

**FACTORS INFLUENCING THE USE OF E-LEARNING IN PUBLIC  
UNIVERSITIES IN KENYA**

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## DECLARATION

This research project is my original work and has not been presented for award of degree in any University.

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## **DEDICATION**

To my dear departed parents, Mr Peter Ndung'u Njuguna and Mrs Lucy Watiri Ndung'u, though you are no longer physically with us, your vision and mission endures.

To my family, especially my beloved wife, Zipporah and our lovely children Peter, Lucy, Joe and Jennifer, your unwavering love, support, encouragement and dedication during this challenging and trying study kept me going.

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May the almighty God bless you.

## ABSTRACT

E-learning generally refers to the methods of learning which use electronic instructional content delivered via the internet and is a term which is synonymous with Web-based or online learning. In this age of globalization knowledge acquisition has become the critical means for gaining competitive advantage, and as such learning has become a crucial element of knowledge acquisition, application and creation. The objective of this study was to determine the factors influencing the use of e-learning in Public Universities in Kenya.

E-learning seems unsuitable for those individuals without self-discipline. It requires a lot of self-discipline, mostly because e-learners are busy working adults as explained earlier. Besides, e-learners also seemed to need preparatory training especially in ICT skills in order for them to get used to e-learning environment. On top of these problems, e-learners also face some problems for instance necessity of computer resources, bandwidth problems, lacking physical interactions and limited recognition of e-learning courses etc. These facts show that e-learning is not perfect at the moment and the e-learning providers should consider these limitations to improve e-learning services.

A descriptive survey design was used in finding out the factors influencing the use of e-learning in Public universities in Kenya. The Population of this study was the 19,205 employees (Academic and non-Academic staff) in all public universities. The sample size was 96 employees. A questionnaire was the preferred data collection instrument for this study. Descriptive and inferential statistics were used to analyze the data.

Results revealed perceived usefulness was important in explaining the use of e-learning. This is supported by a p value 0.000 which means that perceived usefulness is a statistically significant predictor of the use of e-learning. Results further revealed that such perceived ease of use is important in determining use of e-learning as demonstrated by a p value of 0.000. Analysis showed that supporting infrastructure is a key determinant in use of e-learning in Universities in Kenya and this was supported by a correlation coefficient of 0.398

## TABLE OF CONTENT

<b>DECLARATION.....</b>	<b>ii</b>
<b>DEDICATION.....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>iv</b>
<b>ABSTRACT.....</b>	<b>v</b>
<b>LIST OF TABLES .....</b>	<b>viii</b>
<b>LIST OF FIGURES .....</b>	<b>ix</b>
<b>CHAPTER ONE: INTRODUCTION.....</b>	<b>1</b>
1.1    Background of the Study.....	1
1.1.1    Public Universities in Kenya.....	3
1.2    Problem Statement .....	5
1.3    Objectives of the Study .....	6
1.4    Value of the Study.....	6
<b>CHAPTER TWO : LITERATURE REVIEW.....</b>	<b>8</b>
2.1    Use of E-learning .....	8
2.2    Factors Influencing use of E-Learning.....	10
<b>CHAPTER THREE: RESEARCH METHODOLOGY .....</b>	<b>21</b>
3.1    Introduction .....	21
3.2    Research Design.....	21
3.3    Population of Study.....	21
3.4    Sampling Design .....	21
3.5    Data Collection.....	22
3.6    Data Analysis .....	22
<b>CHAPTER FOUR: DATA ANALYSIS FINDINGS AND DISCUSSION .....</b>	<b>23</b>
4.1    Introduction .....	23
4.2    Response Rate .....	23
4.3    Sample Demographics.....	23
4.3.1    Gender of the Respondents.....	23
4.3.2    Age of the Respondent .....	24
4.3.3    Level of Education.....	25
4.3.4    Years of Internet Use.....	26

4.3.5	Setting a Reading Timetable.....	27
4.3.6	Adhering to the Timetable.....	27
4.4	Descriptive Results.....	28
4.4.1	E-learning.....	28
4.4.2	Perceived Usefulness and E-learning Use.....	28
4.4.3	Perceived Ease of Use and Use of E-learning.....	29
4.4.4	Supporting Infrastructure and Use of E-learning.....	30
4.5	Pearson’s Correlation Analysis.....	31
4.6	Factor Analysis.....	32
4.7	Summary.....	36
<b>CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS</b>		<b>38</b>
5.1	Introduction.....	38
5.2	Summary.....	38
5.3	Conclusions.....	39
5.4	Recommendations.....	39
5.5	Areas for Further Study.....	40
<b>REFERENCES.....</b>		<b>41</b>
<b>APPENDICES.....</b>		<b>48</b>
	Appendix I: Introduction letter.....	48
	Appendix II: Questionnaire.....	49

## LIST OF TABLES

Table 4.1: Response Rate.....	23
Table 4.2: Years of Internet Use.....	26
Table 4.3: Setting a Timetable.....	27
Table 4.4: Adhering to the Timetable.....	27
Table 4.5: E-learning.....	28
Table 4.6: Perceived Usefulness and E-learning.....	29
Table 4.7: Perceived Ease of Use and E-learning.....	30
Table 4.8: Supporting Infrastructure and E-learning.....	31
Table 4.9: Pearson's Correlation.....	32
Table 4.10: Perceived Usefulness.....	32
Table 4.11: Component Matrix for Perceived Usefulness.....	33
Table 4.12: Perceived Ease of Use.....	34
Table 4.14: Supporting Infrastructure.....	35
Table 4.15: Component Matrix for Supporting Infrastructure.....	36

## LIST OF FIGURES

Figure 4.1: Gender .....	24
Figure 4.2: Age .....	25
Figure 4.3: Level of Education .....	26

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background of the Study**

E-learning generally refers to the methods of learning which use electronic instructional content delivered via the internet and is a term which is synonymous with Web-based or online learning (Trombley and Lee, 2002). In this age of globalization knowledge acquisition has become the critical means for gaining competitive advantage, and as such learning has become a crucial element of knowledge acquisition, application and creation (Longworth and Davies, 1996).

According to John Chambers (in Rosenberg, 2001), “the biggest growth in the Internet, and the area that will prove to be one of the biggest agents of change, will be in e-learning.” The demand for a well-educated workforce has driven many countries to rethink their education systems. An education system has to be suited to the demands of the technological age so that a competitive edge can be maintained. Such demand for a technology savvy workforce is reflected in Alvin Toffler’s declaration (in Rosenberg, 2001: 3), that “the illiterate of the 21st century will not be those, who cannot read and write but those who cannot learn, unlearn, and relearn.” An ancient proverb says: “if we don’t change our direction, we’ll end up exactly where we are headed” (in Rosenberg 2001: 41). This indicates that learning institutions will have to constantly change and adapt in their environments if they are not to lag behind.

According to (Galagan, 2002), “classrooms could not possibly work today, but centuries ago, they made sense: one literate person reading to the illiterate from what might have been the town’s only book, but technology and times have changed.” The advantages that technology provides to training and learning include not only the possibility of one-on-one interaction for every learner, the ability to simulate new ideas, the chance to try things out at one’s own pace and to fail in private without the fear of ridicule from other students (Galagan, 2002). The Internet has also become an important instructional tool to facilitate the transfer of many types of information from one computer to another, and is

rapidly becoming an effective means of communication in schools and colleges. Internet-based instruction has been manifested in one-to-one (tutor-to-student), one-to-many (tutor-to-group) and many-to-many (group-to-group) approaches to instruction. The forms of communication may be synchronous with all parties communicating within the same time frame; or it may be asynchronous, where there may be a time delay between the communicators when sending, receiving and replying to any given communicative event (Webb et al, 2004).

Kenya recognizes that the education and training of all Kenyans is fundamental to the success of the Vision 2030. Education equips citizens with understanding and knowledge that enables them to make informed choices about their lives and those facing Kenyan society. The education sector will, therefore, provide the skills that will be required to steer Kenyans to the economic and social goals of Vision 2030. Vision 2030 is based on the creative talents capable of raising Kenya's international competitiveness through enhanced productivity at the microeconomic (industry) and national levels. Throughout the education system, learning will inculcate the use of knowledge in science, technology and innovation (STI) to create wealth, improve social welfare and promote democratic governance. Appreciation of the critical role of STI to the Vision is based on the understanding of today's knowledge-based economies (KBEs) and the role that innovation plays in such economies. A knowledge economy creates, adopts, and adapts information on production and distribution of goods and services, making it the focal point and the engine of rapid economic growth. That is where Kenya wishes to position itself (Vision 2030).

Effective use of knowledge is becoming the most important factor for creating wealth and improving social welfare and for international competitiveness. Implementing Vision 2030 will require more knowledge-based skills. This calls for more training in science-related and technology-related courses. Kenya's road to become a KBE will therefore not be restricted to the realm of high technology, but will extend to the application of science and technology in the economy, targeting areas such as pharmaceuticals, scientific instrumentation, and information and communication technologies. These are expected to

increase the growth momentum in the priority factors thereby giving a boost to the economy as a whole.

However, Vision 2030 also notes that, at the college and university level, there is a serious shortage of capacity, both in public and private institutions, as only about 30 per cent of those with minimum entry requirements can be admitted. Although enrolment in public universities has increased over time, the high cost continues to limit access for a large number of qualified students. As for private universities, enrolment remains low at 12.7 per cent of total admissions. It is therefore justified to employ emerging technologies such as e-learning to solve the capacity and cost problems stipulated in Vision 2030.

The Commission of Higher Education (CHE) Handbook Sessional Paper No. 1 of 2005, recognises The Commission of Higher Education (CHE) as the national quality assurance agency for university and tertiary education. It affirms that a national accreditation system is necessary as a means of guaranteeing quality in education and training” (CHE handbook, 2008, p.12). According to the speech read to the Pan-Africa Conference on e-learning (in Addis Ababa, Ethiopia) by the then Assistant Minister of Higher Education, Science and Technology in Kenya, Hon. Beth Mugo the Government stated its commitment to this Sessional paper as a policy blueprint. She further declared that the Government had instituted budgetary support for e-learning for basic as well as tertiary levels of education (Mugo, 2006, p.2).

### **1.1.1 Public Universities in Kenya**

The Kenyan higher education system developed from Makerere Technical College which from its inception in 1922 served the education needs of the three (3) countries in the East African region namely: Uganda, Tanganyika and Kenya. In 1949, Makerere became a university college of the University of London in line with the recommendation of the Asquith Commission on Higher Education. The Royal Technical College was set up in 1956 as Kenya’s first higher education institution with the primary goal of providing students with an avenue of enrolling for engineering and commercial courses not offered

by Makerere. The programmes offered here led to a higher certification at the University of London, Britain. In 1958, upon the recommendation of a working party it was renamed the Royal College of Nairobi and upgraded into a university college offering University of London degrees. In 1963 when Kenya attained her independence the Royal College was renamed the University College of Nairobi and together with Makerere and Dar-es-Salaam Colleges in Uganda and Tanzania respectively formed the Federal University of East Africa (UEA) which later disbanded in 1970. Each of the East African countries thereafter concentrated in developing their own national universities (Ngome, 2006, p.360).

The Asquith model involved the mentoring of institutions in the colonies, consequently new institutions were linked to established universities as university colleges. This colonial model was created to guide university expansion through apprenticeship. It was arguably successful in that the University College of Nairobi (later renamed University of Nairobi through an Act of Parliament in 1970) was responsible for the conception of the Kenyatta University College which became autonomous in 1985. The latter was then responsible for the mentoring of the Jomo Kenyatta University College of Agriculture and Technology into a fully-fledged university (Davis & Eisemon, 1993, p.83). The name college was subsequently dropped from the universities titles.

The number of universities in Kenya has been increasing by the day. According to Wikipedia, there are currently twenty two public universities in Kenya namely: University of Nairobi (UON), Kenyatta University, Moi University, Egerton University, Jomo Kenyatta University of Agriculture and Technology, Maseno University, Masinde Muliro university of Science and Technology, Dedan Kimathi University of Technology, Chuka University, Technical University of Kenya, Technical University of Mombasa, Pwani University, Kisii University, University of Eldoret, Maasai Mara University, Jaramogi Oginga Odinga University of Science and Technology, Laikipia University, South Eastern Kenya University, Multimedia University of Kenya, University of Kabianga, Karatina University and Meru University of Science and Technology.

## 1.2 Problem Statement

The education sector has been pinpointed as a crucial sector in ensuring that Kenya meets the objectives stipulated in Vision 2030 such as the achievement of annual economic growth of 10%. In addition, the Millennium Development Goals have earmarked the education sector as crucial in bringing about socio economic change to Kenya and other developing economies. Nyamute (2007), argues that the reason for the economic prosperity of the Asian Tigers stems from development of human capital through an effective education and learning system. It is noted that the education infrastructure in developing countries in general and Kenya in particular is a far cry from ideal. In addition, capacity constraints bedevil the education sector; hence, a paradigm shift is necessary in delivering education and training to citizens through unconventional means such as e-learning. Advocates of E-learning concept may allude to the concept of mobile money transfers such as Mpesa, that is, the ability to use technology to leap frog some stages of socioeconomic development.

While, the e-learning concept is noble and novel, its successful adoption and use by economic agents such as households and firms has been wanting. This study argues that there are factors that affect the adoption and use of e-learning by universities. It is also possible to argue that those universities (teachers and students) who are doing better in the use of e-learning may possess some distinct factors that distinguish them from the poor users/non users of e-learning. The study therefore wishes to establish these factors that influence the use of e-learning.

Local studies on the concept of e-learning are scarce. Mbogo (2008), conducted a study on the determinants of employee dropout in corporate web-based learning and took a case study on Hilton Hotel Nairobi. Sang (2003), conducted an assessment of the readiness of institutions to offer electronic learning and took a case of Egerton University and concluded that there was no relationship between the attitude, perception and exposure of-the lecturers and the institution readiness to offer e-learning. Mulwa, Kyalo, Mboroki and Bowa (2012), conducted a study on the Influence of Human Resource Capacity on

Readiness to Adopt E-Learning in Secondary Schools in Kitui District, Kenya and concluded that that human resource capacity had influence on the readiness to adopt e-learning. However the influence was not statistically significant as the human resource capacity was not adequate to support the adoption of e-learning in secondary schools in Kitui district. Mungania (2003), carried out a study on the seven e-learning barriers facing employees and concluded that four key factors emerged as significant predictors of e-learning barriers, namely organization, self-efficacy, computer competence, and computer training. However, all the above studies seem to indicate a difference of opinions and lack conclusiveness as to what exactly are the factors influencing e-learning use in Public Universities in Kenya.

### **1.3 Objectives of the Study**

The objective of the study was to determine the factors influencing the use of e-learning in Public Universities in Kenya.

### **1.4 Value of the Study**

The study would be beneficial to Universities in Kenya and other worldwide educational institutions. These institutions' could use the study findings to identify those factors that influence the use of e-learning. For instance, if investment in ICT tools such as computers and internet contribute to the successful completion of e-learning courses, then universities can make an organization policy which will enhance investment in ICT tools.

The Government of Kenya, specifically, the Ministry of education could find this study very useful in understanding the determinants of successful use of e-learning. As noted previously in this study, Vision 2030 has earmarked the education sector as an important flagship project which will enhance the competitiveness of Kenya.

Private sector firms, parastatals and NGOs would find the study findings useful in an effort to popularize e-learning in their organizations. Trainings firms could have a field

day as the study exposed opportunities in the e-learning market. Such firms would thus approach firms with challenges in successful completion of e-learning courses and offer preparation services to students and also technical training in the use of online courseware

## **CHAPTER TWO : LITERATURE REVIEW**

### **2.1 Use of E-learning**

In today's knowledge economy, learning is needed to survive and to thrive. In this sense, knowledge is power and proliferation of knowledge through E-learning is not a luxury but a necessity for current and future generations. In this context, distance learning has become an imperative. The need is constant while the nature of our society and economy drives the need for learning. The demand and use of alternatives to the typical classroom setting has been ongoing for more than 100 years from correspondence courses in paper form through video and computer access (Zu, 2008).

In a world where the power of technology resides in our pockets, it is no longer acceptable to train and empower our workforce through out-dated and traditional methods of learning. As the corporate learning culture continues to evolve, employers and managers are now tasked with ensuring current learning and development models keep up with changes in technology and in the workforce. At the forefront of this change is e-Learning, which provides organisations with the tools to integrate readily available technology to create a holistic and continuous learning platform (Edutech, 2013).

It is also extremely effective to use e-learning in classroom environments where modern technology may not be available to all students, or in schools where there are not sufficient resources for all students to be able to use a device. In such a situation, using a mobile learning device like a single tablet, which may be passed easily from hand-to-hand or shared amongst a group of students, is a great way to ensure that pupils are still able to benefit from the diverse opportunities presented by education technology (Bates, 2012).

One of the main benefits of e-learning is being able to do the learning in your own time, at your own pace and also in your own environment. The benefit of being able to do this results in a higher uptake, because if you set the learning to take place at a certain time

then you're obviously not going to be able to get everyone involved, but if it is at your own leisure then people are going to be more inclined to be able to do it. The downside to this is that if you do allow people the freedom to learn when they want, then some people may not do it or forget about it, so reminders are necessary. Having a due by date outlining when to complete the learning also helps. Results can be good and results can be mixed. You might find that the topic of the learning dictates how people provide feedback. If you force people to learn for example in the topic of compliance, there can be a little pushback and resentment around because they might feel they know the topic well enough already. But at the end of the day they have to learn about it (Edutech, 2013).

E-Learning means that you no longer need to spend long periods travelling to a location to attend a course; you can now have access to learning when you want it, at the time you want it - day or night, wherever you want it - at home, at work, in your local library. For many students this has opened up a new, much more flexible and accessible world of learning that was previously closed to them due to disability or family circumstances, or perhaps due to the fact that the course they wanted was on the other side of the world. In other words, there are now no longer any geographical constraints to learning; e-learning brings learning to people, not people to learning. E-Learning means that learning no longer needs to be a passive experience, with the learners all sitting in front of the teacher and "learning by telling", e-learning makes learning an active experience. The emphasis is on interactivity or "learning by doing" (Knight, 2003).

The role that communication and interaction plays in the learning process is a critical success factor in contemporary educational paradigms. It is within this context that e-learning (electronic learning) and especially m-learning (mobile learning) can and should contribute to the quality of education. M-learning offers opportunities for optimising interaction and communication between lecturers and learners, among learners and members of COPs (communities of practice). M-learning thrives within the contemporary social constructivist paradigm because of its richness in terms of communication and interaction, both synchronous and asynchronous. Wireless and mobile technologies also

make it possible to provide learning opportunities to learners that are either without infrastructure for access (e.g. rural or remote learners) or continually on the move (e.g. business professionals). The relevance of m-learning for Africa lies in the fact that the majority of learners in Africa are without infrastructure for access. Interesting to note is that the adoption rate of mobile technologies in Africa's developing countries, is among the highest rates globally.

## **2.2 Factors Influencing use of E-Learning**

This section reviewed studies that have investigated the factors that influenced the use of e-learning. It presented the objective of the reviewed studies, their main findings and pertinent conclusions and recommendations.

Sun, Tsai, Finger, Chen and Yeh (2008), conducted a study on what drives a successful e-Learning. The study developed an integrated model with six dimensions: learners, instructors, courses, technology, design, and environment. A survey was conducted to investigate the critical factors affecting learners' satisfaction in e-Learning. The results revealed that learner computer anxiety, instructor attitude toward e-Learning, e-Learning course flexibility, e-Learning course quality, perceived usefulness, perceived ease of use, and diversity in assessments are the critical factors affecting learners' perceived satisfaction. The results showed institutions how to improve learner satisfaction and further strengthen their e-Learning implementation.

Reynolds (2002), conducted a study on Motivational Factors that Influence e-learning course Completion Rates and argued that currently e-learning technology was being used to train and educate a myriad of personnel and each year enrolment numbers grow. Evidence shows, however, that completion rates among e-learners were lower than that of traditional learners. Motivational theory was applied to this problem to explain why e-learners initiate, sustain, and terminate behaviour. In particular, an integrative motivational model, that highlighted distal and proximal processes, was introduced to identify and measure those factors most likely to influence e-learning course completion rates. Findings offered recommendations that would be useful to e-learning course

instructors, administrators, and designers. Three research questions, guided by 13 hypotheses, were used to investigate motivational theory and its relation to e-learning course completion rates. Eight (8) e-learning courses were analyzed along with 497 responses received from an on-line survey. Data was coded according to whether the student completed or dropped the course. Statistical analysis showed that e-learners are more likely to invest their time, talent, and energy when they encounter fewer technical problems, fewer distractions, and more environmental support from supervisors and instructors. Furthermore, lengthy modules and low self-efficacy were found to decrease the motivational tendency to persist. Overall, results demonstrated that motivational theory can be used to predict and explain those factors most likely to influence a person's desire to "go the distance" with e-learning.

Penny and Kay (2011), carried out a study on factors that influence student E-Learning participation in a UK higher education institution and argued that the higher education sectors were concentrating on increasing the use of online applications of e-learning by using the internet to enhance education. With the rapid growth of e-learning, computers were now being used by students in many different educational processes and were considered to be valuable tools to enhance-learning in higher education.

Wenger (1998), argued that participation is an intrinsic part of learning; hence a key challenge for e-learning was to enhance student participation. It was believed that learner participation would be enhanced by the use of computer-mediated media in both traditional and e-learning settings (Haythornwaite, 2002; Leidner & Jarvenpaa, 1995; Bento & Schuster, 2003). Online learner participation has been defined as a process of learning by taking part and maintaining relations with others, a complex process comprising doing, communicating, thinking, feeling and belonging, which occurs both online and offline (Hrastinski, 2008). Hrastinski (2009), provided a review of the literature in the area of online learner participation and claims that participation and learning are intricately interrelated and that, in order for learners to take full advantage, the participation experience needs to be satisfactory.

Mahdizadeh, Biemans, Mulder (2007), conducted a study on determining factors of the use of e-learning environments by university teachers. This study was designed to identify factors that can explain teachers' use of e-learning environments in higher education. A questionnaire was completed by 178 teachers from a wide variety of departments at Wageningen University in the Netherlands. The authors found that 43% of the total variance in teacher use of e-learning environments could be explained by their opinions about web-based activities and their opinions about computer-assisted learning (predictors) and the perceived added value of e-learning environments (mediating variable). In other words, teachers' use of e-learning environments could be explained to a high extent by their perceptions of the added value of these environments, which in turn were substantially influenced by their opinions about web-based activities and computer-assisted learning.

Al-adwan and Smedley (2012), conducted a study on the factors affecting impact of Implementing e-learning in the Jordanian Higher Education System. The study explored the factors that influenced the development of learning through technology at two Jordanian universities, focusing on full-time staff and students. They noted that the increased involvement of technology in all aspects of our lives places educational institutions under pressure to include these aspects at the heart of their learning. This ensures that they continue to be competitive in a constantly changing market with international and cultural links. The study also considered the general attitude towards engaging in learning through technology with outcomes demonstrating that training and development was required prior to implementation to adequately support the e-learning transition. The organisational infrastructure often presents the greatest barrier to such developments. Informed by the outcomes of the study, a training and development programme was designed, developed and implemented to support the cultural change and increase its impact.

A New Zealand university research study (Butson, 2005), on the use of web-based technologies suggested that e-learning adoption may be driven by the technology itself as, according to the survey data, teachers saw no significant advantage in using web

based technologies and there were no institutional or faculty drivers for web-based teaching. If this hypothesis is correct, and the technology does, in fact, drive e-learning adoption, poor quality of e-learning was to be expected. Rogers (1995), indicated that providing incentives for adoption of an innovation may change the patterns of adoption; the use of incentives may lead to adoption by individuals different from those who would have adopted it otherwise, and may negatively affect sustainability of adoption. It would increase the rate of adoption, but lead to a reduction in quality. Work done by Elgort (2005), on E-learning adoption clearly showed that the e-learning adoption decision was frequently motivated by student pressure. Elgort noted that “like organizational incentives, student pressure may facilitate the rate of adoption of e-learning at the expense of its quality, resulting in a ‘surface’ approach to e-learning”.

Abdel-Wahab (2005), wrote on “modeling students’ intention to adopt e-learning: a case from Egypt”, and the results of the study suggested that the best subset of predictors that can be used in modeling a student intention to adopt e-learning includes: attitudes towards e-learning, usefulness of e-learning, ease of e-learning use, pressure to use e-learning, and the availability of resources needed to use e-learning. Ndubisi (2004), also found out from his study that ‘attitude has an important direct influence on intention to adopt e-learning’. Attitude is anchored usefulness, ease of use, and system’s security. Perceived behavioural control was also noted as another important determinant of interaction. Ndubisi concluded that “in order to enhance e-learning adoption intention and in turn acceptance among Malaysian students, interested parties to this learning arrangement must try to build favourable attitude through enhanced usefulness and ease of use perceptions, as well as security.

Brown (2009) and Sahlfeld (2009), both agreed that availability of a good variety of reliable ICT equipment enhanced learners’ ICT competencies and literacy. Gobbo and Girardi (2001), Ritz (2009), and Sang et al (2009), all indicated that teachers’ ICT literacy level influenced how learners used ICT in a school. Zhao and Bryant (2009), in their study found out that besides teachers’ ICT literacy level, availability of ICT support staff improved learner’s competencies and ICT usage. It was noted in this study that there

was total lack of ICT support staff in all the study schools. It could therefore be stated that this affected the learners negatively since the ICT laboratory remained closed once the teachers were busy elsewhere.

Friesen (2009), noted that school rules and regulations affected the ICT components learners access. At the same time, McCarthy and Berger (2008), further indicated that a school's ICT policy greatly affected whether a student chooses to pursue studies in technology. According to Juma (2003), AVU was established because of the realization that, "tertiary institutions in their present forms, overwhelmed with problems related to access, finance, quality and internal and external efficiency are unable to bridge the knowledge gap. Limited space and declining budgets prevent universities from servicing the growing demands of higher education" (p.210).

E-learning is basically a web-based system that makes information or knowledge available to users or learners and disregards time restrictions or geographic proximity. Although online learning has advantages over traditional face-to-face education (Piccoli et al., 2001), concerns include time, labor intensiveness, and material resources involved in running e-learning environments. The costly high failure rate of e-learning implementations discussed by Arbaugh and Duray (2002), deserves attention from management and system designers. Mason and Weller (2000), in an experiment on a web-based course, "your computer and the Net", found that web-creation skills, previous computing experience, group collaboration and input of time are important factors affecting students' acceptance of the long distance education system.

Arising from extensive literature review, Wong (2007), argues that e-learning limitations can be categorized as technological limitations, limitations compared to traditional campus, and personal issues. Limitations that do not fit into these categories are considered as other limitations. Students need necessary hardware for e-learning such as desktop or notebook computers and printers (Kathawala, Abdou, Elmulti, 2002; Hiltz, 1997). Therefore, one of the major technological limitations of e-learning is the necessity of computer hardware and relevant resources.

Kember et al. (2001), mentioned that preparation is indeed needed for newcomers as they may think that nontraditional learning such as e-learning is the same as a traditional learning environment. Another limitation that is related to time is self-discipline. Working adults are learners who might lack the self-discipline needed to learn while handling work and family commitments. In order to be successful in e-learning one has to learn new skills and technologies. Evan & Hasse (2001), found out that learners are moderately lacking in computer proficiency.

E-learning seems unsuitable for those individuals without self-discipline. It requires a lot of self-discipline, mostly because e-learners are busy working adults as explained earlier. Besides, e-learners also seemed to need preparatory training especially in ICT skills in order for them to get used to e-learning environment. On top of these problems, e-learners also face some problems for instance necessity of computer resources, bandwidth problems, lacking physical interactions and limited recognition of e-learning courses and etc. These facts show that e-learning is not perfect at the moment and the e-learning providers can consider these limitations to improve e-learning services (Wong, 2007).

Davis' (1989), TAM is widely used to study user acceptance of technology. The measures presented in Davis' study target employee acceptance of organizational software, but these measures have been tested and validated for various users, experienced and inexperienced, types of systems, word processing, spreadsheet, email, voicemail, etc., and gender. Studies have also used TAM to evaluate user adoption of e-commerce. TAM is based on the theory of reasoned action, which states that beliefs influence intentions, and intentions influence one's actions (Ajzen & Fishbein, 1972). According to TAM, perceived usefulness (PU) and perceived ease of use (PEOU) influence one's attitude towards system usage, which influences one's behavioral intention to use a system, which, in turn, determines actual system usage.

The Diffusion of Innovation theory is often regarded as a valuable change model for guiding technological innovation where the innovation itself is modified and presented in ways that meet the needs across all levels of adopters. It also stresses the importance of communication and peer networking within the adoption process. In simple terms, the diffusion of innovation refers to the process that occurs as people adopt a new idea, product, practice, philosophy, and so on. Rogers (1995), mapped out this process, stressing that in most cases, an initial few are open to the new idea and adopt its use. As these early innovators ‘spread the word’ more and more people become open to it which leads to the development of a critical mass. Over time, the innovative idea or product becomes diffused amongst the population until a saturation point is achieved. Rogers distinguished five categories of adopters of an innovation: innovators, early adopters, early majority, late majority, and laggards. Sometimes, a sixth group is added: non-adopters.

Venkatesh, Morris, Davis and Davis (2003), created an integrated model called Unified Theory of Acceptance and Use of Technology (UTAUT), in which eight models previously used in the information technology literature were merged. UTAUT helps managers assess the likelihood of success for new technologies as well as understand the drivers of technology acceptance. The UTAUT model identifies the determinants of user acceptance and usage behavior. Accordingly, there are four core determinants of intention to use and usage of the technology. Three are direct determinants of intention to use the technology namely performance expectancy, effort expectancy and social influence while intention to use and facilitating conditions are two direct determinants of usage behavior. They also identified four moderators of these key relationships namely gender, age, experience and voluntariness of use.

Mbogo (2008), conducted a study on the determinants of employee dropout in corporate web-based learning and took a case study on Hilton Hotel Nairobi. The author concluded that younger employees were more likely to continue with e-learning courses compared to older employees. In addition, gender did not seem to matter in the corporate web base e-learning. Possession of basic computer training was negatively and significantly related

with drop out Technical courses such as financial management experienced a higher dropout rate than basic courses such as customer care and time management. In conclusion, the author advocated that organizations should take this factor into consideration when designing corporate web-based learning programs.

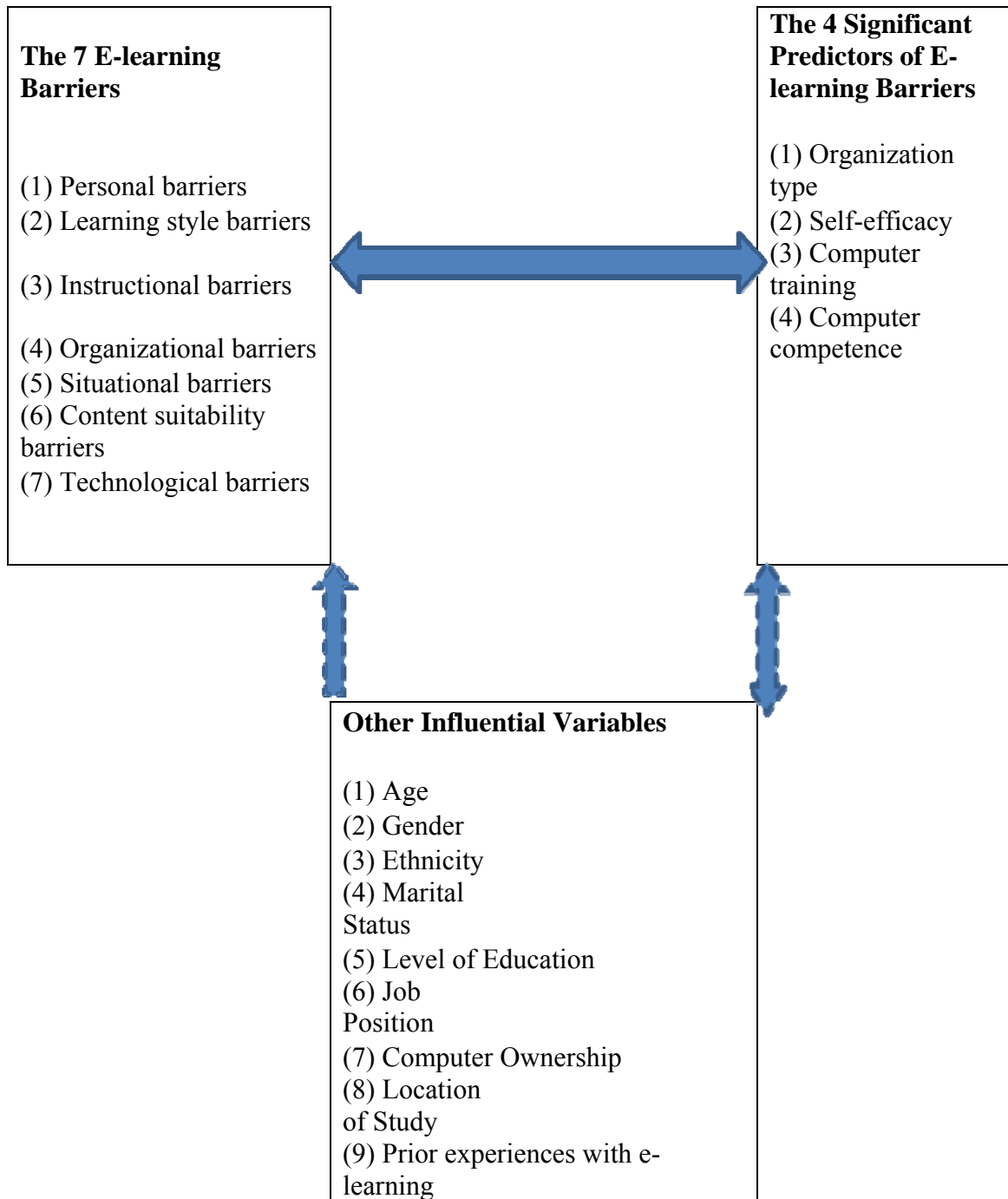
Sang (2003), conducted an assessment of the readiness of institutions to offer electronic learning and took a case of Egerton University. The research study assessed the institutions readiness for e-learning, it identified the several factors of e-learning readiness in the literature and through the use of questionnaires and observation. These factors were explored further to determine the effect of lectures attitude, perception and exposure, on e-learning readiness. A convenient number of Egerton University lecturers were sampled through stratified random selection procedure. Correlation analysis was used to analyze the data and in testing the hypotheses. The data analyzed showed that there is no relationship between the attitude, perception and exposure of-the lecturers and the institution readiness to offer e-learning. The findings can be used by lecturers and administrators to come up with an effective e-learning strategy.

Mulwa, Kyalo, Mboroki and Bowa (2012), conducted a study on the Influence of Human Resource Capacity on Readiness to Adopt E-Learning in Secondary Schools in Kitui District, Kenya. The independent variable of the study was Human resource capacity, indicated by skills in ICT; availability of support staff; and availability of time to apply e-learning in the teaching and learning processes. The dependent variable was Readiness to adopt e-learning indicated by availability of sufficient e-learning equipment; and availability of relevant skills in handling e-learning. A single questionnaire coupled with observation schedule were used to collect data from 15 provincial and 36 District public secondary schools, selected through stratified random sampling. Null hypotheses were tested using one way ANOVA at 0.05 and regression analysis. The study established that human resource capacity had influence on the readiness to adopt e-learning. However the influence was not statistically significant. Generally, the human resource capacity was not adequate to support the adoption of e-learning in secondary schools in Kitui district. It was recommended that the government should seek to address the issue of human

resource capacity in preparation to adopt e-learning in secondary schools in Kitui District and indeed all other districts before embarking on full scale implementation of e-learning in schools

Mungania (2003), carried out a study on the seven e-learning barriers facing employees. An anonymous validated Web-based survey was used to collect data, showing the viability of Web-based surveys as a tool for promoting e-learning and organizational research. The Barriers in E-learning and Self-Efficacy (BELSE) survey was used to collect self-reported data, administered to a convenient sample of employee volunteers. The participants were employees in seven organizations in the United States and abroad. These organizations represent manufacturing, oil exploration & manufacturing, IT consulting, wholesale distribution, public school district, and a military division. Four key factors emerged as significant predictors of e-learning barriers, namely: (1) organization, (2) self-efficacy, (3) computer competence, and (4) computer training. Computer competence and self-efficacy were negatively associated with barriers. Thus if one reported high self-efficacy, this was associated with fewer the barriers. Those who rated themselves as having no computer training and with low levels of computer skills were more likely to say they encountered barriers. Age, gender, ethnicity, marital status, level of education, prior experiences with computers and e-learning, computer ownership, location of study, and job position are not statistically significant predictors of barriers as presented in figure 2.1.

Figure 2.1: E-learning Barriers and Predictor Variables



(Source, Mungania 2003, Page 8)

Ndeta (2003), stated that there is little literature on the use of ICT in Kenya. The government of Kenya and its partners launched a poverty eradication strategy where the role of ICT was considered as minimal in poverty eradication. However, in the Kenya's Poverty Reduction Strategy Paper for the period 2001-2003, the government recognizes that telecommunication, information services, and IT sectors are important for economic growth. The reasons for lack of ICT-services in Kenya are bureaucracy, lack of professionalism in the business sector, corruption, illiteracy, and poverty. She further observes that “this little-used service” may die before it grows unless more effort is put in to make it accessible to the people of Kenya (Ndeta, 2003: 94). This has meant that the Internet is a secondary need especially to rural elites since they first need to learn how to handle a computer before using it. In addition, the cost is high for average users. This does not apply to the educated Kenyans who have a good salary. Furthermore, Ndeta stresses, the Kenyan government intends to strengthen its IT capacity and improve service delivery for all by working with entrepreneurs to drive down prices by increasing competition. As a result, the government proposed the provision of digital villages.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter describes the various methodologies that were used in gathering information, procedures adopted in conducting the research, the techniques used in analysis and the presentation of data collected. This chapter therefore focuses on the research design, population, population sample, sample design and data collection and analysis applied during the study.

### **3.2 Research Design**

A descriptive survey design was used in finding out the factors influencing the use of e-learning in Public universities in Kenya. A survey study of Public universities in Kenya were taken. A survey research design is an attempt to collect data from more than one member of a population. A survey research could be descriptive, exploratory or involving advanced statistical analyses (Mugenda and Mugenda, 2003). This descriptive survey research design was preferred because data is collected without manipulation of the variables (Kothari, 1990). This means that the researcher is able to report things the way they are (status quo).

### **3.3 Population of Study**

Breakwell (1995), defines population as the set of all “units” of analysis in one’s problem area. According to Commission for University Education (2013), there are 22 Public Universities. The Population of this study was the 19,205 employees (Academic and non-Academic staff) in all public universities (Ethnic Diversity and Audit of public Universities Report, 2013).

### **3.4 Sampling Design**

According to Nesbary (2000), a sample is a subset of a population that has been selected to reflect or represent characteristics of a population. The study applied convenient

sampling, where 0.5 % of respondents from each public university representing the two levels of staff were taken. This implies that the sample size was 96 employees.

Table 3.1: *Sample Size*

	<b>Population</b>	<b>Sample</b>
Academic staff	14238	71
Non Academic Staff	4967	25
<b>Total</b>	<b>19205</b>	<b>96</b>

Source: Author (2013)

### **3.5 Data Collection**

A questionnaire was the preferred data collection instrument for this study. According to Kumar (2005), a questionnaire is a written list of questions, the answers to which are recorded by respondents. The questionnaire comprised both open and closed ended questions. A questionnaire would be most preferred by respondents for anonymity. Drop and pick questionnaires ensured that the researcher does not disrupt the respondents working schedule. To ensure that the respondents of the study have experience in e-learning, snowballing was used where a respondent was expected to give a referral of another respondent who has undertaken an e-learning course.

The questionnaire consisted of the following parts; Demographic characteristics, technological factors, personal factors, design factors and use of e-learning in Public Universities in Kenya.

### **3.6 Data Analysis**

Descriptive and inferential statistics were used. The data was fed into SPSS version 17 (statistical package for social sciences). The particular inferential statistics to be used were factor analysis and correlation analysis.

The data was presented using frequency distribution tables and charts.

## CHAPTER FOUR: DATA ANALYSIS FINDINGS AND DISCUSSION

### 4.1 Introduction

This chapter comprises of results derived from data analysis. Data was gathered by use of questionnaires as derived from the research objectives. The data collected from respondents is presented and summarized using tables and figures. The descriptive results are presented first followed by the inferential statistics (correlation and factor analysis).

### 4.2 Response Rate

The target sample for the study was 96 which included 71 of the academic staff while 25 were the non-academic staff. The findings are presented in Table 4.1. The overall response rate was 71% of the total questionnaires issued.

Table 4.1: Response Rate

<b>Category</b>	<b>Sample</b>	<b>Responses</b>	<b>percent</b>
Academic staff	71	56	78.00%
Non Academic Staff	25	16	64.00%
<b>Total</b>	<b>96</b>	<b>69</b>	<b>71.00%</b>

Source: Author (2013)

### 4.3 Sample Demographics

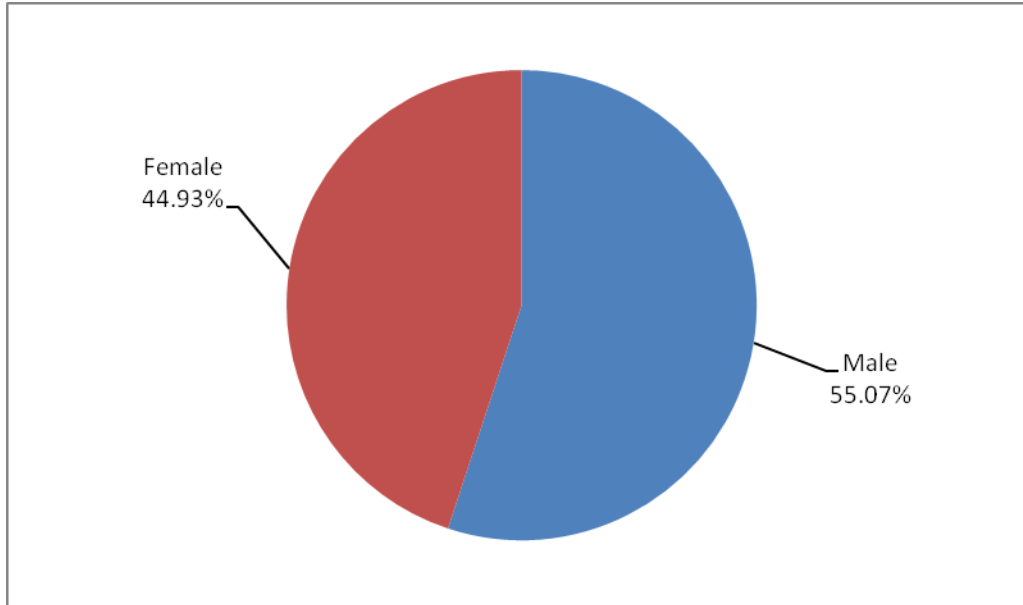
This section presents the demographic characteristics of the data specifically, the gender, age, level of education, years of internet use, discipline in setting of a reading timetable and discipline in adhering to the timetable.

#### 4.3.1 Gender of the Respondents

The study sought to establish the gender of the respondents in relation to e-learning. From the findings it was found that majority of the respondents were male who comprised of 55.07%. Female respondents were relatively close range at 44.93% as

presented in Figure 4.1. This can be explained by the fact that majority people, irrespective of gender, have access to e-learning tools in their daily life.

Figure 4.1: Gender

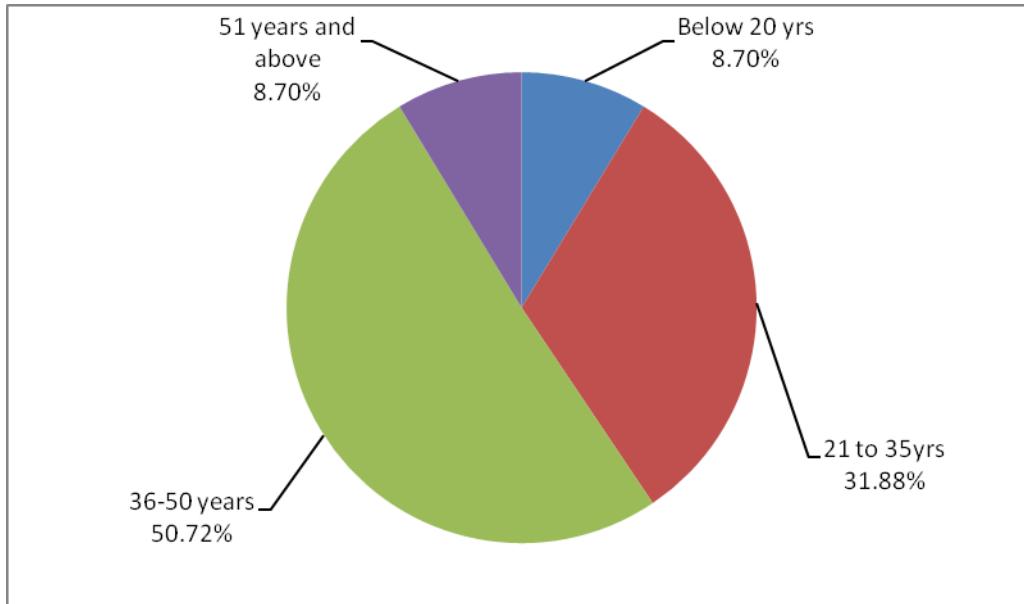


Source: Author (2013)

#### 4.3.2 Age of the Respondent

The respondents were asked to indicate their age and the findings are presented in Figure 4.2. Majority of the respondents 50.72%, were persons aged between 36 to 50 years. This can be explained by the fact that e-learning is currently predominantly used in non-academic career enhancing training. This particular age group is involved in this phase of study. Those aged between 21 to 35 years comprised a statistically large proportion at 31.88%. This can be explained by the factor those in this age bracket are just getting into employment and starting on career enhancing training which is the area that is predominantly using e-learning. Respondent who were below 20 years of age comprised 8.70% of the respondents. This can be explained by the fact that majority of people in the below 20 years age bracket are still pursuing basic education and majority are yet to be employed. The respondents who were above 51 years were also minimal with 8.70% which can be explained by the fact that most of them have little exposure to computers as this technology was recently implemented.

Figure 4.2: Age

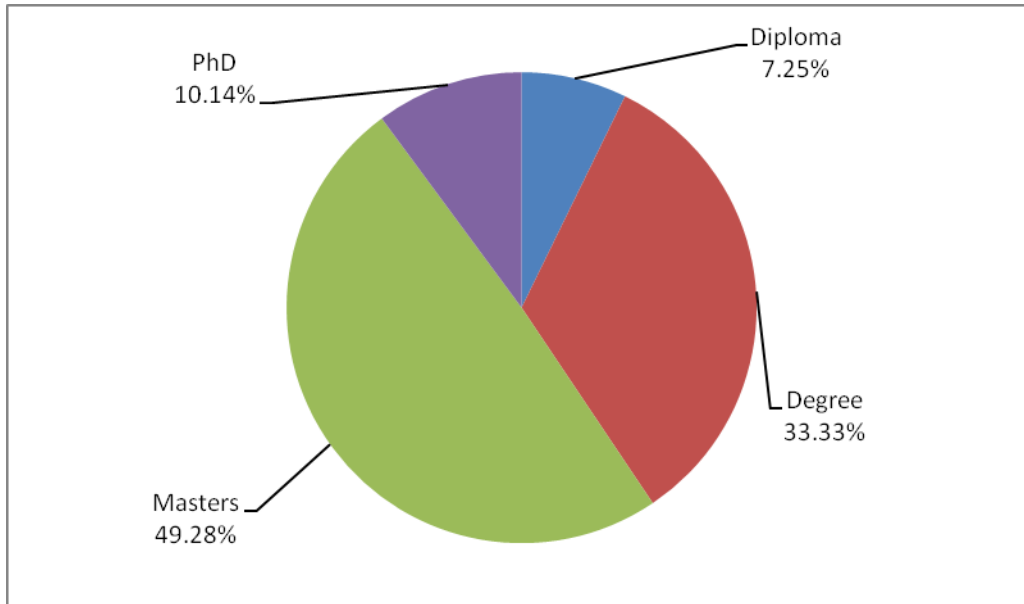


Source: Author (2013)

#### 4.3.3 Level of Education

The study also sought to establish the level of education of the respondents. The findings are presented in Figure 4.3. The results indicate that 49.28 % of the respondents were found to be have master degree qualifications and this can be explained by the fact that the respondents were university staff and majority facilitate their staff in acquiring knowledge as well universities as requiring high caliber staff in their ranks. Over thirty three percent (33.33%) of the respondents had a degree level while 10.14% were of the PhD level. About 7.25% had diploma as their highest level of education. Overall, this implies that the respondents were highly educated.

Figure 4.3: Level of Education



Source: Author (2013)

#### 4.3.4 Years of Internet Use

The study sought to find out the experience in terms of number of years of internet use. The findings are presented in Table 4.2. Forty six percent of the respondents were staff who had experience in internet use for more than ten years. Above thirty seven percent (37.7%) had used the internet for three to ten years while those who had less than three years' experience comprised of 14.50%. The respondents who had no experience comprised of 1.4%. These findings imply that the respondents were people who had adequate exposure to internet use.

Table 4.2: Years of Internet Use

Years of Internet Use	Frequency	Percent
No experience	1	1.40%
Less than 3 years	10	14.50%
3-10 years	26	37.70%
More than 10 years	32	46.40%
<b>Total</b>	<b>69</b>	<b>100%</b>

Source: Author (2013)

### 4.3.5 Setting a Reading Timetable

The study also sought to establish the discipline rating of people by enquiring whether the respondents had set a reading timetable. The findings are presented in Table 4.3. Ninety one percent (91.3%) of the respondents agreed that they had set a reading timetable while 8% had not set such reading timetable. These findings imply that the respondents were disciplined people.

Table 4.3: Setting a Timetable

<b>I have set a reading timetable</b>	<b>Frequency</b>	<b>Percent</b>
Yes	63	91.30%
No	6	8.70%
<b>Total</b>	<b>69</b>	<b>100.00%</b>

Source: Author (2013)

### 4.3.6 Adhering to the Timetable

Regarding whether the respondent strictly adhered to the timetable, 88.4% of the respondents replied in the affirmative while 11.6% stated that they did not strictly adhere to their timetables. The findings are presented in Table 4.4 and they depict that most of the staff had a positive rating in terms of discipline.

Table 4.4: Adhering to the Timetable

<b>I have strictly adhered to the timetable</b>	<b>Frequency</b>	<b>Percent</b>
Yes	61	88.40%
No	8	11.60%
<b>Total</b>	<b>69</b>	<b>100.00%</b>

Source: Author (2013)

## 4.4 Descriptive Results

This section presents the descriptive results. These findings comprised the mean and standard deviations.

### 4.4.1 E-learning

The study sought to establish the extent of use of e-learning in Public Universities in Kenya as indicated by the number of online courses the respondents attended. The findings were presented in Table 4.5. Majority of the respondents undertook business accounting and finance courses as shown by a mean of 2.81 and a standard deviation of 2.06. The mean number ICT courses undertaken by a respondent were 1.88 while languages were 1.17 with a standard deviation of 1.399 and 0.985 respectively. The mean of other courses undertaken by each respondent was 0.83 with a standard deviation of 0.766. The overall mean courses undertaken by each respondent was 1.6725 with a standard deviation of 1.3025. The findings imply that majority of respondents pursue social sciences courses and more so business related courses through e-learning.

Table 4.5: E-learning

	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Business, Accounting and Finance Courses	0	6	2.81	2.06
ICT Courses	0	4	1.88	1.399
Languages	0	3	1.17	0.985
Others	0	2	0.83	0.766
<b>Average</b>			<b>1.6725</b>	<b>1.3025</b>

Source: Author (2013)

### 4.4.2 Perceived Usefulness and E-learning Use

The study sought to establish the relationship between perceived usefulness and e-learning use. The findings in table 4.6 indicate that 95.60% of the respondents agreed with the statement that e-learning saves time compared to face to face learning. Above seventy eight percent (78.2%) agreed that e-Learning saves money compared to face to

face learning ,and 71% also agreed with the statement that e-Learning saves them the inconvenience of walking to a class. About fifty eight percent (58%) of the respondents neither agreed nor disagreed with the statement that they scored better marks when they undertook online courses. On a likert scale of one to five where one represents strongly disagree and five represents strongly agree, the overall mean of 4.0675 with a standard deviation of 0.78275 which implies that perceived usefulness is a key determinant of e-learning use.

Table 4.6: Perceived Usefulness and E-learning

<b>Statement</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean</b>	<b>Std. Deviation</b>
E- Learning saves time compared to face to face learning	0.00%	1.40%	2.90%	27.50%	68.10%	4.62	0.621
E-Learning saves money compared to face to face learning	2.90%	10.10%	8.70%	56.50%	21.70%	3.84	0.980
E-Learning saves me the inconvenience of walking to a class	1.40%	1.40%	2.90%	23.20%	71.00%	4.61	0.752
I score better marks when I undertake online courses	2.90%	8.70%	58.00%	26.10%	4.30%	3.20	0.778
<b>Average</b>						<b>4.0675</b>	<b>0.78275</b>

Source: Author (2013)

#### 4.4.3 Perceived Ease of Use and Use of E-learning

The study sought to find out whether perceived ease of use influenced e-learning. The findings are presented in Table 4.7. About fifty six percent (56.5%) of the respondents agreed that they found it easy to use computers during online lessons while another 59.2% agreed that they found it easy to navigate through online courses. When asked whether they were comfortable with the online experience, 53.6% agreed that they did and 71% of the respondents agreed that they found it easy to use online instructions

during reading. The overall mean was 3.44 with a standard deviation of 1.03 and these results indicate that perceived ease of use has a big effect on the use of e-learning in Universities in Kenya.

Table 4.7: Perceived Ease of Use and E-learning

<b>Statement</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean</b>	<b>Std. Deviation</b>
I find it easy to use the computer during online lessons	1.40%	20.30%	21.70%	50.70%	5.80%	3.10	0.843
I find it easy to navigate through online courses	2.90%	13.00%	24.80%	46.20%	13.00%	3.43	0.977
I am comfortable with the online experience	2.90%	11.60%	31.90%	36.20%	17.40%	3.54	1.008
I find it easy to use online instructions during reading	10.10%	11.60%	7.20%	43.50%	27.50%	3.67	1.280
<b>Average</b>						<b>3.44</b>	<b>1.03</b>

Source: Author (2013)

#### 4.4.4 Supporting Infrastructure and Use of E-learning

The study sought to find out whether supporting infrastructure influences the use of e-learning in public universities in Kenya. The findings are presented in Table 4.8. 92% of the respondents agreed with the statement that they had a computer and/or a laptop to facilitate e-learning. Above seventy five percent (75.4%) agreed that they had adequate internet access to facilitate e-learning while 84% of the respondents agreed that they had adequate access to an e-learning centre that is conducive to e-learning. However 94.1% disagreed to the statement that they had access to a qualified online instructor. The overall likert mean was 3.66 with a standard deviation of 0.947 and this implies that supporting infrastructure greatly influence the use of e-learning in Universities in Kenya.

Table 4.8: Supporting Infrastructure and E-learning

<b>Statement</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean</b>	<b>Std. Deviation</b>
I have a computer and /or a laptop to facilitate e-learning	1.40%	0.00%	5.80%	31.90%	60.90%	4.51	0.740
I have adequate internet to facilitate e-learning	4.30%	13.00%	7.20%	34.80%	40.60%	3.94	1.187
I have adequate access to an e-learning centre/room that is conducive to e-learning	1.40%	8.70%	5.80%	47.80%	36.20%	4.09	0.951
I have access to a qualified online instructor	20.30%	63.80%	2.90%	11.60%	1.40%	2.10	0.910
<b>Average</b>						<b>3.66</b>	<b>0.947</b>

Source: Author (2013)

#### 4.5 Pearson's Correlation Analysis

Bivariate correlation indicates the relationship between two variables. It ranges from 1 to -1 where 1 indicates a strong positive correlation and a -1 indicates a strong negative correlation and a zero indicates lack of relationship between the two variables. The closer the correlation tends to zero the weaker it becomes. Findings in Table 4.9 indicate that the correlation between e-learning and usefulness was strong and positive (0.472) and statistically significant (0.000). The correlation between e-learning and ease of use, and supporting infrastructure was 0.581 and 0.398 respectively with statistical significance of 0.000 0.001 respectively.

Table 4.9: Pearson's Correlation

Statement		E-learning	Usefulness	Ease of use	Supporting infrastructure
E-learning	Pearson Correlation Sig. (2-tailed)	1			
Usefulness	Pearson Correlation Sig. (2-tailed)	0.472 0.000	1		
Ease of use	Pearson Correlation Sig. (2-tailed)	0.581 0.000	0.458 0.000	1	
Supporting infrastructure	Pearson Correlation Sig. (2-tailed)	0.398 0.001	-0.029 0.812	0.031 0.802	1

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

Source: Author (2013)

#### 4.6 Factor Analysis

Factor analysis conducted on four statements measuring usefulness indicated that one factor can be extracted. The findings were presented in Table 4.10. The extracted factor explains 56.246% of the total variance. The extracted factor used the basis of Kaiser maximum criteria which indicates that an Eigen value of more than one constitutes a factor.

Table 4.10: Perceived Usefulness

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.250	56.246	56.246	2.25	56.246	56.246
2	0.757	18.936	75.182			
3	0.598	14.958	90.14			
4	0.394	9.86	100			

Extraction Method: Principal Component Analysis.

Source: Author (2013)

The factor loadings indicated that the first statement “E- Learning saves time compared to face to face learning” attracted a factor loading of 0.855. The second statement “I score better marks when I undertake online courses” attracted a factor loading of 0.746. The statement “E-Learning saves me the inconvenience of walking to a class” attracted a factor loading of 0.708 while the statement ‘E- Learning saves time compared to face to face learning” had a factor loading of 0.679. Overall, all statements loaded heavily (loadings were above 0.5) on the factor perceived usefulness. The findings are presented in Table 4.11.

Table 4.11: Component Matrix for Perceived Usefulness

<b>Statement</b>	<b>Component</b>
E-Learning saves money compared to face to face learning	0.855
I score better marks when I undertake online courses	0.746
E-Learning saves me the inconvenience of walking to a class	0.708
E- Learning saves time compared to face to face learning	0.679

Extraction Method: Principal Component Analysis.

Source: Author (2013)

Factor analysis conducted on four statements measuring perceived ease of use indicated that one factor can be extracted. The findings were presented in Table 4.12. The extracted factor explains 66.195 % of the total variance. The extracted factor used the basis of Kaiser maximum criteria which indicates that an Eigen value of more than one constitutes a factor.

Table 4.12: Perceived Ease of Use

<b>Total Variance Explained</b>	<b>Initial Eigenvalues</b>	<b>Extraction Sums of Squared Loadings</b>				
		<b>% of Variance</b>	<b>Cumulative %</b>	<b>Total</b>	<b>% of Variance</b>	<b>Cumulative %</b>
<b>Component</b>	<b>Total</b>					
1	2.648	66.195	66.195	2.648	66.195	66.195
2	0.579	14.474	80.668			
3	0.486	12.156	92.824			
4	0.287	7.176	100			

Extraction Method: Principal Component Analysis.

Source: Author (2013)

The factor loadings indicated that the first statement “I am comfortable with the online experience” attracted a factor loading of 0.876. The second statement “I find it easy to use the computer during online lessons” attracted a factor loading of 0.802. The statement “I find it easy to navigate through online courses” attracted a factor loading of 0.793 while the statement “I find it easy to use online instructions during reading” had a factor loading of 0.780. Overall, all statements loaded heavily (loadings were above 0.5) on the factor perceived usefulness. The findings were presented in Table 4.13.

Table 4.13: Component Matrix for Perceived Ease of Use

<b>Statement</b>	<b>Component</b>
I am comfortable with the online experience	0.876
I find it easy to use the computer during online lessons	0.802
I find it easy to navigate through online courses	0.793
I find it easy to use online instructions during reading	0.780

Extraction Method: Principal Component Analysis.

Source: Author (2013)

Factor analysis conducted on four statements measuring supporting infrastructure indicated that one factor can be extracted. The findings were presented in Table 4.13. The extracted factor explains 65.438 % of the total variance. The extracted factor used the

basis of Kaiser maximum criteria which indicates that an Eigen value of more than one constitutes a factor.

Table 4.14: Supporting Infrastructure

Component	Total Variance Explained	Initial Eigenvalues		Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance
1	2.618	65.438	65.438	2.618	65.438	65.438
2	0.635	15.871	81.309			
3	0.391	9.766	91.074			
4	0.357	8.926	100			

Extraction Method: Principal Component Analysis.

Source: Author (2013)

The factor loadings indicated that the first statement “I have a computer and /or a laptop to facilitate e-learning” attracted a factor loading of 0.827. The second statement “I have adequate internet to facilitate e-learning” attracted a factor loading of 0.852. The statement “I I have adequate access to an e-learning centre/room that is conducive to e-learning” attracted a factor loading of 0.844 while the statement ‘I have access to a qualified online instructor’ had a factor loading of 0.780. Overall, all statements loaded heavily (loadings were above 0.5) on the factor perceived usefulness. The findings were presented in Table 4.15.

Table 4.15: Component Matrix for Supporting Infrastructure

<b>Statement</b>	<b>Component</b>
I have a computer and /or a laptop to facilitate e-learning	0.827
I have adequate internet to facilitate e-learning	0.852
I have adequate access to an e-learning centre/room that is conducive to e-learning	0.844
I have access to a qualified online instructor	0.705
Extraction Method: Principal Component Analysis.	

Source: Author (2013)

#### **4.7 Summary**

Results revealed perceived usefulness was important in explaining the use of e-learning. This is supported by a p value 0.000 which means that perceived usefulness is a statistically significant predictor of the use of e-learning. Results further revealed that such perceived ease of use is important in determining use of e-learning as demonstrated by a p value of 0.000. Analysis showed that supporting infrastructure is a key determinant in use of e-learning in Universities in Kenya and this was supported by a correlation coefficient of 0.398 (p value of 0.001)

The findings agree with those of Davis (2009), perceived usefulness is an indicator of the degree to which the use of an information system will enhance a user’s job performance. Most of the prior studies in e-learning adoption modeled perceived usefulness as a black-box focusing on an overall benefit of an e-learning system (Larsen et al., 2009). Shee & Wang (2008), argued that e-learning systems are distinct from other information systems to some extent. They argued that an e-learning system offers educators and students “possibilities”, instead of “ready to use” resources. In this regard, while the effectiveness of a general information system is based on the performance of individuals, an e-learning system’s effectiveness largely depends on collaboration between individuals (both educators and students). As such, the prior conceptualization of perceived usefulness fails to capture the unique characteristics of e-learning.

As with significant causal relations of perceived ease of use with perceived usefulness and attitude toward WebCT considered, an eLearning management system, which is made to afford clear and favorable interaction between the instructor/content/system and the learner and between learners may be adopted and used to advantage. With that in mind, instructors are advised to selectively use available features of an eLearning management system that best facilitate effective course activities and promote instructional objectives (Chang,2005).

These finding coincides with the literature suggesting that student perceptions of the usefulness and effectiveness of the online instructional format has a statistically significant effect on the emotional processes and learning the student experiences (Dobbs et al., 2009) Moneta & Kekkonen-Moneta, 2007).Ng, Yeung and Hon (2006), state that it seems logical that students who are less skilled will have more anxiety that will lessen their enjoyment of a DE course. Grant, Malloy and Murphy (2009), call attention to the fact the comprehension, level of skill, and self-efficacy a student possesses of a particular computer software or e-learning tool is continuously changing, emphasizing the need for continuous measurement of these factors and subsequent adaptation or realignment of course content and methodologies. This supports a similar finding by Afari-Kumah and Achampong (2010), which found a significant relationship between finding e-learning easy to use and computer ownership ( $\chi^2 (2) = 17.92; p < 0.001$ ). Other relationships were found among variables such as e-learning system easy to use and years of using the internet ( $\chi^2 (2) = 24.91; p < 0.001$ ), as well as frequency of internet use ( $\chi^2 (8) = 32.18; p < 0.001$ ).

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter comprises of summary key findings of the study based on results from data analysis and the objectives of the study. Conclusions and recommendations are also included and they are aligned to the findings.

### **5.2 Summary**

The study aimed to establish the factors influencing the use of e-learning in public universities in Kenya.

The literature review presented the uses of e-learning and reviewed studies that have investigated the factors that influenced the use of e-learning. It presented the objective of the reviewed studies, their main findings and pertinent conclusions and recommendations.

Research methodology discussed the type of research design, population of study and target population, sample, instruments to be used and data analysis.

Data analysis results revealed that perceived usefulness was important in explaining the use of e-learning. This is supported by a p value 0.000 which means that perceived usefulness is a statistically significant predictor of the use of e-learning. This implied that an increase in perceived usefulness leads to an increase in the use of e-learning. Results also indicated that perceived ease of use influenced the use of e-learning. Results from data analysis showed that such perceived ease of use is important in determining use of e-learning as demonstrated by a p value of 0.000. This implied that an increase in perceived ease of use leads to an increase in the use of e-learning. Further results also revealed that that supporting infrastructure is a key determinant in use of e-learning in Universities in Kenya. This was supported by a p value of 0.000. This implied that an increase in support infrastructure leads to an increase in the use of e-learning.

### **5.3 Conclusions**

Based on the findings of the study, the following conclusions are arrived at. Perceived usefulness is key in determining the use of e-learning in Public Universities in Kenya. Many e-learning students perceive the benefits related to such programs hence the reason for similar conclusion in this current study.

Perceived ease of use influences the use of e-learning. The way the student navigates through the e-learning process without difficulties is key in determining the use of such programs. If the program poses difficulties, less people are likely to use it as explained by the results.

It was concluded that supporting infrastructure such as provision of laptops was a key factor influencing e-learning in public universities in Kenya. Therefore, an increase in support infrastructure may improve the use of e-learning.

### **5.4 Recommendations**

Universities should ensure that e-learning saves time compared to face to face learning. They should also be in such a position that ensures that e-Learning saves money compared to face to face learning for the students.

Universities should also ensure that e-learning saves the students the inconvenience of walking to a class and put the program in a way to enable the students score better marks when they undertake online courses.

Learning institutions should ensure that students find it easy to use the computer during online lessons. They should also implement measures to enable students find it easy to navigate through online courses and ensure that such students are comfortable with the online experience. Furthermore, they should ensure that the students find it easy to use online instructions during reading, for instance they could enhance this through training students on how such online programs are taken.

Regarding infrastructure learning institutions should ensure that the students have a computer and /or a laptop to facilitate e-learning and that they have adequate internet to facilitate e-learning. They should also ensure that the students have adequate access to an e-learning centre or room that is conducive to e-learning. Moreover they should ensure the students have access to a qualified online instructor. This will help the students to have more appreciation of the program.

### **5.5 Areas for Further Study**

This study was not exhaustive by any means and therefore it is recommended that another study be conducted in other institutions like colleges and include other variables like cost of such programs and the time they consume. The same study can be conducted in another sector to test whether the findings of this study will hold true in a different context.

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## **APPENDICES**

### **Appendix I: Introduction letter**

Date: .....

### **RESEARCH QUESTIONNAIRE FOR EMPLOYEES IN PUBLIC UNIVERSITIES**

Dear Respondent,

I am George Njuguna, a graduate student of Master of Business Administration at University of Nairobi. I am carrying out a Research study of “FACTORS INFLUENCING THE USE OF E-LEARNING IN PUBLIC UNIVERSITIES IN KENYA”.

It would be of great value if you could share your wealth of knowledge by completing this questionnaire. Your answers will be handled with highest anonymity and confidentiality; this will be achieved by no indication of names. Kindly return the completed questionnaire to me.

Regards,

GEORGE NJUGUNA



**Section B: Technological Factors influencing use of E-Learning.**

**Section B1: Perceived Usefulness and E-learning Use.**

This subsection is concerned with assessing whether perceived usefulness affects e-learning. Please mark (x) in the box which best describes your agreement or disagreement on each of the following statements.

Statement	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
E- Learning saves time compared to face to face learning					
E-Learning saves money compared to face to face learning					
E-Learning saves me the inconvenience of walking to a class					
I score better marks when I undertake online courses					

**Section B2: Perceived Ease of Use and use of E-learning.**

This subsection is concerned with assessing whether perceived ease of use influences e-learning. Please mark (x) in the box which best describes your agreement or disagreement on each of the following statements.

Statement	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
	1	2	3	4	5
I find it easy to use the computer during online lessons					
I find it easy to navigate through online courses					
I am comfortable with the online experience					
I find it easy to use online instructions during reading					

**Section B2: Supporting Infrastructure and E-learning Use.**

This subsection is concerned with assessing whether supporting infrastructure influences e-learning. Please mark (x) in the box which best describes your agreement or disagreement on each of the following statements.

Statement	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
	1	2	3	4	5
I have a computer and /or a laptop to facilitate e-learning					
I have adequate internet to facilitate e-learning					
I have adequate access to an e-learning centre/room that is conducive to e-learning					
I have access to a qualified online instructor					

**Section B3: E Learning Use**

This subsection is concerned with assessing the extent of use of e-learning in Universities in Kenya. Please indicate the number of online courses you have attended.

Course	Number of Online courses attended
Business, Accounting and Finance Courses	
ICT Courses	
Languages	
Others	
<b>Total</b>	