditory sense and 60- 80% through visual sense (Kitahara, 1983). In a case where both audio and visual senses are used, retention becomes very high. The use of graphics, animation, and compact video diskettes makes illustrations as real as in actual life situations.

e) Equality: Jones, Scanlon, and O'shea, (1987) observe that e-learning smoothes status and flattens hierarchies. It reduces discriminatory communication patterns based on physical and social cues such as gender, race, socio-economic status, and physical features. E-learning therefore equalizes people.

f) Speed: The speed of computers in processing data and communication speed along networks have proved a great advantage to the education sector. Analysis of student performance can be done within a short time enabling instructors to provide feedback to students promptly. Information can be distributed to a wide geographical area at an instant unlike in other forms of distant learning (Jones, Scanlon, and O'shea, 1987).

With all these advantages, e-learning does not lack limitations.

2.7 Challenges of E-learning

In an effort to introduce e-learning, organizations face a number of challenges that make the implementation of e-learning difficult; these include enormous costs especially in its initial stages. The costs include cost of hardware, development of interactive software, equipment maintenance costs, and relocation of existing resources among others. Inadequate funding of public universities in Kenya makes it difficult for them to introduce e-learning whose initial costs are quite high. Notwithstanding, the inadequate funding there is increased societal expectations that universities do research and incorporate information and technology in their teaching operations.

Even where hurdles such as of finance and infrastructure have been overcome, problems of resistance by users and implementers of e-learning system may arise (Kearsley, 1985). This is because the first experiences in education for many people involve a teacher in the classroom. E-learning challenges literally thousands of years of teacher-student interaction in a classroom environment. Consequently, many organizations that try to implement e-learning often get some form of resistance (Survillan, 2002).

Constant Internet upgrades also hamper the use of the Internet. According to Metcalfe's Law, the power of the Internet grows as the square of the number of people that use it (Bell, Graeme, Martin, and Clarke, 2003). With the high rate of changes, Internet users sometimes do not have time to adjust to the new upgrades. Security issues can also create a great obstacle to e-learning. Examples are unauthorized access to computer databases and modifying student results or grades or even stealing examination questions hence defeating the value of the assessment.

Unauthorized copying of intellectual property placed on the Internet denies the owners potential profits resulting from cross selling (Givon, Mahajan, and Muller, 1965). Piracy may kill the innovativeness of scholars or refusal to go online in a bid to protect intellectual property from piracy.

Videodiscs cannot be used to display large amounts of texts or fine line drawings. Videodiscs cannot be altered once they are burnt. This makes it difficult to revise instructional material once tested, for correction of errors that emerge only after the disc has been in use for some time (Jones, Scanlon, and O'shea, 1987).

Students and teachers who spend most of their time with computers may become so individualistic and get problems relating to others in a social context. They may become aggressive, and impatient to others (O' Brien, 2000). In addition, the time that would have been used for leisure will be used for learning or teaching. Work without rest may result into health problems such as stress, and eventually poor teaching or low retention for learners. Other health problems involving use of computers include carpal tunnel syndrome (CTS). CTS cause numbness and pain in the wrist because of repeated striking of computer keyboard. Defects in vision can also be caused due to exposure light rays emitted by the monitor (Laudon, 1996).

The use of the Internet for e-learning exposes people to information that could be regarded as immoral, implementers of e-learning should therefore find ways of preventing access to what would be regarded as immoral. Notwithstanding the challenges of e-learning, institutions of learning, try very hard to implement e-learning. Efforts to implement e-learning will only be worthwhile if e-learning potential will continue growing in the coming. For this reason it is prudent to examine the future of e-learning.

2.8 Future of E-learning

Trends in technology, social and economic life indicate that e-learning will grow in the future. The growing worldwide Internet usage is one of such indications. In May 2002, the global Internet trends report showed that 580.78 million people were connected to the web. This means that the Internet penetration worldwide was almost 10% (Joshi, 2004). It is clear that anyone thinking of e-learning must have access to the Internet. The high figures of connectivity therefore indicate a high potential of e-learners.

Trends in technological innovations also encourage e-learning. The development of smaller portable computers and eventual development of wallet size computers will encourage people to engage in e-learning. This is because of the convenience of using the small ICT devices even when traveling: The integration of networks in mobile phones (web-enabled phones) allows for mobile learning. Mobile learning extends the any time, any-place advantage of ICT. Mobile-learning will increasingly provide high level information about learning such as orientating the learner to learning tasks and information, providing learning elements such as daily tips, feedback on quizzes, reminders and access to tutors (Eklund and Kay, 2003).

The new economy characterized by rapid changes in technology, globalization and increased competition make organizations and businesses to desire efficiency and maintenance of currency, with developments in technology. In pursuant to these desires organizations will increasingly seek more skilled and flexible workers. E-learning will be useful in shortening time required to update workers on new products, methods and processes and provide real-time or just-in-time-learning of critical knowledge and yet reduce training costs (Eklund and Kay, 2003). Because of the ability of e-learning to meet the needs of business enterprises, e-learning market is bound to expand in future.

A new generation of learners, growing up with technology will expect the most current technology to be used in undertaking training (Eklund and Kay, 2003). These expectations will make the market for e-learning to grow over the coming years.

2.9 Past Studies on E-Learning Readiness Factors

A survey conducted in mid 2002 on thirty-four training organizations in Australia to evaluate ICT delivered instruction, showed that less than half of the thirty-four institutions surveyed used ICT in their teaching despite the availability of the ICT. Time constraint on teachers and issues with integrating ICT into the curriculum was cited as the main reason for not using them. This study did not try to find out other salient reasons for none utilization of ICT which may not be said expressly but could be inferred from other observations like their attitudes.

In the year 1988, a study by Makau, on the potential and problems of computers in schools in Kenya showed that teachers complained that they did not have time to cover the prescribed syllabus and learn how to use the computer (Makau, 1988). A site observation however showed that some of the teachers actually spent time in none academic conversations hence ruling out the question of limited time. In such a case a study should be done to study the actual reason for none utilization of resources. This study tried to investigate attitudes and e-learning readiness of the University of Nairobi academic staff which are some of the reasons e-learning fail.

Gachau (2003), conducted a research on e-learning readiness in tertiary institutions in Kenya while Baradyana (2004), conducted a research on e-learning readiness in higher learning institutions in Tanzania. Both studies investigated e-learning readiness factors and the competencies required for an e-learning environment. Questionnaires containing both open ended and close-ended questions were used to get the required information. Some of the factors found as being necessary for e-learning in both cases were computer

literacy, an e-learning culture, and motivation, learning mechanisms and delivery methodologies, management and technical support.

CHAPTER III

The findings in both Gachau's and Baradyana's studies, showed that both the students and lecturers believed that e-learning could create a competitive advantage to their institutions. They were willing to engage in e-learning but the facilities were not adequate. Both studies did not address the attitude of the academic staff towards e-learning. In addition, the studies were done on other institutions other than University of Nairobi. Attitudes are said to play an important role in predicting behavior (Fishbein and Ajzen 1980). The knowledge of academic staff attitudes towards e-learning may be used to determine whether the e-learning initiative at the University of Nairobi would succeed or not.

Studies by Watkins, Leigh, and Triner (2003), found the determinants of e-learning readiness as; computer and Internet use skills, the accessibility to computers and the Internet, and the culture or attitude of the people towards e-learning, management and technical support. In all the studies,(that is, by Watkins, Leigh, and Triner, Gachau, and Baradyana), there was an agreement in findings as to the factors that determine e-learning readiness. These are computer literacy, an e-learning culture, and motivation, learning mechanisms and management and technical support. Given these factors, how do the academic staff in the University of Nairobi rate in respect to e-learning readiness? The research methodology that follows addresses this question.

CHAPTER III

3.0 RESEARCH METHODOLOGY

3.1 Research Design

This study surveyed the readiness of University of Nairobi academic staff to implement e-learning. The study was done through establishing lecturers' attitudes towards e-learning, and their e-learning readiness. Their e-learning readiness was assessed in terms of their skills, extent of use of available ICT and availability and quality of e-learning facilities. Their readiness to adopt e-learning was also sought by way of asking questions in regard to their intentions. A survey design was used to gather data for the study. Survey method is suitable for gathering information on attitudes, opinions, perceptions, expectations, and intentions (Cooper, and Emory, 1995). Survey study was also used to be able to cover a wider range of the large academic staff of the University of Nairobi. The instrument of data collection was a self-administered questionnaire.

3.2 Population

The population consisted of all the University of Nairobi Academic staff. They are 1,410 in total (University of Nairobi Calendar, 2005-2006). The entire Academic staff is distributed as follows: Colleges of Humanities and Social Sciences (CHSS)-370 lecturers, College of Agriculture and Veterinary Sciences (CAVS)-214 lecturers, College of Health Sciences (CHS)-311 lecturer, College of Education and External Studies (CEES)-121

lecturers, College of Architecture and Engineering (CAE)- 191 lecturers and College of Biological and Physical Sciences (CBPS)-203 lecturers.

3.3 Sample Size

Samples were taken from all colleges to ensure fair representation of each subgroup in the university and hence increase precision in the results of the sample statistics (Churchill, 1991). A sample size of three hundred and fifty (350) was deemed appropriate in order to be able to cover fairly adequately all the faculties and departments of the University of Nairobi. The Questionnaires were distributed to colleges and departments in proportion to the number of lecturers in the colleges and departments. At least thirty respondents from each college was achieved.

Since the Colleges of the University of Nairobi are grouped almost homogeneously in regard to subjects taught, and the study being a survey, the sample was still regarded representative of the whole population. The respondents from each college and department were obtained out of convenience.

3.4 Data Collection

A questionnaire (Appendix III) was used to collect data. The questionnaire had four sections. Section A consisted of closed and open-ended demographic questions for classifying respondents. Section B had questions on a five point Likert Scale. The questions were to establish the attitudes of academic staff towards e-learning. Section C had multiple-choice questions that attempted to capture data for establishing the readiness of the University's Academic staff to implement e-learning. Section D had multiple-

choice questions that were used to establish the behavior intentions of lecturers towards e-learning.

The researcher with the help of one assistant visited each campus distributing questionnaires to individual lecturers. Questionnaires were distributed directly to lecturers in their offices and collected later after being responded to. Some lecturers filled them right away and returned to the researcher. Others sort to have some time to fill. For such, the questionnaire had to be collected later.

Repeated visits were made to each college/campus this was done until the required number of responses was obtained. The respondents had no problem with the questionnaire.

3.5 Data Analysis and Presentation

The demographic information in section A was used to categorize the respondents and to provide a general background of the respondents. In addition, the demographic information was Cross-tabulated against attitudes, computer knowledge, Internet skills, and content readiness. The Cross-tabulation was done to get the relative frequencies of joint phenomena such as age and attitudes. Chi-Square tests were also performed to establish if there was any significant difference in attitudes, computer knowledge, Internet skills, content readiness, and various classifications of respondents based on demographic information.

Section B of the questionnaire concerned with responses to questions involving the academic staff attitudes towards e-learning. This section was analyzed in three ways. First, analysis was done through descriptive analysis that is, means, and standard deviations. A factor analysis was then done on the responses in Section B to identify the key factors that would explain the attitude of respondents. Lastly, the scores per respondent were summed up and respondents categorized as having positive, negative, or neutral attitude. This section was further Cross-tabulated with demographic information to establish if there was any relationship between attitude and demographic information. Chi-Square tests were also performed on the cross tabulated data to find out whether demographic data and attitudes were dependent events.

Section C dealt with e-learning readiness of University of Nairobi academic staff in regard to their accessibility, connectivity, adequacy and quality of computer and Internet facilities, content readiness (Content in multimedia form) and the extent to which available e-learning facilities were being utilized. This section was analyzed through frequencies and percentages. A proportion of below 50% of lecturers in the affirmative on questions asked was regarded as low level of e-learning readiness. A proportion of between 50-69% is regarded as being ready for e-learning and a proportion of 70% and above is regarded as high level of readiness.

Section D sought to find out the intentions of lecturers in regard to adopting e-learning. This was done in order to estimate the probable success or failure of the e-learning initiatives that are being undertaken by the University of Nairobi. This part was analyzed through frequencies, and percentages.

4.0 DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the results of analysis of this study. Of 350 questionnaires distributed, 203 were received as indicated in Table 1.

Table1 Respondents per College

College	Frequency
College of Biological and Physical Sciences (CBPS)	36
College of Agriculture and Veterinary sciences (CAVS)	40
College of Health sciences (CHS)	33
College of Architecture and Engineering (CAE)	30
College of Humanities and social sciences (CHSS)	31
College of Education and External studies (CEES)	33
Total	203

The questionnaires received represented 58% of what was distributed. All the questionnaires received were used in the analysis and resulted in the findings presented in this chapter.

The first part of this analysis is a tabulation of demographic information of respondents. The information provides a general view of the respondents' demographic background. In addition, the demographic information was cross tabulated against attitudes, computer knowledge, Internet skills, and content readiness. The Cross-tabulation was in order to get the relative frequencies of occurrences of the joint phenomenon. The Chi-Square tests were also performed to establish if there was any significant difference in attitudes,

computer knowledge, Internet skills, content readiness, and various classifications of respondents based on demographic information.

The second part of the analysis dealt with analysis of Section B of the questionnaire. The part dealt with responses to questions involving the academic staff attitudes towards e-learning. This part was analyzed in three ways: First, analysis was done through descriptive analysis, where means, and standard deviations were determined. A factor analysis was then done on the responses in Section B to identify the key factors that would explain the attitude of respondents. Lastly, the scores per respondent were summed up and respondents categorized as having positive, negative, or neutral attitude. The overall attitudes of respondents were cross tabulated with demographic data to get the relative frequencies of the joint phenomena.

The third part of the analysis dealt with the e-learning readiness of university academic staff. This part was divided into sub sections dealing with accessibility, adequacy, and quality of e-learning facilities, skills, content, finance, and use of e-learning facilities. The data was analyzed through frequencies and percentages. A proportion of less than 50% of lecturers in the affirmative on the questions asked was regarded as low level of readiness for e-learning. A proportion of 50-69% in the affirmative was regarded as being ready for e-learning and a proportion of over 70% was regarded as a high level of e-learning readiness. Demographic information was also cross-tabulated with information in part three of the analysis and a test of significance done to find out if the demographic factors have any relationship with academic staff computer and Internet skills, utilization of computers and Internet.

The fourth part of the analysis dealt with section D of the Questionnaire. Section D sought to find out the intentions of the academic staff of the University of Nairobi towards adopting e-learning. This part was also analyzed through frequencies and percentages.

4.2. Demographic Characteristics of Respondents

4.2.1 Distribution by Gender

The distribution of respondents by gender is given in Table 2.1. Majority of respondents were males who constituted 76% of the total respondents. The females formed only 24% of the respondents.

Table 2.1 Distribution of Respondents by Gender

Gender	Frequency	Percent
Male	155	76
Female	48	24
Total	203	100

The female respondents were slightly less than a third of male respondents. Despite the low numbers, the females were at least represented in the survey.

4.2.2 Distribution by Age

The distribution of respondents by age is given in Table 2.2. Of the respondents, 36.9% were between 30-39 years. Those in the 40-49 age brackets were 31% of the respondents. In the 50-59 age bracket, the respondents formed 24.6% of the total respondents. The remaining were of 60-70 age bracket. They formed 7.4% of the total respondents.

Table 2.2. Distribution of Respondents by Age

Age bracket	Frequency	Percent
30-39	75	36.9
40-49	63	31.0
50-59	50	24.6
60-70	15	7.4

From Table 2.2, the distribution of respondents, shows representation of at least all age groups. Majority of respondents, however, were in the age bracket of 30 to 39 years. They were followed by those in the 40-49 age bracket. On average, most of the respondents were young people in the range of 30 to 49 years. On average 67% of respondents were below 49 years. More than half of the 67% below were below 40 years.

4.2.3 Distribution by Years of Service

Table 2.3 presents the distribution of respondents by length of service. Those that had served between 1 to 10 years were 32.2%, while those who had served for 11 to 20 years were 47.5%. Those who had served for 21 to 30 years were 10.4% and those who had served between 31 to 40 years formed 9.9% of the respondents. One person did not indicate age.

Table 2.3 Distribution of Respondents by Years of Service

Years of service	Frequency	Percent
1 to 10	65	32.2
11 to 20	96	47.5
21 to 30	21	10.4
31 to 40	20	9.9
Total	202	100

Most of the respondents had served between 11 to 20 years. They were followed by those who had served between 1 to 10 years. Next were those who had served between 21 to 30

years and lastly those who had served between 31 to 40 years. On average most of the respondents had served for less than 20 years.

4.2.4 Distribution by Highest Level of Education

Table 2.4 presents the distribution of respondents by academic qualifications. Only two levels of education were represented.

Table 2.4 Distribution by Highest Level of Education

Education Level	Frequency	Percent
Masters	113	54
PHD	90	46
Post doctoral	0	0
Other	0	0
Total	203	100

Academic staff with a Masters degree formed the majority of respondents. They formed 54% of the total respondents. Holders of Doctor of Philosophy degree formed 46% of respondents.

4.2.5 Distribution by Designation (Position)

Table 2.5 presents the distribution of respondents by their designation. Most of the respondents held the position of lecturers; they formed 51% of the total respondents. They were followed by senior lecturers, who formed 24% of the total respondents. Assistant lectures formed 10% of the respondents. The rest of the positions, that is tutorial fellows, associate professors, and professors were the least represented with less than 10% representation in each group.

Table 2.5 Distribution by Designation (Position)

Designation	Frequency	Percent
Tutorial fellow	4	2
Assistant Lecturer	21	10
Lecturer	103	51
Senior Lecturer	48	24
Associate Professor	18	9
Professor	9	4
Other	0	0
Total	203	100

4.3. Attitude towards E-learning

Attitude towards e-learning were measured on a five point Likert scale. The responses were assigned values as 1-Strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree. The information obtained was analyzed through descriptive statistics, that is, means and standard deviations. A factor analysis was also done to establish the factors that explain the attitudes of lecturers towards e-learning. A summation of respondents scores was done to get the overall attitudes of lecturers towards e-learning. The overall attitudes were cross tabulated with demographic data to get the relative frequencies of demographic data and determine whether attitudes had any relationship with demographic information.

4.3.1 Descriptive Statistics

Means and standard deviations of responses on attitudes towards e-learning are presented in Table 1A in Appendix I. In the table, means of responses on every question ranged from 1.63 to 3.91. The standard deviation of lecturers' responses ranged from .775 to 1.395. This means there were diverse opinions on e-learning ranging from strongly agreed to strongly disagree.

Responses were categorized into two: from agree to strongly agree and from neutral to strongly disagree. The responses from agree to strongly agree are shown in Table 3.1 while those ranging from neutral to strongly disagree are shown in and Table 3.2. As shown in the tables, there were more responses for agreed to strongly agree range than from neutral to strongly disagree range. That means more lecturers had a positive attitude towards e-learning.

Table 3.1 Means of Agree to Strongly Agree Responses

STATEMENT	MEAN
E-learning would ease the work of teaching	1.80
E-learning would give the University of Nairobi a competitive advantage over other universities in Africa.	1.91
E-learning is critical in making the University of Nairobi a word class African university.	1.82
E-learning is necessary for University of Nairobi to compete globally.	1.69
E-learning prepares one to work in a networked world.	1.63
E-learning will enhances my teaching effectiveness.	1.99
It will be easy for me to learn skills necessary to engage in e-learning.	1.99
Introducing e-learning is a waste of resources.	1.63
E-learning is a very fast method of disseminating learning content.	1.67
I am sure I can effectively engage in e-learning.	1.87
E-learning will be an improvement over existing instruction methods.	1.91
E-learning will enrich the lecturers' job.	2.2
E-learning makes coordination of students difficult.	2.75
E-learning will reduce the amount of time I spend on traffic jams.	2.63
Lecturers intellectual property will be at risk if e-learning is introduced.	2.85
E-learning leads to loss of quality of teaching.	2.62
In e-learning it will be difficult to evaluate students online.	2.87
E-learning will lead to loss of control of students.	2.87
In e-learning students are exposed to information that is harmful to their morals.	2.25
E-learning matches my teaching style.	2.40

Table 3.2 Means of Neutral/Disagreed to Responses

STATEMENT	MEAN
E-learning is a better mode of teaching compare to class room instruction.	3.52
If e-learning is introduced now, I would have difficulties instructing as the University has no established library of programs or cassettes to match my teaching needs.	3.72
Absence of spontaneous real time exchanges in e-learning will make e-learning ineffective.	3.34
Privacy is not assured when using the Internet at the University of Nairobi.	3.36
The security of students examinations, assignments and notes when stored online will be at risk.	3.75
E-learning will reduce the amount of money spent on traveling to my place of work.	3.01
In e-learning, the instructor lacks the opportunity to evaluate students understanding of content at an instant.	3.43
E-learning is ineffective as it removes social contact between lecturers and students.	3.00
Frequent Power failures at the University of Nairobi will hinder e-learning initiatives.	3.91

4.3.2 Correlation

Table 1A.1 in Appendix I presents the correlation coefficients of the questionnaire items for attitudes towards e-learning. A correlation coefficient of 1 indicates a perfect correlation. It implies that the items are the same or measure the same thing. In such a case, it would require that one of the items be dropped. A correlation of Zero (0) implies a lack of relationship between the items. A correlation of 0.5 is significant. This means that the questions measure almost similar things.

From the correlation matrix in Table 1A.1 in Appendix I there are some questionnaire items that have a coefficient of 0.5 and above. This implies that a significant relationship existed between some items in the questionnaire. There was therefore need to eliminate some questions. The questions that were eliminated were:

- Question 1 (Qs. 1), E-learning eases teaching and Qs. 10, E-learning is necessary for the University of Nairobi to compete globally, had a correlation coefficient of 0.563. Qs. 10 was eliminated and question 1 was retained.
- Qs. 4, E-learning would give the University of Nairobi a competitive advantage over others and Qs. 11, E-learning prepares one to work in a networked world had a correlation coefficient of 0.513. Qs. 11 was eliminated and Qs. 4 retained.
- Qs.7, E-learning is critical in making University of Nairobi a world class University and Qs. 10, had a correlation coefficient of 0.503. Since Qs. 10 had already been eliminated there was no need to eliminate Qs. 7.
- Qs. 9, E-learning enriches lecturer job, and Qs.10 had a coefficient correlation of 0.636. Since Qs. 10 had been eliminated there was no need to eliminate Qs. 9.
- Qs.9 and Qs.19, E-learning will enhance teaching, had a correlation coefficient of 0.506. Question 19 was eliminated and 9 retained.
- Qs. 26, E-learning is a very fast method of disseminating learning content, and Qs. 29, E-learning will improve existing instructional methods, had a coefficient correlation of 0.544. Qs. 29 was eliminated and Qs. 26 was retained.
- Qs.27, I can effectively engage in e-learning, and Qs.28, E-learning matches my teaching style, had a correlation coefficient of 0.625. Qs. 28 was eliminated and Qs.27 was retained. A total of five questions were eliminated.

4.3.4 Factor Analysis

A factor Analysis was performed for responses in section B of the questionnaire in order to identify the key factors that would explain the attitude of respondents towards e-learning. The Principal factor analysis was used. Table 2A.1 in Appendix I presents the

results of the factor analysis. To be able to extract sufficient factors from several components, factor loadings in every component were determined using eigen values. The components with eigen values of 1 and above were extracted. The total variance explained by the nine factors extracted was determined as 68.4%.

After the identification of the factors by eigen values was made, the components and the factors were rotated using varimax with Kaiser Normalization to determine the maximum variables in each factor matrix. The results give the factors and the components that comprise that factor. The rotated component matrix is given in Table 2A.2 in Appendix I. The findings were as follows:

Factor 1

The central theme in the factors that loaded heavily on Factor I was on performance. The following are the questions that loaded heavily on Factor 1:

1. E-learning eases the work of teaching (79.2%).
2. E-learning would give the University of Nairobi a competitive advantage over other universities in Africa (66.3%).
3. It will be easy for me to learn skills necessary to engage in e-learning (51.8%).
4. Introducing e-learning is a waste of resources (58.1%).

The attitudes of lectures towards e-learning are is influenced by the benefits gained from it. In this case lecturers would have a positive attitude towards e-learning because it improves their teaching performance.

Factor 2

The general theme in the components of Factor 2 is prestige. The questions that loaded heavily on Factor 2 are:

1. E-learning will enrich the lecturers' job (50.1%).
2. I am sure I can effectively engage in e-learning (83.1%).

Lecturers would prefer e-learning because of the prestige associated with it. Many people regard e-learning to be a more advanced form of instruction and therefore anyone engaged in it is regarded highly compared to those who do not.

Factor 3

The theme in the components of Factor 3 is Control. The questions that loaded heavily on Factor 3 were:

1. E-learning will lead to loss of control of students (69.8%).
2. In e-learning, the instructor lacks the opportunity to evaluate student understanding of the content at an instant (69.7%).
3. E-learning is ineffective as it removes social contact between lecturers and students (76.0%).

Lecturers would have a negative attitude to e-learning because they believe it lacks physical interaction hence reducing lecturers control over students.

Factor 4

The theme in the components in Factor 4 is quality teaching. The questions that loaded heavily on these factor are:

1. E-learning is critical in making University of Nairobi a World-class African university (70%).
2. E-learning leads to loss of quality of teaching (65.6%).
3. In e-learning it will be difficult to evaluate students online (50.8%).

The academic staff would have a positive attitude towards e-learning because it results into quality teaching.

Factor 5

The general theme in the components in factor 5 seems to be security. These are:

1. Privacy, is not assured when using the Internet at the University of Nairobi (80.4%).
2. The security of students' examinations, assignments, and notes when stored online is at risk (73.3%).

Lecturers are concerned about the security of information placed on the Net. The administration should put in place mechanisms to provide security to any information placed on the Internet to motivate lecturers into adopting e-learning.

Factor 6

Three components were identified in Factor 6. The general theme in these components seems to be preservation of culture. The components are:

1. Absence of spontaneous real time exchanges in e-learning will make e-learning ineffective (55.3%).
2. Lecturers' intellectual property will be at stake if e-learning is introduced (79.5%).

3. In e-learning, students are exposed to information that is harmful to their morals (73.8%).

Given that the theme in respect to factor 6 relates to culture, it would appear that the lecturers would not be willing to adopt e-learning because they want to preserve their culture.

Factor 7

Only two components were identified in this factor. The central theme in these factors is savings of time and money. The components are:

1. E-learning will reduce the amount of money I spend on traveling to my place of work (80.9%).
2. E-learning will reduce the amount of time I spend on traffic jams (69.5%).

Lecturers would have a positive attitude towards e-learning due to the savings one is able to make in e-learning both in terms of money and time.

Factor 8

The theme in the components in Factor 8 is efficiency. The questions that loaded heavily on these factors are:

1. E-learning would eliminate the opportunity for lecturers to get the feedback from students through body language (72.1%).
2. If e-learning is introduced now, I would have difficulties instructing as the university has no established library of programs or cassettes to match their teaching needs (56.7%).

The lecturers are concerned with efficiency in teaching. Most lectures believe their efficiency would be affected due to inability to get feedback from body language and unavailable stock of e-learning programs. The administration should enlighten lecturers on the potentials of e-learning including face to face presentations. The University should also ensure that more e-learning programs are developed or purchased and lecturers are made aware of the facilities available at the university. It is possible that some lecturers are concerned with facilities that may be in stock but they are simply not aware.

	Frequency	Percent	Valid Percent	Cumulative Percent
Positive	153	75.4	75.4	75.4
Neutral	4	2.0	2.0	77.3
Negative	46	22.7	22.7	100.0
Total	203	100.0	100.0	

Factor 9

One statement loaded heavily on Factor 9. That "e-learning is a better mode of teaching when compared to classroom instruction". Its factor loading was 50.4%.

This statement is an evaluation of e-learning after considering a number of things. Most lecturers seem to be satisfied with the overall benefits of e-learning hence making them have a positive attitude towards it.

4.4. Overall Attitude

To get the overall attitude towards e-learning, responses for section B of the questionnaire were awarded scores as follows: Strongly Agree-1, Agree-2, Neutral-3 Disagree-4, and Strongly disagree-5. The scores per individual were summed up and respondents categorized as indicated in Table 3.3.

Table 3.3 Attitude Scores

Score	Attitude
30-89	Positive
90	Neutral
91-150	Negative

4.4.1 Summary of E-learning Attitudes

Table 3.4 shows the summary of attitudes of respondents. From the table, majority of respondents accounting for 75% of the respondents had a positive attitude towards e-learning. Those with a negative attitude were 23%. Those that were neutral were 2%. Since many lecturers have a positive attitude towards e-learning, they would support e-learning initiatives being introduced in the University of Nairobi.

Table 3.4 Summary of E-learning Attitudes

Attitude	Frequency	Percent	Valid Percent	Cumulative Percent
Positive	153	75.4	75.4	75.4
Neutral	4	2.0	2.0	77.3
Negative	46	22.7	22.7	100.0
Total	203	100.0	100.0	

4.4.2 Cross Tabulation of Respondents' Attitudes against School

A tabulation of attitude responses against school and a Chi-Square test was done to determine whether there was a significant relationship between schools and attitudes towards e-learning. Table 3.5 presents a cross tabulation of attitudes against schools.

Table 3.5 Cross Tabulation of Attitudes against Schools

School	Positive	Neutral	Negative	Total
BPS	66.7% (24)	2.8 % (1)	30.6 (1)	100% (36)
CAVS	80.0% (32)	0% (0)	20% (8)	100% (40)
CHS	84.8% (28)	0% (0)	15.2% (5)	100% (33)
CEA	80.0% (24)	0% (0)	20.0% (6)	100% (30)
CHSS	67.7% (21)	9.7% (3)	22.6% (7)	100% (31)
CEES	72.7% (24)	0% (0)	27.3% (9)	100% (33)
Total	75.4% (153)	20% (4)	22.0%(46)	100%(203)

The college of Health sciences had a majority of responses with a positive attitude towards e-learning. The percentage of those with a positive attitude in the college of Health sciences was 84.8%. The CEA and CAVS were runners up with 80.0% of their respondents having a positive attitude. CEE was fourth with 72.7% of respondents having a positive attitude towards e-learning. CHSS had 67.7% of respondents with a positive attitude.

CBPS compared to the rest of the colleges, had the least percentage of respondents with a positive attitude towards e-learning. It would be expected that the CBPS would be more positive to e-learning since they are the initiators of the system. It should however be noted that no one from the institute of computing and informatics responded to the questionnaire.

To establish if a significant relationship existed between attitudes and colleges a Chi-Square test was done. The Chi-Square results show that there was no dependence between attitude and schools. The computed Chi-Square value was .108, which is greater than .05. There was no significant difference in responses within schools.

4.4.3 Cross Tabulation of Respondents Attitude against Gender

A tabulation of attitude responses against gender and a Chi-Square test was done to determine if gender has any relationship with attitudes towards e-learning. The information is contained in Table 3.6.

Table 3.6 Cross Tabulation of Gender against Attitudes

	Attitude			Total
	Positive	Neutral	Negative	
Male	79.4% (123)	1.9% (3)	18.7% (29)	100% (155)
Female	62.5% (30)	2.1% (1)	35.4% (17)	100% (48)
Total	75.4% (153)	2.0% (4)	22.7% (46)	100% (203)

Majority of male respondents showed a positive attitude towards e-learning when compared to females. There were 79.4% males with a positive attitude towards e-learning while 62.5% of females had a positive attitude towards e-learning. More women had a neutral attitude towards e-learning. Those with a negative attitude to e-learning among women were 35.4% and 18.7% among men. The difference in responses between men and women is not significant. The Chi-Square value was .052, which is greater than .05. There was no significant difference in attitudes between male and female.

4.4.4 Cross Tabulation of Respondents Attitude against Age

Table 3.7 presents a cross tabulation of respondent's attitudes by age.

Table 3.7 Cross tabulation of Age against Attitudes

Age	Attitude			Total
	Positive	Neutral	Negative	
30-39	86.7% (65)	4.0% (3)	9.3% (7)	100% (75)
40-49	65.1% (41)	1.6% (1)	33.3% (21)	100% (63)
50-59	76.0% (38)	0% (0)	24.0% (12)	100% (50)
60-70	60.0% (9)	0% (0)	40.0% (6)	100% (15)
Total	75.4% (153)	2.0% (4)	22.7% (46)	100% (203)

Majority of those with a positive attitude towards e-learning were from 30-39 age bracket. They accounted for 86.7% of respondents. They were followed by 50-59 age set where 76.0% had a positive attitude towards e-learning and 24.0% with a negative attitude. Next was the 40-49 age category with 65.1% of its respondents having positive attitude and 33.3% with a negative attitude towards e-learning. The 60-70 age set had the lowest percentage of those with a positive attitude. Of the respondents 60% in the 60-70 age group had a positive attitude towards e-learning and 40% had a negative attitude. Only the 30-39 and 40-49 age category had respondents with a neutral attitude towards e-learning.

3.8 Cross Tabulation of Attitudes against Designation

Designation Attitude

On average, there were more people with a positive attitude towards e-learning in all age categories. The number of those with a negative attitude rose with advancement in age. The Chi-Square results indicate that there is some correlation between age and attitudes. The Chi-Square test value is .011, which is less than 0.05. Basing on the findings, it can be said that the younger lecturers were more likely to have a positive attitude towards e-learning than the older lecturers.

4.4.5 Cross Tabulation of Respondents' Attitude by Designation/Position

Table 3.8 presents a cross tabulation of Position and attitudes. From the table, 85.7% of Assistant lecturers had a positive attitude towards e-learning. They formed the highest proportion of those with a positive attitude towards e-learning when comparing by designation. Those whose designation is Lecturer had the second highest proportion of those with a positive attitude within the designation. Senior Lecturers were the third, with 73% of their respondents having a positive attitude towards e-learning, Associate

Professors had 68.4% with a positive attitude while Professors had 60.0%. Tutorial fellows had the least percentage (50%) of those with a positive attitude towards e-learning.

	Positive	Neutral	Negative	Total
	80.5% (91)	2.7% (3)	16.8% (19)	100% (113)
	58.7% (6)	1.1% (1)	39.9% (27)	100% (90)
	75.4% (153)	2.0% (4)	22.7% (46)	100% (203)

None of the Professors and Associate Professors had a negative attitude towards e-learning. Assistant lecturers had the highest number of those with a neutral attitude towards e-learning at 9.5%. They were followed by Senior Lecturers at 2.2% and Lecturers at 1.0%.

Table 3.8 Cross Tabulation of Attitudes against Designation

Designation	Attitude			
	Positive	Neutral	Negative	Total
Tutorial fellow	50.0% (2)	0% (0)	50.0% (2)	100% (4)
Assistant lecturer	85.7% (18)	9.5% (2)	4.8% (1)	100% (21)
Lecturer	77.7% (80)	1.0% (1)	21.4% (22)	100% (103)
Senior Lecturer	73.9% (34)	2.2% (1)	23.9% (11)	100% (46)
Associate professor	68.4% (13)	0% (0)	31.6% (6)	100% (19)
Professor	60.0% (6)	0.0% (0)	40.0% (4)	100.0% (10)
Total	75.4% (153)	2.0% (4)	22.7% (46)	100% (203)

Chi-Square test of independence yielded a .139 value which is greater than 0.05. This implies that there was no relationship between respondent's position (designation) and attitudes towards e-learning. Attitudes are independent of ones designation (position).

4.4.6 Tabulation of Respondents' Attitudes against Highest Level of Education

Table 3.9 shows respondents' attitude cross-tabulated against highest level of academic qualification. Only two categories of academic levels were observed. These are Masters degree and Doctor of Philosophy degree.

Table 3.9 Cross Tabulation between Highest Level of Education and Attitudes

	Attitude			
	Positive	Neutral	Negative	Total
Masters	80.5% (91)	2.7% (3)	16.8% (19)	100% (113)
PhD	68.9% (62)	1.1% (1)	30.0% (27)	100% (90)
Total	75.4% (153)	2.0% (4)	22.7% (46)	100% (203)

Masters formed the highest proportion (80.5%) of those with a positive attitude towards e-learning. Masters also had the highest respondents with a neutral feeling of 2.7% compared to 1.1% from the PhD holders. PhD holders had the highest proportion of those with a negative attitude. They were 30% compared to masters with 16.8%.

4.5 Physical Readiness

For an institution to be e-learning ready, it has to have appropriate physical facilities for e-learning. Information obtained from the lecturers gives the following state of the University of Nairobi e-learning infrastructure:

4.5.1 Accessibility

Table 3.10 presents the respondents accessibility to computers. Eighty percent (80%) of respondents indicated that they are readily accessible to computers while only 20% said they were not readily accessible to computers.

Table 3.10 Ready Accessibility to Computers

Response	Frequency	Percent
Yes	163	80%
No	40	20%
Total	203	100%

Computers are a basic requirement for e-learning and therefore 80% availability indicates a positive step or readiness towards e-learning.

4.5.2 Connectivity

Table 3.11 presents the connectivity of lecturers to Internet. Seventy-seven percent (77%) of the total respondents indicated that they are connected while 4% show that they were not connected. This means that though 80% of respondents in question 1 could access a computer, 4% are not connected to the World Wide Web.

Table 3.11 Connectivity

Response	Frequency	Percent
Yes	156	77%
No	8	4%
Not applicable/No computer	39	19%
Total	203	100%

Nineteen percent (19%) of the respondents indicated they did not have computers at all. The 19% are likely to be a part of the 20% respondents who indicated that they are not readily accessible to computers. Since only 4% of the respondents accessible to computers were not connected indicates a relatively high connectivity and hence readiness for e-learning.

4.5.3 Convenience of Location of Computers for E-Learning

Table 3.12 presents respondents view in terms of convenience of location of computers for e-learning. Fifty six percent (56%) of the respondents indicated that the computers were convenient for e-learning while 42% indicated that the location of computers was not convenient for e-learning. The difference in responses between ready accessibility

and convenience of computers for e-learning is explained by the comments added by some respondents. This indicated that academic staff were only accessible to computers through student computer laboratories and other lecturers' offices.

Table 3.12 Convenience of Location of Computers for E-Learning

Response	Frequency	Percent
Yes	113	56
No	86	42
Other	4	2
Total	203	100

For e-learning to be effective, each lecturer should have his/her own personal computer. Forty-two percent (42%) inconveniency of location of computers for e-learning indicates a low readiness for e-learning.

4.5.4 Adequacy of Internet Time for E-Learning

Table 3.13 shows the respondents views on the adequacy of the time they can access the World Wide Web. Of the respondents, 58% indicate that the hours of connection were adequate for e-learning. Thirty-eight percent (38%) regard the hours as not being adequate, while 4% were not sure. Some of the 4% commended that they had never had an opportunity to use the university website to be able to judge the adequacy of Internet time.

Table 3.13 Adequacy of Internet time for E-learning

Response	Frequency	Percent
Yes	78	38
No	117	58
No response	8	4
Total	203	100

E-learning should be carried out 24 hours a day and 360 days a year. This means computer time should also be 24 hours a day throughout the year. If 58% of the academic staff think that the time they could access the Internet was not adequate yet e-learning is not being undertaken fully, then the university is not e-learning ready. Effort should be made to improve on the time the lecturers can access the Internet. (Note: - readiness was judged with respect to the fact that e-learning was not undertaken fully and note the proportion of respondents).

4.5.5 Technology/ Infrastructure

The information on accessibility and connectivity could be used to assess the availability of technology for e-learning. In addition, information on computer ownership and where the respondents surf the Net will shed light on the availability of e-learning technology. From Tables 3.10 and 3.11, it could be concluded that 19% (Table 3.11) to 20% (Table 3.10) of the respondents did not have computers. Three (3%) to four percent (4%) of those with computers are not connected to the World Wide Web. The 3% is the difference between those who were accessible to computers in Table 3.10 and those that were connected from Table 3.11. The 4% was obtained directly from Table 3.11 where 4% indicated that they did not have computers. This meant that they were not connected. Adding 4% of those not connected yet with computers and 20% of those without computers yielded to 24% of those not connected.

If the results were to represent the actual population then about a quarter of the academic staff were not connected. For purposes of e-learning, each academic staff should own a computer and should be connected to the World Wide Web. The university, in its

preparation for e-learning should have provided computers and ensure each office is connected to the Internet.

4.5.6 Computer Ownership

Table 3.14 shows the number of lecturers that had their own computers besides University office computers.

Table 3.14 Computer Ownership

Response	Frequency	Percent
Lectures with own	161	79
Lectures without own	42	21
Total	203	100

Seventy nine percent (79%) of the lecturers owned computers other than those of the University. This showed that a large proportion of the academic staff kept current with the developments in information technology and hence were ready for e-learning. Some of those without computers remarked on the questionnaire that they were in the process of acquiring computers soon.

4.5.7 Places of Surfing the Net

Table 3.14 shows the places the academic staff surfed the Net. From the Table 4.3, 64% surfed the net from Nairobi University offices. Those respondents who surfed both at the University of Nairobi and cyber cafes accounted for 14% of total respondents. Taking the total respondents collectively, 7.4% surfed in cyber cafes alone and 5.9% surfed from home alone. Those that surfed the Net both at the university and at home constituted 14%

of the respondents. The rest, (7%) of respondents surfed in other institutions, university and from their homes, cyber cafes and home or all the three places collectively.

Table 3.15 Place of Surfing the Net

Response	Frequency	Percent
No response	5	2.5
University of Nairobi office alone	129	64
Cyber café alone	15	7.4
Home alone	12	5.9
University and Cyber café	28	14
University and home	3	1.5
Cyber café and home	1	0.5
All the three	7	3.4
other institutions	1	0.5
University of Nairobi and other institutions	2	1.0
Total	203	100

The fact that there were lecturers who surfed the Net at Cyber cafes and home alone indicated that the facilities at the University were not sufficient for all members use. That lecturers surfed the Net in other places other than the University of Nairobi meant they were enthusiastic to keep pace with the changing information technology. They were ready to surf the Net elsewhere if the university could not have sufficient facilities. This was an indication of their readiness to go electronic and hence ready to engage in e-learning.

4.5.8 Quality of Information Technology

Table 3.16 shows the respondents' views on the speed of Internet connection at the University of Nairobi.

Table 3.16 Adequacy of the Speed of Internet Connection

Response	Frequency	Percent
Adequate	39	19
Inadequate	148	73
None response	16	8
Total	203	100

Only 19% of the lecturers indicated that the speed of Internet connection is adequate for e-learning. An overwhelming 73% indicated that the speed of Internet connection is not adequate for e-learning. The university administration should work towards acquiring more bandwidth to be able to ease access to the Internet.

4.5.9 Adequacy of Computer Maintenance

Responses as to whether the level of computer maintenance is adequate for e-learning are presented in Table 3.17.

Table 3.17 Adequacy of Computer Maintenance

Response	Frequency	Percent
Adequate	34	17
Not Adequate	158	78
None response	11	5
Total	203	100

Only 17% of the respondents thought that computer maintenance was adequate for e-learning. Seventy eight percent (78%) of the respondents thought that the level of computer maintenance was not adequate to enable e-learning. Five percent (5%) did not complete the question, but some indicated unavailability of computers which made assessing their maintenance impossible. A higher number of respondents (78%) indicated that computer maintenance was not adequate. This meant that the university should step up maintenance of computers if e-learning would have to succeed.

4.6 0 Skills Readiness

The table labeled Table 3.18 shown below presents responses on whether lecturers had adequate computer skills.

Table 3.18 Possessions of Computer Skills

Response	Frequency	Percent
Yes. Posses	106	52
No. Do not Posses	97	48
None response	0	0
Total	203	100

Fifty two percent (52%) of respondents believed they had adequate computer skills to enable them engage in e-learning. Forty-eight percent (48%) felt they did not have the required skills. This meant that almost half of the academic staff believed they did not have skills for e-learning. Introducing e-learning at such a time would have resulted in underutilization of the resources for lack of skills to engage in e-learning.

4.6.1 Cross Tabulation of Computer Knowledge against College

A Cross tabulation of computer knowledge against college was represented in Table 3.19. The CBPS had the highest respondents with adequate computer knowledge to enable them carry out e-learning. They accounted for 66.7% of the total respondents in the college. They were followed by the CHSS with 64.5% of its respondents claiming they had adequate computer knowledge. In the third position was the CAVS, with 50% of its respondents with adequate computer knowledge to undertake e-learning. CHS and CEES tied in fourth position. The respondents with adequate computer knowledge in this colleges accounted for 45.5% of respondents in the respective colleges. Lastly was the CEA, only 40% of her respondents had adequate computer knowledge for e-learning.

Table 3.19 Cross Tabulation Computer Knowledge against College

School	Adequate computer Knowledge				
	Yes		No		Total
CBPS	66.7%	(24)	33.3%	(12)	100.% (36)
CAVS	50.0%	(20)	50.0%	(20)	100% (40)
CHS	45.5%	(15)	54.5%	(18)	100% (18)
CEA	40.0%	(12)	60.0%	(18)	100% (30)
CHSS	64.5%	(20)	35.5%	(11)	100% (33)
CEES	45.5%	(15)	54.5%	(18)	100% (33)
TOTAL	52.2%	(106)	47.8%	(97)	100% (203)

From Table 3.19, it could be observed that only two colleges had over 60% of their respondents with adequate computer knowledge. The rest were 50% and below. This is a low readiness for e-learning as computer knowledge is a basic requirement for e-learning. The university should therefore organize training sessions for its members in computer techniques. Chi-Square tests of responses by college indicate that computer knowledge was not dependent on college. The Chi-Square test value yielded .158 value which was greater than .05.

4.6.2 Cross Tabulation of Respondents Computer Skills by Gender

Table 3.20 presents the responses on computer knowledge against gender. Respondents who claimed they had adequate computer knowledge to undertake e-learning accounted for 52.3% of male respondents. Those without adequate computer knowledge accounted for 47.7%, of the male respondents. On the other hand, 52.1% of the female respondents had adequate computer knowledge while 47.8% of the female respondents did not. This showed that there was no significant difference between male and female (lack of variance by reason of sex) with regard to computer knowledge.

Table 3.20 Cross Tabulation of Computer knowledge against gender

Gender	Response		
	Yes	No	Total
Male	52.3% (81)	47.7% (74)	100% (155)
Female	52.1% (25)	47.9% (23)	100% (48)
Total	52.2% (106)	47.8% (97)	100% (203)

From Table 3.20, the level of computer literacy between men and women is almost the same. The Chi-Square test of independence yielded a value of .983, which is far greater than 0.05. These results indicated that there was no relationship between gender and computer knowledge (i.e. computer knowledge is not dependent on gender).

4.6.3 Cross tabulation of Respondents Age against Computer Knowledge.

Table 3.21 shows the responses on computer knowledge by age. Of the respondents in the 30-39 age category, 72.0% had computer Knowledge while 28.0% did no have. In the 40-49 age set, 61.9% had adequate computer knowledge. The percentage of those with adequate computer knowledge in the 50-59 age group was 16.0% and 33.3% in the 60-70 age range.

Table 3.21 Cross Tabulation of Age against Computer Knowledge

Age	Response		
	Yes	No	Total
30-39	72.0% (54)	28.0% (21)	100% (75)
40-49	61.9% (39)	38.1% (24)	100% (63)
50-59	16.0% (8)	84.0% (42)	100% (50)
60-70	33.3% (5)	66.7% (10)	100% (15)
Total	52.2% (106)	47.8% (97)	100% (203)

From Table 3.21 it could be observed that the younger lecturers believed they had adequate computer knowledge compared to older lecturers. In the 30-39 age category,

respondents with adequate computer knowledge were 72.0% while those with inadequate computer knowledge were 28.0%. As age advanced to 40-49, the percentage of those with adequate computer knowledge reduced to 61.9% and those with inadequate computer knowledge rose to 38.1%. A Chi-Square test further confirmed this scenario. The findings indicated that there was a very high relationship between age and computer knowledge. The Chi-Square value is almost zero, which is less than 0.05 value thus evidencing the same.

4.6.4 Cross Tabulation of Computer Knowledge by Years of Service

From Table 3.22 it could be observed that those with adequate computer knowledge were more among those who had served for lesser years. For example, 81% of those who had served for 1-10 years had adequate computer skills; only 18.5% claim they did not have adequate computer knowledge. In the category of 11-20 years of service, the percentage of those with computer knowledge reduced. Only 43.8% had adequate computer skills while those without computer knowledge went up to 56.3%. In the 21-30 years of service category the figure of those with computer knowledge, was even lower to 28.6% while that of those with inadequate computer knowledge did rise to 71.4%.

The lowest percentage of those with computer knowledge was found in the 31-40 age category. Only 25.0% had adequate skills while 75.0% did not have adequate skills for e-learning. The finding in the computer skills against years of service category was similar to those of computer kills against age. This could be explained by the fact that those who had served longest also happen to be the ones with a higher age.

Table 3.22 Computer Knowledge against Years of Service

Years of Service	Response		
	Knowledgeable	Not Knowledgeable	Total
1-10	81.5% (53)	18.5% (12)	100% (65)
11-20	43.8% (42)	56.3% (54)	100% (96)
21-30	28.6% (6)	71.4% (15)	100% (21)
31-40	25.0% (5)	75.0% (15)	100% (20)
Total	52.5% (106)	47.5% (96)	100% (202)

4.6.5 Cross Tabulation of Computer Knowledge against Position

Table 3.23 presents a summary of responses on computer knowledge and position. Compared by designation, assistant lecturers had the highest proportion of respondents with adequate computer knowledge. They were followed by senior lecturers with 56.5% of lecturers with adequate computer knowledge. Those with the designation of lecturer were third with 53.4% of their population having adequate computer skills. Associate professors followed them with 31.6% respondents having adequate skills. Respondents from the tutorial fellows group had 25.0% with adequate computer skills and 75% without. Professors had 20.0% of their respondents with adequate computer skills and 80% were without.

Table 3.23 Cross Tabulation of Computer Knowledge and Position

Position	Responses		Total
	With Computer Knowledge	Without Computer Knowledge	
Tutorial fellow	25.0% (1)	75.0% (3)	100.0%(4)
Assistant lecturer	76.2% (16)	23.2% (5)	100% (21)
Lecturer	53.4% (55)	46.6% (48)	100% (103)
Senior Lecturer	56.5% (26)	43.5% (20)	100% (46)
Associate Professor	31.6% (6)	68.4% (13)	100% (19)
Professor	20.0% (2)	80.0% (8)	100% (10)
Total	52.2% (106)	47.8% (97)	100.0% (203)

Test of independence shows that there is a relationship between position and computer knowledge. The Chi-Square value is .017, which is less than the value of .05. Like in years of service, to some extent those in high positions were also more advanced in age. This is because positions go with academic qualifications, which take time to attain.

4.6.6 Possession of Internet Skills

Table 3.24 presents the responses on whether respondents had adequate Internet skills.

Table 3.24 Possession of Internet Skills

Response	Frequency	Percentage
Yes-Posses Internet Skills	177	87
No-Do not Posses Internet Skills	26	13
None response	0	0
Total	203	100

Eighty two percent (82%) of the respondents feel they have adequate Internet skills. Only 13% feel they do not have the required Internet skills. Eighty two percent (82%) of lecturers with Internet skills indicate a high level of readiness for e-learning.

4.6.7 Cross Tabulation of Internet Skills against Colleges

The percentage of those with computer skills per college is presented in Table 3.25. The college of Biological and Physical sciences and College of Education and External studies had a 100% of its lecturers having adequate Internet skills. This may be explained by the fact that the college of Biological and Physical Sciences was the base of e-learning center. The college of Education and External studies on the other hand worked closely with the college of Biological and Physical Sciences to produce teaching material into modules to host onto the University of Nairobi Website especially for distant education students. The interest in e-learning by both colleges could partly explain why 100 % of

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Yes-Posses Internet Skills	177	87
No-Do not Posses Internet Skills	26	13
None response	0	0
Total	203	100

Eighty two percent (82%) of the respondents feel they have adequate Internet skills. Only 13% feel they do not have the required Internet skills. Eighty two percent (82%) of lecturers with Internet skills indicate a high level of readiness for e-learning.

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their respondents have adequate Internet skills. The college of engineering and architecture came next with 90.0% of the respondents who had adequate Internet skills. The College of Agriculture and Veterinary sciences had 85.0% of its lecturers with adequate Internet skills.

Table 3.25 Cross Tabulation of Internet Skills against Colleges

College	With Internet Skills	Without Internet Skills	Total
CBPS	100% (36)	0% (0)	100% (36)
CAVS	85.0% (34)	15.0% (6)	100% (40)
CHS	63.6% (21)	36.4% (12)	100% (33)
CEA	90.3% (27)	10.0% (3)	100% (30)
CHSS	83.9% (26)	16.1% (5)	100% (31)
CEES	100% (33)	0% (0)	100% (33)
Total	87.2% (177)	12.8% (26)	100% (203)

According to the University of Nairobi website ([Http://www.uonbi.ac.ke](http://www.uonbi.ac.ke)), both the College of Engineering and Architecture and the College of Agriculture and Veterinary Sciences had e-learning support staff attached to them. Being actively involved in e-learning, the two colleges ranked highly in members with internet skills. The college of Humanities and Social Sciences came next to the college of Agriculture and Veterinary sciences. It had 83.9% of their respondents with adequate Internet Skills. Some of the respondents in the college of Humanities and Social Sciences indicated that their skills were acquired through self-initiatives. Perhaps this explains why they rank lower among those with adequate computer skills. The college of health sciences had 63.6% of the respondents with adequate Internet skills, which was the lowest, compared to other schools. Basing on this information the College of Health Sciences should be given more consideration when training on Internet skills, or be given e-learning support staff at college and if possible department level.

4.6.8 Cross Tabulation of Respondents Internet Skills by Age

Table 3.26 presents respondents Internet skills by age. Age category 40-49 had the highest percentage (7.9%) of those with inadequate Internet Skills. They were followed by 60-70 age group with 86.7% of the respondents who had adequate Internet skills. Those in the 30-39 age category came third with 85.3% of their respondents with adequate Internet skills. Lastly were those in the 50-59 age category with 84.0% of the respondents in that age set having adequate Internet skills. On average, all age groups had at least over 80% of the respondents with adequate Internet knowledge. This indicates a high level of readiness for e-learning.

Table 3.26 Cross Tabulation of Internet Skills against Age

Age Bracket	Responses		Total
	With Internet skills	Without Internet Skills	
30-39	85.3% (64)	14.7% (11)	100% (75)
40-49	92.1% (58)	7.9% (5)	100% (50)
50-59	84.0% (42)	16.0% (8)	100% (50)
60-70	86.7% (13)	13.3% (2)	100% (15)
Total	87.2% (177)	12.8% (26)	100% (203)

A comparison of age against computer skills and age against Internet skills showed an almost reverse relationship. It would have been expected that those who ranked highest in computer knowledge would also rank among those with adequate Internet skills. On the contrary, while age category 30-39 led in computer skills, it comes third in Internet skills. The 40-49 age category moves from second position in computer knowledge to first position in Internet skills. Age category 50-59 maintains fourth position in both computer knowledge and Internet skills. The 60-70 age category moves from third position in computer skills to second position in Internet skills. The reverse in responses could be

due to the fact that surfing the Net does not require complex skills, a little exposure to the Internet is enough to attain the required skills. From the Chi-Square test there is no relationship between Internet skills and age. The Chi-Square value is .566 which is greater than .05 value.

4.6.9 Cross Tabulation of Internet Skills against Years of Service

Table 3.27 presents a cross tabulation of Internet skills with years of service. Those who had served for 1-10 years represented 86.2% of the respondent who had adequate Internet skills to undertake e-learning. Those who had been in service between 11-20 years made up 87.5% of those with adequate Internet skills. In the 21-30 years, 85.7% had adequate Internet skills. Those who had been in service between 31 and 40 years had 90% with Internet skills. Variation in Internet skills is not consistent with years of service and so the University of Nairobi should select across all categories of years of service for those it wishes to train or expose to the Internet.

Table 3.27 A Cross Tabulation of Years of Service against Internet Skills

Years of service	With adequate Internet skills	Without Internet Skills	Total
1-10	86.2% (56)	13.8% (9)	100% (65)
11-20	87.5% (84)	12.5% (12)	100% (96)
21-30	85.7% (18)	41.3% (3)	100% (21)
31-40	90.0% (18)	10.0% (2)	100% (20)
Total	87.1 (176)	12.9 (26)	100% (202)

The result of Chi-Square test of independence indicates there is no relationship between years of service and Internet skills. The calculated Chi-Square value is .969, which is far greater than .05. The University should train on Internet skills across all groups of years of service.

4.6.10. Cross Tabulation of Internet Skills against Position

Table 3.28 shows the cross tabulation of position against Internet skills. From the table, 2.0% of those who had adequate Internet skills were tutorial fellows. Assistant lectures with adequate Internet skills were 6.9%. In the lecturers category 46.3% had adequate Internet skills. Of the respondents, 19.7% with Internet skills were senior lecturers. There were 9.4% Associate lecturers and 3.9% professors with adequate Internet skills. The findings on adequacy of computer and Internet skills are not correlated. Those that had inadequate computer skills turn out to have adequate Internet skills except for those with the designation of lecturer and senior lecturers who maintained almost the same position, which is second and third of those with adequate Internet skills. This can be explained by the fact that Internet skills are not complex and anyone with some exposure to the Internet will be able to use it.

Table 3.28 Cross Tabulation of Position against Internet Skills

Position	With Internet Skills	Without Skills	Internet	Total
Tutorial fellow	100% (4)	0% (0)		100% (4)
Assistant lecturer	66.7% (14)	33.3% (7)		100% (21)
Lecturer	89.3% (92)	10.7% (11)		100% (103)
Senior Lecturer	87.0% (40)	13.0% (6)		100% (46)
Associate Professor	100% (19)	0% (0)		100% (19)
Professor	80.0% (8)	20.0% (2)		100% (203)
Total	87.2% (177)	12.8% (26)		100% (203)

To assess further possession of Internet skills a question was asked for lecturers to select from a list provided which online tools they were able to use to communicate to students. The responses are provided in Table 3.29 under Section 4.6.11.

4.6.11. Ability to Communicate Online

Table 3.29 presents the responses on ability to use e-mail, Internet chat, and instant messenger. Most of the lecturers were able to use email alone to communicate.

Table 3.29 Respondents Ability to Communicate Online

	Frequency	Percentage
e-mail alone	129	64
e-mail & instant chat	18	9
e-mail & instant messenger	4	2
all f the above	24	12
all of the above & others	3	1
Instant chat alone	0	0
Instant chat & instant messenger	0	0
Instant messenger alone	0	0
None of the above	25	12
Total	203	100

They made up 64% of the respondents. Twelve percent (12%) are able to use e-mail, Instant chat, and Instant messenger. Nine percent (9%) are able to use email and Instant chat. Of the respondents 2% indicated that they could use both e-mail and Instant messenger. At least one percent (1%) was able to communicate using the tools listed and others not listed. Twelve percent (12%) indicated that they could not communicate using any of the listed tools. The information obtained shows that most of the lecturers can at least communicate over the Internet in one way or another. Exposure on use of Instant messenger and Internet chat is however required for most lecturers. This is required to enable them manage and coordinate discussions online.

4.6.12. Ability to Post Notices/Messages

To be able to assess the possession of Internet skills a question was asked to indicate whether one could post notices on the Net. The responses are presented in Table 3.30.

Table 3.30 Ability to Post Messages/Notices on the Internet

Response	Frequency	Percent
Yes	95	47
No	103	51
None response	5	2
Total	203	100

Forty seven percent (47%) of the respondents said that they were able to post notices on the Internet while 51% said that they could not post notices on the Internet. Two percent (2%) did not indicate their position but gave additional comments that they have never tried to post notices on the web and so they are not sure whether they would be able to post messages. Adding none respondents to those who feel that they are not able to post notices on the Net, then almost 50% of the respondents are not able to post notices on the Internet. More exposure on Internet skills is required if Nairobi University Academic staff have to compete globally.

4.7 The E-Learning Activities Known by Respondents

To be more specific on whether the Academic staff was actually able to undertake e-learning, a question was asked to indicate which of the e-learning activities one was able to undertake. Table 3.31 shows the responses.

Table 3.31 E-Learning Activities Known by Respondents

	Frequency	Percent
1. Developing content for online-learning alone	118	58
2. developing content and coordinating discussion online	5	2
3. all of the above	12	6
4. Developing content and evaluating online	21	10
5. Coordinating discussion and evaluating online	0	0
6. evaluating students online only	0	0
7. Coordinating online discussion alone	0	0
0. None of the above	47	23
Total	203	100

Fifty-eight percent (58%) of the respondents were able to at least develop content for teaching online. Of the respondents, 10% believed they could develop content and evaluate students online. Six percent (6%) could develop content, coordinate discussion, and evaluate students online. Twenty three (23%) percent believed they were not able to engage in any of the e-learning activities.

In general, most academic staff believed that they had adequate skills for e-learning, but when asked the specific skills that would be required for e-learning, the number of those with the necessary skills reduce. Exposure into what is required in e-learning is required for most of the staff. Those who indicated lack of knowledge on e-learning also gave comments that they needed training on the same. A few lecturers also indicated that the skills they had were self acquired and wished the university could take more initiatives towards training the academic staff.

This implied that the respondents had the strong will power to go into e-learning. However they acknowledged the need to have them trained to ensure adequate knowledge necessary for delivery of the knowledge through electronic media.

4.8 Availability of Human Resource

For his PhD project, Dr. Omwenga a lecturer at the University of Nairobi developed the e-learning platform referred to as WEDSOFT ([Http://www.uonbi.ac.ke](http://www.uonbi.ac.ke)). The University of Nairobi administration took over the administration and funding of the e-learning project. Lecturers are expected to use this facility to facilitate learning especially for distant students. There was information in the Help Tool, which would guide lecturers on how to develop content for e-learning, and how to update information contained on the

web among others. Other than information contained on the website, members of the WEDSOFT team have staff that provide support to the college of Agriculture and Veterinary Sciences, College of Education and External studies and college of Engineering and Architecture ([Http://www.uonbi.ac.ke](http://www.uonbi.ac.ke)).

The lecturer and those that work with him are situated in the College of Biological and Physical Sciences in Chiromo and others in the specific campuses as mentioned above. Responses on whether the location of support staff is convenient for e-learning are presented in Table 3.32.

Table 3.32 Convenience of Location of Support Staff

Response	Frequency	Percent
Yes	73	36
No	121	60
None response	9	4
Total	203	100

Sixty percent (60%) of respondents felt that the location of support staff was not convenient for e-learning. Thirty-six percent (36%) felt the location was convenient while only 4% did not indicate whether the location was convenient or not. If 60% felt that the location of support staff was not convenient, then the university could be said to have a low level of e-learning readiness in regard to availability of support staff. A majority of those that claimed that the location was convenient were based in Chiromo campus.

4.9 Availability of Finance

People could be said to be e-learning ready if they have the finance to initiate e-learning and sustain it. A question was therefore asked to find out if staff was of the opinion that they were financially able to support e-learning initiatives. Table 3.33 shows the responses on whether the academic staff was ready to pay for their connection. Connection of lecturers' homes would enable them engage in e-learning even when away from college.

Table 3.33 Willingness to Pay for Connection

Response	Frequency	Percent
Yes	96	47
No	97	48
None response	10	5
Total	203	100

Forty seven percent (47%) were willing to pay while 48% were not willing. Exposure on how much it would take financially to engage in e-learning is necessary for lecturers to understand the financial implication of e-learning and prepare for it. Being able to pay for connection is important because in online learning, one would be able to instruct anywhere any time. Most lecturers were not living in staff houses and so they needed to have connection while away from the university. That only a few lecturers 47% were willing to pay for connection indicates a very low level of readiness for e-learning in regard to personal financial commitment.

4.10 Content Readiness

The academic staff would be said to be e-learning ready if it believes that the content of their teaching subject could be wholly delivered online and if their teaching content is

already in multimedia form. With the present developments in technology, virtually everything can be delivered online through audiovisuals like CDs, teleconferencing, simulations, and animation among other techniques. Table 3.34 shows the responses of lecturers on whether their content could be delivered online.

Table 3.34 Content that can be Delivered Online

Response	Frequency	Percent
All of it	31	15
Most of it	113	56
Little can	40	20
Very little	19	9
Total	203	100

Only 15% of the lecturers believe that all their content could be delivered online. Most lecturers forming 56% of respondents however believed that most of their content could be delivered online. Combining those who feel that most of their subject matter could be delivered online and those who felt that all of their content could be delivered online, then 71% of the lecturers could be said to be e-learning ready. Those who felt that little of their content can be delivered online may be resistant to e-learning initiatives. Effort should be made therefore to enlighten them on the capabilities of computers and the Internet in e-learning.

4.11 Content in Multimedia Form

Table 3.35 shows how much of content is in multimedia form.

Table 3.35 Content in Multimedia Form

Response	Frequency	Percent
None	75	37
<20%	63	31
20-40%	23	11
40-60%	25	12
60-80%	8	4
Over 80%	9	4
Total	203	100

The information in Table 3.35 shows that 37% of the subject content was not in multimedia form. Thirty-one percent (31%) had less than 20% in multimedia form. This meant that, a lot of time would be spent trying to develop learning content into a form that would be broadcast to all students in all places at the same time. In general, therefore the university had a low level of readiness in regard to content readiness.

4.12 Application

A people are e-ready if they make use of the available information communication technology. In these regard the questionnaire sought to find out whether lecturers had e-mail addresses and whether they use their e-mails to communicate to students on matters of academics. The frequency of surfing the Net was also sought, as the Internet is a major electronic tool for research in learning. Table 3.36 shows the responses on whether the lecturers had e-mail addresses.

Table 3.36 Lecturers with E-mail Address

Response	Frequency	Percent
Yes	195	96
No	8	4
Total	203	100

At least 96% of the lecturers have e-mail addresses indicating a high-level of possession of the basic communication tool. Only 4% did not have e-mail address. The question however is whether the e-mail is used for communicating to students on academic matters. Table 3.37 presents information whether the lecturers use their e-mail to communicate to students on matters of academics.

Table 3.37 Use E-mail to Communicate to Learners

Response	Frequency	Percent
Yes	74	36
No	127	63
None response	2	1
Total	203	100

As much as 96% had e-mail address, only 36% used their e-mails to communicate to students on matters of academics. This means a low level of use of information technology resources for learning purposes, and hence a low level of e-learning readiness. A few lecturers explained on the questionnaire the reasons they would not communicate to students by e-mail. They indicated that computer student ratio in the university is too low that it would not be possible to communicate to them by e-mail. Another area of utilizing available ICT is to surf the Net in order to research in academics. The frequency of surfing the Net is shown in Table 3.38.

Table 3.38 Frequency of Surfing the Net

Response	Frequency	Percent
Daily	118	58
Weekly	71	35
Fortnight	3	1
Monthly	6	3
Other	5	2
Total	203	100

Fifty eight percent (58%) of the respondents surf the Net daily while 35% surf weekly. Only 1% surf after a fortnight and 3% surf monthly. Two percent (2%) indicated they surf as need arises meaning they do not have a regular pattern of surfing the Net. Most of the lecturers (58%) surf the net daily. This indicates a satisfactory level of use of the technology and hence the readiness to operate in a networked world.

4.13 Intention to adopt E-learning Methods

Table 3.39 presents the responses of lecturers about their intended behavior in regard to e-learning.

Table 3.39 Ready to adopt-learning

Ready to adopt e-learning despite the prevailing set backs	Yes	No	None response	Sum
Willing to adopt e-learning with the prevailing Internet access time	31% (63)	62 (125)	17% (15)	100% (203)
Ready to adopt e-learning as improvements on facilities for e-learning are made	82% (167)	16% (33)	4% (3)	100% (203)
Ready to spare some time to organize e-learning materials	96% (194)	4% (9)	0% (0)	10% (203)
Total	424	167	18	609
Average	141	56	6	203

Having looked at the lecturers' attitudes, and their e-learning readiness, the questionnaire also sought to find out the intended behavior of lecturers towards adopting e-learning. Notice that 82% were ready to adopt e-learning while 96% were willing to spare time for e-learning. This implied a very ready attitude to adopt e-learning subject to changes being made to facilitate efficient adoption.

Table 3.40 Not Ready to adopt E-learning

	Yes	No	None response	Total
Not ready to test online until mechanisms are put in place to control possible cheating in exams	83% (168)	17% (34)	0% (1)	100% (203)
Need for training before engaging in e-learning	86% (173)	14% (29)	0% (1)	100% (203)
Need for more computers to be availed before engaging in e-learning	93% (188)	7% (14)	0% (1)	203
Teaching load should be reduced before engaging in e-learning	38% (69)	62% (114)	10% (20)	100% (203)
Total	598	191	23	812
Average	149	48	6	203

Table 3.41 Summary of Intended Behavior

	A	B	Sum	Average	Percent
Willing to adopt e-learning despite the prevailing set backs	141	48	189	95	47
Not willing to adopt e-learning until certain conditions are met	56	149	203	103	51
None response	6	6	12	6	3
Total	203	203	203	203	100

Table 3.41 shows that 47% of respondents were willing to adopt e-learning despite the prevailing limitations. Fifty-one percent (51%) were not ready to adopt e-learning unless some conditions are satisfied. If intended behavior predicts actual behavior then e-learning initiatives would fail unless some conditions are met. Most respondents (51%) indicated that they were not willing to adopt e-learning unless some specific conditions were met. This includes, improving Internet access time (62%) provision of more computers (93%) and 86% required training into e-learning skills while 83% required that mechanisms are put in place to control cheating in online exams.

CHAPTER V

5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the conclusions of the study. The study sought to establish attitudes and e-learning readiness of University of Nairobi academic staff. Data was collected from a sample of members of academic staff from all the colleges of University of Nairobi. The study was analyzed through frequencies, percentages and cross tabulations.

5.2 Summary and Conclusions

Descriptive Analysis

The descriptive analysis shows that means of responses on questions in Section B ranged from 1.63 to 3.91. The standard deviation of lecturers' responses ranged from .775 to 1.395. This shows that there were diverse opinions on e-learning ranging from strongly agreed to strongly disagree. Most respondents, however, agreed to the following statements:

E-learning eases the work of teaching (1.80).

E-learning would give the University of Nairobi a competitive advantage over other universities in Africa (1.91).

E-learning is critical in making the University of Nairobi a world class African university (1.82).

E-learning is necessary for University of Nairobi to compete globally (1.69).

E-learning prepares one to work in a networked world (1.63).

E-learning will enhance my teaching effectiveness (1.99).

It will be easy for me to learn skills necessary to engage in e-learning (1.99).

I am sure I can effectively engage in e-learning (1.87).

E-learning is a very fast method of disseminating learning content (1.67).

E-learning will be an improvement over existing instruction methods (1.91).

Factor Analysis

Principal factor analysis on section B showed that nine factors could explain the attitudes of lecturers towards e-learning. These were:

Factor 1 Performance

The components on this factor were:

E-learning eases the work of teaching (79.2%).

E-learning would give the University of Nairobi a competitive advantage over other universities in Africa (66.3%).

It will be easy for me to learn skills necessary to engage in e-learning (51.8%).

Introducing e-learning is a waste of resources (58.1%).

Factor 2 Prestige

The components on this factor were:

E-learning will enrich the lecturers' job (50.1%).

I am sure I can effectively engage in e-learning (83.1%).

Factor 3 Control

The components on this factor were:

E-learning will lead to loss of control of students (69.8%).

In e-learning, the instructor lacks the opportunity to evaluate student understanding of the content at an instant (69.7%).

E-learning is ineffective as it removes social contact between lecturers and students (76.0%).

Factor 4 Quality

The components on this factor were:

E-learning is critical in making University of Nairobi a World-class African university (70%).

E-learning leads to loss of quality of teaching (65.6%).

In e-learning it will be difficult to evaluate students online (50.8%).

Factor 5 Security

The components on this factor were:

Privacy is not assured when using the Internet at the University of Nairobi (80.4%).

The security of students' examinations, assignments, and notes when stored online is at risk (73.3%).

Factor 6 Culture Preservation

Three components were identified in Factor 6. The components are:

Absence of spontaneous real time exchanges in e-learning will make e-learning ineffective (55.3%).

Lecturers' intellectual property will be at stake if e-learning is introduced (79.5%).

In e-learning, students are exposed to information that is harmful to their morals (73.8%).

Factor 7 Savings

Two components were identified in this factor. The components are:

E-learning will reduce the amount of money I spend on traveling to my place of work (80.9%).

E-learning will reduce the amount of time I spend on traffic jams (69.5%).

Factor 8 Efficiency

The components in Factor 8 were:

E-learning would eliminate the opportunity for lecturers to get the feedback from students through body language (72.1%).

If e-learning is introduced now, I would have difficulties instructing as the university has no established library of programs or cassettes to match their teaching needs (56.7%).

Factor 9

One statement loaded heavily on Factor 9. That “e-learning is a better mode of teaching when compared to classroom instruction. Its factor loading was 50.4%.

Attitudes

The findings on attitudes indicate that the majority of lecturers had a positive attitude towards e-learning. Those with a positive attitude formed 75.4% of total respondents. This information indicates that the lecturers would support e-learning initiatives as long as the necessary mechanisms to enable e-learning are put in place. Lecturers may have a positive attitude towards e-learning, but if facilities are not available then the e-learning initiatives would not succeed.

E-learning Readiness

From the information obtained, on e-learning readiness, the University of Nairobi has at least the basic facilities for e-learning. Up to 79% of the lecturers have computers and 77% are connected. Most lecturers, however, feel that the facilities are not adequate for e-learning. Of the respondents, 73% feel that the speed of Internet connection is inadequate for e-learning. Up to 78% of lecturers feel that computer maintenance is not satisfactory. In addition, 60% of the lecturers feel that the available e-learning support staff is not conveniently located for their benefit. Apart from facilities lecturers also need to have the necessary skills for e-learning.

The information also indicates that 52% of the lecturers have basic computer knowledge and 87% have Internet skills. Few lecturers had online communication skills such as Instant messenger, and Internet chat. Only 24% of the lecturers can communicate by Instant messenger and Internet chat.

Basing on the preceding observations, it means the university could be introducing e-learning without regard of users ability to utilize the facilities. When this happens, the e-learning initiatives may not succeed well unless corrective measures are taken immediately.

That lecturers may not engage in e-learning can be observed from the extent to which they utilize the available ICT. From the information obtained, only 36% use their e-mail to communicate to students on academic matters. There were only 21% of lecturers in the category of those with at least 40% of their content in multimedia form. This is so notwithstanding the fact that over 71% of the lecturers believe that most of their content can be delivered online.

5.3 Limitations of the Study

During the course of the study, a number of limitations were observed:

- There was time constraint, which made it not possible to obtain response from some departments of the colleges of University of Nairobi.
- E-learning seemed to be unknown to some respondents. Some lecturers actually refused to respond to the questionnaire, claiming that they did not know what

e-learning, was all about. Some lecturers also did not respond to some areas of the questionnaire claiming that they had not had opportunity to test the efficiency of e-learning facilities. This reduced response rate.

5.4 Recommendations for Future Research

Basing on the limitations of the study stated in Section 5.3, the researcher recommends: -

- A study that would have representation from all including the smallest unit of the University of Nairobi academic staff. This is because classification along colleges is not based on homogeneous factors. Some unique factors of the study in departments that were not represented may have been left out.
- A case study on a few factors that would provide a more in depth understanding of e-learning readiness of the University of Nairobi.
- A research done to examine the extent of student readiness to adopt e-learning as a method of delivery of learning information.

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Table 1A. Descriptive Statistics

Table 1A.1 Correlation Coefficient Matrix

Table 2A.1 Total Variance Explained

Table 2A.2 Rotated Component Matrix

TABLE 1A Descriptive Statistics

	Mean	Std. Deviation	Analysis N
ing will reduce the work of teaching	1.80	.695	203
ing will eliminate the opportunity for lecturers to get back from students through "busy language"	3.88	1.112	203
ing will be better method of teaching compared to traditional methods	3.52	1.012	203
ing will give the opportunity for lecturers to be more interactive	1.91	.859	203
ing it is preferred now, I would have difficulties	3.72	1.395	203
ing as the university has no established library of books or resources to match my teaching needs	3.34	1.089	203
ing of real-time exchanges in e-learning will be more effective	3.84	1.084	203
ing will be difficult to evaluate students online	2.75	1.164	203
ing will reduce the work of lecturers	2.22	1.106	203
ing is necessary for	3.88	1.084	203
ing will be used by	3.0	1.084	203
ing is not required when using the internet at the University	3.36	1.128	203
ing of students' examinations, assignments, and notes will be as good as that	3.75	1.122	203
ing will reduce the amount of time I spend on traffic	2.63	1.241	203
ing of personal property will be at stake if e-learning is used	2.85	1.120	203
ing will reduce the amount of money I spend on my place of work	3.01	1.249	203
ing will be less of quality of teaching	2.62	1.130	203
ing it will be difficult to evaluate students online	2.87	1.187	203

APPENDIX I

FACTOR ANALYSIS

- Table 1A: Descriptive Statistics
- Table 1A:1 Correlation Coefficient Matrix
- Table 2A.1 Total Variance Explained
- Table 2A.2 Rotated Component Matrix

TABLE 1A Descriptive Statistics

	Mean	Std Deviation	Analysis N
E-learning eases the work of teaching.	1.80	.995	203
E-learning would eliminate the opportunity for lecturers to get feedback from students through body language.	3.88	1.112	203
E-learning is a better method of teaching compared to classroom instruction.	3.52	1.012	203
E-learning would give the University of Nairobi a competitive advantage over other universities in Africa.	1.91	.859	203
If e-learning is introduced now, I would have difficulties instructing as the university has no established library of programs or cassettes to match my teaching needs.	3.72	1.395	203
Absence of spontaneous real time exchanges in e-learning will make e-learning ineffective.	3.34	1.089	203
E-learning is critical in making University of Nairobi a world class African university.	1.82	.984	203
E-learning makes coordination of student learning difficult.	2.75	1.164	203
E-learning will enrich the lecturers job.	2.22	1.109	203
E-learning is necessary for a university to compete globally.	1.69	.888	203
E learning prepares one to work in a networked world.	1.63	.830	203
Privacy is not assured when using the Internet at the University of Nairobi.	3.36	1.128	203
The security of students' examinations, assignments, and notes when stored online is at risk.	3.73	1.122	203
E-learning will reduce the amount of time I spend on traffic jams.	2.63	1.241	203
Lecturers' intellectual property will be at stake if e-learning is introduced.	2.85	1.120	203
E-learning will reduce the amount of money I spend on traveling to my place of work.	3.01	1.249	203
E learning leads to loss of quality of teaching.	2.62	1.130	203
In e-learning, it will be difficult to evaluate students online.	2.87	1.187	203

TABLE 1A Descriptive Statistics-Cont.

	Mean	Std Deviation	Analysis N
E learning will enhance my teaching effectiveness.	1.99	.939	203
E learning will lead to loss of control of students.	2.87	1.132	203
It will be easy for me to learn skills necessary to engage in e-learning.	1.99	.972	203
Introducing e-learning is a waste of resources.	1.63	.819	203
In e-learning, students are exposed to information that is harmful to their morals.	2.25	1.164	203
In e-learning, the instructor lacks the opportunity to evaluate student understanding of the content at an instant.	3.43	1.198	203
E-learning is ineffective as it removes social contact between lecturers and students.	3.00	1.055	203
E-learning is a very fast method of disseminating learning content.	1.67	.775	203
I am sure I can effectively engage in e-learning.	1.87	.942	203
E-learning matches my teaching style.	2.49	1.078	203
E-learning will be an improvement over the existing instruction methods.	1.91	.854	203
Frequent power failures at the University of Nairobi will hinder e-learning initiatives.	3.91	1.153	203

Table 1A.1-Correlation coefficient Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1.000	0.000	0.028	0.430	-0.101	0.003	0.192	0.120	0.425	0.563	0.391	0.082	0.063	0.177	0.227
2	0.000	1.000	0.092	-0.017	0.249	0.088	-0.020	0.038	0.074	-0.074	-0.146	-0.067	-0.011	-0.019	-0.050
3	0.028	0.092	1.000	0.193	0.209	0.127	0.187	0.378	0.266	0.058	-0.048	0.263	0.347	0.141	0.221
4	0.430	-0.017	0.193	1.000	-0.047	-0.109	0.390	0.229	0.447	0.480	0.513	0.061	-0.026	0.237	-0.107
5	-0.101	0.249	0.209	-0.047	1.000	0.099	-0.022	0.232	0.065	-0.135	-0.257	0.311	0.245	-0.132	-0.055
6	0.003	0.088	0.127	-0.109	0.099	1.000	-0.105	0.180	-0.012	-0.126	-0.271	-0.053	0.051	0.079	0.277
7	0.192	-0.020	0.187	0.390	-0.022	-0.105	1.000	0.269	0.376	0.503	0.247	-0.080	0.055	0.137	0.021
8	0.120	0.038	0.378	0.229	0.232	0.180	0.269	1.000	0.329	0.366	0.177	0.280	0.244	0.207	0.215
9	0.425	0.074	0.266	0.447	0.065	-0.012	0.376	0.329	1.000	0.636	0.415	0.047	0.000	0.206	0.070
10	0.563	-0.074	0.058	0.480	-0.135	-0.126	0.503	0.366	0.636	1.000	0.575	0.069	-0.075	0.340	0.158
11	0.391	-0.146	-0.048	0.513	-0.257	-0.271	0.247	0.177	0.415	0.575	1.000	0.034	-0.182	0.227	-0.133
12	0.082	-0.067	0.263	0.061	0.311	-0.053	-0.080	0.280	0.047	0.069	0.034	1.000	0.427	-0.172	0.156
13	0.063	-0.011	0.347	-0.026	0.245	0.051	0.055	0.244	0.000	-0.075	-0.182	0.427	1.000	0.002	0.039
14	0.177	-0.019	0.141	0.237	-0.132	0.079	0.137	0.207	0.206	0.340	0.227	-0.172	0.002	1.000	0.050
15	0.227	-0.050	0.221	-0.107	-0.055	0.277	0.021	0.215	0.070	0.158	-0.133	0.156	0.039	0.050	1.000
16	-0.101	-0.006	0.143	0.213	0.037	-0.011	0.071	0.282	0.101	0.174	0.063	-0.095	-0.085	0.489	-0.140
17	0.140	0.053	0.259	0.152	0.328	0.057	0.322	0.380	0.224	0.198	0.087	0.167	0.239	0.062	0.233
18	0.121	-0.139	0.336	0.182	0.235	-0.096	0.269	0.489	0.236	0.202	0.153	0.283	0.338	0.035	0.269
19	0.326	-0.091	0.303	0.293	0.126	-0.021	0.298	0.347	0.506	0.430	0.205	0.200	0.186	0.171	0.121
20	0.171	-0.064	0.106	0.334	0.049	-0.097	0.077	0.461	0.223	0.256	0.281	0.269	0.347	0.005	0.020
21	0.283	0.058	0.108	0.401	0.220	-0.019	0.251	0.307	0.384	0.413	0.220	0.077	0.133	0.127	-0.047
22	0.401	-0.035	0.115	0.330	-0.049	0.121	0.144	0.261	0.144	0.431	0.247	0.154	0.078	0.243	0.268
23	0.025	-0.038	0.177	0.097	-0.116	0.258	-0.091	0.231	0.027	0.084	-0.018	0.018	0.029	0.231	0.480
24	0.096	-0.005	0.245	0.159	0.262	0.009	0.061	0.445	0.194	0.037	0.060	0.269	0.441	-0.099	0.029
25	0.390	-0.038	0.095	0.240	0.006	0.027	0.118	0.269	0.356	0.146	0.133	-0.077	0.095	-0.043	0.209
26	0.190	-0.014	0.108	0.317	0.105	-0.081	0.279	0.270	0.321	0.380	0.276	-0.001	-0.048	0.324	0.108
27	0.151	0.008	0.156	0.278	0.179	-0.038	0.172	0.430	0.430	0.264	0.215	0.246	0.017	0.034	0.108
28	0.053	-0.119	0.281	0.311	0.115	-0.167	0.175	0.412	0.491	0.340	0.385	0.179	0.114	0.095	-0.055
29	0.135	-0.033	0.246	0.325	0.028	-0.104	0.387	0.485	0.356	0.418	0.328	0.020	0.097	0.313	0.073
30	-0.041	0.119	-0.164	-0.133	0.283	-0.102	0.004	0.087	-0.206	-0.090	-0.071	0.082	-0.030	-0.241	-0.018

Table1A.1-Correlation coefficient Matrix-cont.

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	-0.101	0.140	0.121	0.326	0.171	0.283	0.401	0.025	0.096	0.390	0.190	0.151	0.053	0.135	-0.041
2	-0.006	0.053	-0.139	-0.091	-0.064	0.058	-0.035	-0.038	-0.005	-0.038	-0.014	0.008	-0.119	-0.033	0.119
3	0.143	0.259	0.336	0.303	0.106	0.108	0.115	0.177	0.245	0.095	0.108	0.156	0.281	0.246	-0.164
4	0.213	0.152	0.182	0.293	0.334	0.401	0.330	0.097	0.159	0.240	0.317	0.278	0.311	0.325	-0.133
5	0.037	0.328	0.235	0.126	0.049	0.220	-0.049	-0.116	0.262	0.006	0.105	0.179	0.115	0.028	0.283
6	-0.011	0.057	-0.096	-0.021	-0.097	-0.019	0.121	0.258	0.009	0.027	-0.081	-0.038	-0.167	-0.104	-0.102
7	0.071	0.322	0.269	0.298	0.077	0.251	0.144	-0.091	0.061	0.118	0.279	0.172	0.175	0.387	0.004
8	0.282	0.380	0.489	0.347	0.461	0.307	0.261	0.231	0.445	0.269	0.270	0.430	0.412	0.485	0.087
9	0.101	0.224	0.236	0.506	0.223	0.384	0.144	0.027	0.194	0.356	0.321	0.430	0.491	0.356	-0.206
10	0.174	0.198	0.202	0.430	0.256	0.413	0.431	0.084	0.037	0.146	0.380	0.264	0.340	0.418	-0.090
11	0.063	0.087	0.153	0.205	0.281	0.220	0.247	-0.018	0.060	0.133	0.276	0.215	0.385	0.328	-0.071
12	-0.095	0.167	0.283	0.200	0.269	0.077	0.154	0.018	0.269	-0.077	-0.001	0.246	0.179	0.020	0.082
13	-0.085	0.239	0.338	0.186	0.347	0.133	0.078	0.029	0.441	0.095	-0.048	0.017	0.114	0.097	-0.030
14	0.489	0.062	0.035	0.171	0.005	0.127	0.243	0.231	-0.099	-0.043	0.324	0.034	0.095	0.313	-0.241
15	-0.140	0.233	0.269	0.121	0.020	-0.047	0.268	0.480	0.029	0.209	0.108	0.108	-0.055	0.073	-0.018
16	1.000	-0.017	0.051	0.042	0.113	0.155	0.001	0.096	-0.051	0.041	0.051	0.141	0.193	0.224	-0.075
17	-0.017	1.000	0.469	0.384	0.299	0.085	0.226	0.192	0.322	0.360	0.341	0.227	0.250	0.276	0.058
18	0.051	0.469	1.000	0.301	0.456	0.174	0.134	0.145	0.432	0.272	0.168	0.215	0.328	0.276	0.035
19	0.042	0.384	0.301	1.000	0.372	0.211	0.221	0.183	0.224	0.415	0.404	0.401	0.479	0.394	0.036
20	0.113	0.299	0.456	0.372	1.000	0.169	0.268	0.332	0.483	0.431	0.064	0.281	0.413	0.315	0.006
21	0.155	0.085	0.174	0.211	0.169	1.000	0.291	-0.032	0.133	0.111	0.381	0.414	0.276	0.356	0.056
22	0.001	0.226	0.134	0.221	0.268	0.291	1.000	0.336	0.119	0.152	0.301	0.192	0.163	0.374	-0.145
23	0.096	0.192	0.145	0.183	0.332	-0.032	0.336	1.000	0.073	0.251	0.026	0.165	0.192	0.063	-0.183
24	-0.051	0.322	0.432	0.224	0.483	0.133	0.119	0.073	1.000	0.480	0.022	0.261	0.286	0.190	0.099
25	0.041	0.360	0.272	0.415	0.431	0.111	0.152	0.251	0.480	1.000	0.077	0.333	0.320	0.192	0.000
26	0.051	0.341	0.168	0.404	0.064	0.381	0.301	0.026	0.022	0.077	1.000	0.366	0.280	0.544	0.016
27	0.141	0.227	0.215	0.401	0.281	0.414	0.192	0.165	0.261	0.333	0.366	1.000	0.625	0.391	0.035
28	0.193	0.250	0.328	0.479	0.413	0.276	0.163	0.192	0.286	0.320	0.280	0.625	1.000	0.475	0.007
29	0.224	0.276	0.276	0.394	0.315	0.356	0.374	0.063	0.190	0.192	0.544	0.391	0.475	1.000	-0.039
30	-0.075	0.058	0.035	0.036	0.006	0.056	-0.145	-0.183	0.099	0.000	0.016	0.035	0.007	-0.039	1.000

TABLE 2A.2 Rotated Component Matrix

Table 2A.1 Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.897	22.990	22.990	6.897	22.990	22.990	3.534	11.781	11.781
2	3.073	10.245	33.234	3.073	10.245	33.234	2.840	9.466	21.247
3	2.132	7.105	40.340	2.132	7.105	40.340	2.416	8.054	29.301
4	1.804	6.015	46.354	1.804	6.015	46.354	2.385	7.950	37.251
5	1.600	5.334	51.689	1.600	5.334	51.689	2.295	7.649	44.900
6	1.380	4.601	56.290	1.380	4.601	56.290	2.148	7.161	52.061
7	1.268	4.228	60.518	1.268	4.228	60.518	1.941	6.471	58.532
8	1.233	4.109	64.627	1.233	4.109	64.627	1.594	5.314	63.847
9	1.130	3.765	68.392	1.130	3.765	68.392	1.364	4.545	68.392
10	.919	3.063	71.455						
11	.859	2.862	74.317						
12	.830	2.766	77.084						
13	.722	2.408	79.491						
14	.692	2.306	81.797						
15	.671	2.236	84.033						
16	.615	2.051	86.084						
17	.547	1.823	87.907						
18	.488	1.625	89.532						
19	.461	1.536	91.068						
20	.409	1.363	92.431						
21	.352	1.172	93.603						
22	.333	1.110	94.713						
23	.281	.936	95.649						
24	.256	.852	96.500						
25	.219	.729	97.230						
26	.210	.699	97.929						
27	.195	.649	98.578						
28	.168	.560	99.137						
29	.158	.528	99.665						
30	.101	.335	100.000						

Extraction Method: Principal Component Analysis.

TABLE 2A.2 Rotated Component Matrix

	Component								
	1	2	3	4	5	6	7	8	9
1	.792	-.045	.172	.084	-.026	.166	-.238	.086	.090
2	.031	-.054	.009	-.034	-.071	-.041	.035	.721	-.050
3	-.077	.205	.039	.330	.444	.135	.154	.180	.504
4	.663	.177	.195	.091	.022	-.143	.231	.003	.139
5	-.194	.216	.042	.179	.414	-.094	-.028	.567	-.245
6	-.094	-.096	-.016	-.089	-.002	.553	.062	.439	.187
7	.331	.026	.000	.700	-.063	-.185	.076	-.003	.107
8	.136	.334	.325	.316	.332	.217	.373	.123	-.095
9	.495	.501	.147	.270	-.075	-.081	-.037	.164	.410
10	.759	.219	-.018	.305	-.040	.046	.126	-.122	.065
11	.637	.219	.108	.053	-.105	-.208	.107	-.371	-.017
12	.075	.221	-.009	-.087	.804	.067	-.201	-.080	-.055
13	-.035	-.129	.282	.137	.733	-.010	-.001	.075	.144
14	.269	-.041	-.144	.165	-.094	.187	.695	-.033	.192
15	.019	.018	-.012	.245	.060	.795	-.203	-.051	.035

TABLE2A.2 Rotated Component Matrix Cont.

	Component								
	1	2	3	4	5	6	7	8	9
16	-.021	.131	.076	-.030	-.084	-.094	.809	.072	.079
17	.024	.118	.317	.656	.151	.222	-.023	.096	-.104
18	.026	.109	.404	.508	.412	.076	.063	-.169	-.029
19	.243	.499	.223	.405	.077	.120	-.068	-.031	.147
20	.229	.186	.698	-.002	.296	.068	.185	-.206	-.116
21	.518	.350	-.058	.044	.195	-.085	.181	.302	-.166
22	.581	.029	.003	.026	.205	.491	.161	-.077	-.149
23	-.021	.141	.265	-.100	-.031	.738	.225	-.143	.104
24	.030	.117	.697	.127	.373	-.035	-.025	.109	-.050
25	.165	.239	.760	.157	-.231	.188	-.142	.076	.083
26	.318	.408	-.255	.475	-.032	.120	.167	-.006	-.221
27	.161	.831	.137	.025	.072	.095	.031	.078	-.074
28	.104	.784	.268	.110	.110	-.080	.160	-.179	.076
29	.282	.406	.023	.433	.078	.044	.395	-.115	-.116
30	-.122	.048	.085	.121	-.002	-.131	-.161	.191	-.730

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.



UNIVERSITY OF NAIROBI

FACULTY OF COMMERCE

MBA PROGRAM - LOWER KABETE CAMPUS

APPENDIX II

TO WHOM IT MAY CONCERN

LETTER OF AUTHORITY

TO COLLECT DATA

I, *[Signature]*, Lecturer in the Faculty of Commerce, University of Nairobi, hereby authorize *[Name]*, a student of the MBA Program, to collect data for a research project on *[Topic]* as part of his/her coursework assessment. We would like the students to do their research on real problems affecting firms in Kenya. We would therefore appreciate if you could further by allowing him/her to collect data in your organization for the purpose of the research.

The results of the report will be used solely for academic purposes and a copy of the report will be provided to the concerned organizations on request.

[Signature]





UNIVERSITY OF NAIROBI

FACULTY OF COMMERCE

MBA PROGRAM - LOWER KABETE CAMPUS

Telephone 732160 Ext. 208
Telegrams "Varsity", Nairobi
Telex 22095 Varsity

P.O. Box 30197
Nairobi, Kenya

DATE... 31.7.06

TO-WHOM IT MAY CONCERN

QUESTIONNAIRE

The bearer of this letter ... Muganda Ruth A

Registration No: ... D611P13486198

is a Master of Business Administration (MBA) student of the University of Nairobi.

He/she is required to submit as part of his/her coursework assessment a research project report on some management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate if you assist him/her by allowing him/her to collect data in your organization for the research.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.

JACKSON MAALI
CO-ORDINATOR, MBA PROGRAM



QUESTIONNAIRE

The questionnaire has three sections intended to collect information on attitude and e-learning practices of University of Nairobi academic staff. E-learning is a form of learning that utilizes technology, Web browser and content for delivery, interaction, and evaluation of learning.

SECTION A

DEMOGRAPHIC INFORMATION

APPENDIX III

Specify your name and other administrative details

Please specify your department or school you belong to

QUESTIONNAIRE

Have you ever been teaching at the University of Nairobi?

What is your highest level of education?

Master's degree

MBA

PhD/Doctoral degree

Postgraduate

What position do you hold at the University of Nairobi?

Assistant Lecturer

Lecturer

Senior Lecturer

Assistant Professor

Professor

QUESTIONNAIRE

This questionnaire has three sections intended to obtain information on attitude and e-learning readiness of University of Nairobi academic staff. E-learning is a form of learning that utilizes a computer, Web Internet and intranets for delivery, interaction, and facilitation of learning.

SECTION A

DEMOGRAPHIC BACKGROUND

1. Specify your college and faculty school/institute.....
2. Please, specify the department in which you belong
3. Sex
4. Age
5. For how long have you been teaching at the University of Nairobi?
6. What is your highest level of education?
 Masters degree PHD Postdoctoral degree
Other (Please specify)
7. What position do you hold at the University of Nairobi?
 Assistant Lecturer
 Lecturer
 Senior Lecturer
 Associate Professor
 Professor
Other (pleases specify).....

SECTION B

Please indicate your level of agreement to the following statements in regard to e-learning.

1-Strongly agree 2 - Agree 3 -Neutral 4 -Disagree 5 -Strongly disagree.

	1	2	3	4	5
E-learning eases the work of teaching .					
E-learning would eliminate the opportunity for lecturers to get the feedback from students through body language.					
E-learning is a better mode of teaching compared to classroom instruction.					
E-learning would give the University of Nairobi a competitive advantage over other universities in Africa.					
If e-learning is introduced now, I would have difficulties instructing as the university has no established library of programs or cassettes to match my teaching needs.					
Absence of spontaneous real time exchanges in e-learning will make e-learning ineffective.					
E-learning is critical in making University of Nairobi a World-class African university.					
E-learning makes co-ordination of student learning difficult.					
E-learning will enrich the lecturers' job.					
E-learning is necessary for a University to compete globally.					
E-learning prepares one to work in a networked world.					
Privacy, is not assured when using the Internet at the University of Nairobi.					
The security of students' examinations, assignments, and notes when stored online is at risk.					

1 -Strongly agree 2 - Agree 3 -Neutral 4 -Disagree 5 -Strongly disagree.

	1	2	3	4	5
E-learning will reduce the amount of time I spend on traffic jams					
Lecturers' intellectual property will be at stake if e-learning is introduced.					
E-learning will reduce the amount of money I spend on traveling to my place of work.					
E-learning leads to loss of quality of teaching.					
In e-learning it will be difficult to evaluate students online.					
E-learning will enhance my teaching effectiveness					
E-learning will lead to loss of control of students.					
It will be easy for me to learn skills necessary to engage in e-learning.					
Introducing e-learning is a waste of resources.					
In e-learning, students are exposed to information that is harmful to their morals.					
In e-learning, the instructor lacks the opportunity to evaluate student understanding of the content at an instant.					
E-learning is ineffective as it removes social contact between lecturers and students.					
E-learning is a very fast method of disseminating learning content.					
I am sure I can effectively engage in e-learning					
E-learning matches my teaching style					
E-learning will be an improvement over the existing instruction methods.					
Frequent power failures at the University of Nairobi will hinder e-learning initiatives.					

SECTION C

Please, indicate your response to the questions that follow by ticking in the appropriate box.

1. Are you readily accessible to a computer?

Yes

No

2. Is the computer connected to the World Wide Web?

Yes

No

Not applicable

3. Are you able to access the World Wide Web any time the computer?

Yes

No

4. Is the location of the computer convenient for e-learning implementation?

Yes

No

5. Is the location of University of Nairobi e-learning support staff at Chiromo campus convenient for your e-learning needs?

Yes

No

Other (Please specify)

6. Do you think the hours you can access the internet at the University of Nairobi are adequate for e-learning?

Yes

No

7. Do you have own personal computer?

Yes

No

8. Would you be willing to pay for its connection in order to be able to teach even away from office?

Yes

No

9. How often do you surf the Net?

Daily

Weekly

Fortnight

Monthly

Other (Please specify)

10. Where do you normally surf the Net?

University of Nairobi office

Cyber cafe

Home

Other (Please specify)

11. Do you have an e-mail address?

Yes

No

12. Do you sometimes use your e-mail to communicate to students on matters of learning? (Such as sending and receiving assignments, subject updates).

Yes

No

13. If e-learning were implemented, would you be ready to access the internet even without a computer in your office?

Yes

No

Other (Please specify)

14. Do you think speed of internet connection at the University of Nairobi is adequate for e-learning?

Yes

No

Other (Please specify)

15. Would you conduct e-learning with the current state of internet access time at the University of Nairobi?

Yes

No

Other (Please specify)

16. Do you think the level of computer maintenance at the University of Nairobi is adequate for e-learning?

Yes

No

17. Are you ready to teach online with the present level of computer maintenance at the University of Nairobi?

Yes

No

Other (Please specify)

18. Do you feel you have adequate knowledge (such as in word processing, Database management, spreadsheets, graphic design) to adopt to e-learning?

Yes

No

Other (Please specify)

19. Do you think you have adequate skills to go round the Internet?

Yes

No

Other (Please specify)

20. Which of the following online tools are you able to use to communicate with students?

E - Mail

Internet chat and

Instant messenger

Other (Please specify)

21. Are you able to post notices and other learning content onto the Internet?

Yes

No

Other (Please specify)

22. Approximately how much of your subject content is in multimedia form?

Non is an multimedia form

Less than 20%

20 – 40%

40 – 60%

60 – 80 %

Over 80 %

23. Do you think the content of your subject can be delivered wholly online?

All of it

Most of it can be delivered online

Little can be delivered online

Very little can be delivered online

Other (Please specify)

24. Which of the following e – learning activities are you able to undertake?

Developing teaching content for online learning

Averting confusion from parallel contributions by learners on a topic

Organizing, controlling, and evaluating students online.

Other (Please specify)

SECTION D

Please tick option that is true of your position in respect to e- learning.

1. I am not ready to test students online until mechanisms are put in place to control possible cheating in examinations.

True

False

2. I need training on development of e-learning content before I can engage in e-learning

True

False

3. More computers should be availed to students before I can conduct e-learning.

True

False

4. I feel my teaching load should be reduced for me to adopt e-learning.

True

False

5. I am ready to adopt e- learning as any hurdles related to it are corrected gradually.

True

False

6. I can spare some time to organize teaching material for delivery online.

True

False