THE ADOPTION OF VIRTUAL LEARNING ENVIRONMENTS BY ACADEMIC STAFF OF UNIVERSITY OF NAIROBI

BY

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STUDENT'S DECLARATION

This research project is my original work and has not been submitted for a degree award in any other university.

Signed…….. Date……..

DENIS ONSONGO OGACHI

D61/66902/2011

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

Signed…….. Date……..

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I first and foremost gratefully acknowledge the Almighty God for the grace and Strength to pursue the MBA program to the end.

I wish to express my sincere gratitude and appreciation to my parents for their unceasing love, encouragement, prayers and financial support throughout my MBA program. I am so grateful because not many parents support their children to this level. God bless you abundantly and give you many more healthy days on earth. And to my siblings Fred, Joyce, Lillian and Pauline for all the prayers and sacrifices you made to see me through my MBA studies.

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There are so many people who have helped me along the way; my greatest fear is forgetting someone, so I thank all of you. If your name is not mentioned, please forgive me!

DEDICATION

This project is dedicated to my parents who have always taught me the value of education through their unceasing love, encouragement, prayers and financial support throughout my MBA program. This project is also dedicated to my siblings Fred, Joyce, Lillian and Pauline not forgetting my grandparents for all their prayers and sacrifices to see me through my MBA studies.

ABSTRACT

Higher Learning educational institutions in this modern age and time are now faced with the challenge of a consistently growing demand for places in various academic programs. Most institutions of higher learning around the world are increasingly embracing the use of ICT as a tool of virtual learning delivery to respond to the demand for increased access to their resources and have thus created virtual learning environments (VLEs). In Kenya just like most developing countries the adoption of VLEs by academic staff still lags behind as compared to the developed world and therefore this study attempted to establish how academic staff in higher learning are responding to virtual learning environments by describing the factors influencing academic staff at the university of Nairobi to adopt the use of the Multimedia learning portal, the extent of adoption and the levels of awareness on the multimedia learning portal at the university of Nairobi.In conducting the study, a descriptive survey approach was used and it involved collecting data from the university of Nairobi academic staff. The target population for this research was the academic staff from the school of business and the school of computing and informatics where the population of academic staff stood at 93 and 24 respectively which gave a total of 117 academic staff. A sample of 35 academic staff was chosen as the most appropriate and primary data was used for this study and it was collected by means of a self-administered structured questionnaire. The research further utilized descriptive analysis, cross tabulation and regression analysis to analyze collected data. The computer software used to aid analysis of the data collected was SPSS Version 17.0 and Microsoft Excel. The findings of the study revealed that the academic staff at the University of Nairobi are fully aware of the existence of the multimedia learning portal and although the existing multimedia learning portal provided a number of tools and features, the extent of adoption proved to be dismally low with varying levels of adoption depending on the tools and their purpose. The regression results indicated that the R square value was 23.3% which therefore implied 11.8% of the variance was explained by the independent variables used and this was a very low explanatory power for the model.Also the fact that academic staff were not ready to use the multimedia learning portal could be an indication that when academic staff are not ready to use the portal, it reduces the adoption by 59% (t = 2.802).

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LIST OF ABBREVIATIONS

VLE	-	Virtual Learning Environment
BECTA	-	British Education Communications Technology Agency
JISC	-	Joint Information System Committee
ICT	-	Information Communications Technology
MLE	-	Managed Learning Environment
MBA	-	Masters of Business Administration
UON	-	University of Nairobi
AVU	-	African Virtual University
CODL	-	Center for Open and Distance Learning
TAM	-	Technology Acceptance model
TRA	-	Theory of Reasoned Action
SPSS	-	Statistical Package for Social Software

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Higher Learning educational institutions in this modern age and time are now faced with the challenge of a consistently growing demand for places in various academic programs. The challenges for access to these programs are posed by potential students who are from culturally diverse backgrounds and also originate from different geographic locations. The large number of these students means that it is difficult to satisfy the demand because of the limited resources which are available from the educational institutions and therefore there is mounted pressure on the limited resources owned by these institutions (Ocak and Goktalay, 2006).

The rapid growth in the area of information and communication technology (ICT) has had a major impact in reforming the teaching and learning processes in the area of education and more so especially within higher educational institutions in the recent past (Pulkinnen, 2007; Wood, 1995). In the field of education the use of ICT has become very critical nowadays as compared to the past, and its high level of dynamism due to the large number of new developments every now and then means that there is growth in its power and capabilities which are very key in triggering change in the way education is being delivered globally (Pajo and Wallace, 2001).

Most institutions of higher learning around the world are increasingly embracing the use of ICT as a tool for learning (Kampulainen, 2007).One of the ways through which higher learning educational institutions have embraced the use of ICT is by adopting the use of e-learning as a mode of delivery to respond to the demand for increased access to their resources and have thus created virtual learning environments (VLEs) (Ocak and Goktalay, 2006). These changes therefore require that academic staff have to adapt to new learning environments and hence they are faced with enormous pressure to integrate new technologies into their learning activities.

There are many trends which are emerging in technologies which are associated with online education and teaching which can offer universities great benefits in achieving their educational strategies through virtual learning and related activities (Wang and Wang, 2009).According to Goktalay and Ocak (2002) online education has been strongly recommended by peer institutions, the administrative teams, current and potential students, because it provides an alternate convenient channel for learning and therefore many institutions are moving towards the adoption of virtual learning technologies or integration of new virtual environments with their classroom learning environments.

In Kenya since the introduction of Universal Primary Education (UPE) in 2003 which eliminated the need for parents to pay fees for Primary level education, there has been an increase in the level of student enrollment (Sifuna, 2007). The decision by the government to abolish payment of fees at the Primary level education in Kenya has led to an increase in the number of student enrollment into the Secondary level and also into the Kenyan higher education which has consequently brought into light issues such as decrease in resources and enormous access (Oketch, 2010).The consistently growing demand for places in academic programs offered by universities has subsequently led to an increase in the number of universities and opening up of new branches to cater for the growing demand. Despite the increase and expansion of universities there has still been mounted pressure on the limited resources that these institutions have and hence universities have decided to invest highly in the adoption of e-learning by providing virtual learning environments to ease pressure on their resources at the same time maintaining quality education.

1.1.1 Virtual Learning Environments

A Virtual Learning Environment (VLE) is a set of web based tools which are used for educational purposes (Ofsted, 2009). The Joint Information System Committee (JISC) also defines a VLE as an online system which is electronic in nature and provides interactions of various kinds between learners and tutors including online learning (JISC, 2009).The terms virtual learning environment (VLE) and managed learning environment (MLE) are often interchanged. There are a number of commercial VLE software packages available, including Blackboard, WebCT, Lotus Learning Space, and COSE.

Lecturers within a virtual learning environment interact with the students and materials are different from traditional learning environments. Instructors with access to an e-learning system can provide course instructional materials in various formats (text, pictures, sound, video on demand, and so on) from anywhere and at any time, as long as they can log on to the internet. Furthermore, given the functionality of message boards, instant message exchanges and video conferencing, they can even interact with students both individually and on a simultaneous basis (Trombley and Lee, 2002; Zhang and Zhou, 2003).As a result, many educational institutions in this modern age are slowly adopting the use of virtual learning platforms. According to Hanna (1998) these universities are an extension of traditional universities. This type of universities operates as the main organization and incorporates within them a virtual learning platform which offers the students and lecturers anywhere and anytime kind of access to the platform.

The benefits accrued from the use of a virtual learning environment as a mode of content delivery in the field of education has been studied by a number of researchers an example being a research conducted byBecta (2004) which presents a number of benefits of VLEs which include access from anywhere and at any time, increase in motivation, provides the opportunity for self-study, better integration of information and communications technology (ICT) among others. Literature also indicates that VLEs can provide other benefits such as help in the growth of institutions by reducing costs since it allows students to interact amongst each other both synchronously and asynchronously not forgetting that interaction can take place between students and teachers. More importantly, virtual learning environments provide quality learning and allow courses to be accessed from anywhere and at any time (Allen and Seaman, 2005).

According to Phipps and Merrisotis (1999), designing of virtual learning environments depends on the learning objective, target audience, access whether physical or virtual and the type of content. It is therefore very important to understand how virtual learning environments are used and the factors which influence academic staff to adopt their use.

Determining these factors will be very important in predicting the impact of integrating ICT into education through the use of VLEs.

1.1.2Factors Influencing Adoption of Virtual Learning Environments

Existing empirical evidence demonstrates that the use of Information and Communication Technology (ICT) in the instruction processes is spreading faster than any other form of curricula change and innovation in the world (Gilbert, 1997).To achieve the aspect of e-learning, platforms have been developed that act as the content delivery channel to interact with the users and Stenalt and Godsk (2000) state that virtual learning platforms in most cases are hyper functional supplementing the learning situation by being containers or mediators of communication and learning material.

Computer anxiety is one of the factors which influence individuals to adopt learning technologies and according to Chua, Chen and Wong (1999) computer anxiety is defined as a fear of computers when using one or in more simple terms it is a fear of the possibility of using computers. Lecturers' attitudes towards computers are critical issues in computer based learning and hence monitoring should be done continuously so as to make e-learning successful (Woodrow 1991).Bouffard-Bouchard (1990) shows that self-efficacy influences the choice of whether to engage in a task and the greater people perceive their self-efficacy to be, the more they persist in their efforts. Self-efficacy maybe an important factor which contributes to computing skills, thus computer self-efficacy is a derivation of self-efficacy which means a belief of one's capability to use the computer. It is therefore important to note that heightened self-efficacy may cause individuals to use little effort towards learning new computer concepts although according to Brosnan (1998) it could increase persistence in studying computing.

The ease of use of an e-learning system helps in predicting the acceptance of e-learning by instructors and learners. A system's ease of use depends on the characteristics it possesses. One of these characteristics is functionality i.e. the ability of an e-learning system to provide flexible access to instructional and assessment media. Such media should for example allow academic staff to deliver course content, issue homework and assignments and be able to carry out tests and quizzes online (Seels and Glasgow ,1998).

A second characteristic used to measure the ease of use of a system is interactivity and in its regard Palloff and Pratt (1999) state that key to achieving learning are interactions between academic staff themselves, interactions between academic staff and the students and the collaborations in learning that result from the interactions. In view of this therefore the system should provide tools to aid this interactivity including e-mail, bulletin board and chart room.

The third and final characteristic is the response time which as indicated by Kerka (1999) may affect the delivering of sound video and graphics. Bailey and Pearson (1983) define response time as the degree to which an individual perceives that the response from e-learning system is fast and reasonable.

1.1.3 Virtual Learning in the University of Nairobi

The University of Nairobi is one of the largest in Kenya with a current population of over 36,000 students. Due to the demand by potential students all over the country the university has adopted the use of information and communications technology (ICT) and integrated it in to its education program. One of the ways through which ICT has been used by the university is through the development of virtual learning environment which are useful in supplementing classroom learning. The center of activities for virtual learning at the University of Nairobi is situated at the center for open and distance learning (CODL), which is under the college of education and external studies. Many courses in the university have been digitized and are available for access anytime and from any remote location.

The Multimedia learning portal is a web based virtual learning environment which allows lecturers to post useful instructional material which is then available for student to either view or download. Students who wish to access the content should provide their access credentials which are created by the university's ICT department for each student when they are first admitted into the institution. Another important functionality provided by the multimedia portal apart from upload and download of content is the ability to allow for communications to take place between students and lecturers and also among students themselves. The multimedia portal incorporates various tools such as course description,

agenda, announcement, document, exercises, learning path, assignments, forums, groups, users, wiki, chat and media center.

1.2 Research Problem

There are very many factors which have led to increase in investment and use of online learning technologies and VLEs around the globe. The recent growth in the field of information and communications technology (ICT) has led to rapid expansion in its use, particularly over the last decade since the development of the internet. In the higher educational sector, the national strategies are one of the driving forces which are leading to adoption of online learning technologies (Brown et al, 2006). The rivalry among institutions has been intensive since the 1980s and the intensity of this rivalry of the institutions is greatly determined by how first firms can adopt the use of technology for their advantage (Fingenbaum and McCorduck, 1984). This can therefore explain why most universities are using ICT as a competitive weapon and most of them have integrated virtual learning with Classroom learning.

Kenyan higher learning institutions have accepted the use of e-learning as part of a strategy to reach out to their students. This has been greatly boosted by the recent developments of ICT infrastructure both at national level and within these institutions of higher learning which has enabled connectivity to the internet. This has hence created a very conducive environment for virtual learning to be implemented. Despite these developments, if website analysis is to be followed, then it is justified to conclude that Kenyan institutions are far away from reaping the benefits of virtual learning (Kariuki, 2006).

It has been demonstrated that VLEs are being widely adopted around the globe by institutions. In Kenya just like most developing countries the adoption by academic staff still lags behind as compared to the developed world. It is important to explore the extent to which university lecturers have integrated the VLEs with their teaching processes and therefore there is need to consider the forces behind lectures adoption of VLEs and their implementation. A study which was conducted by Muganda (2006) on e-learning implementation in the University of Nairobi focused on the perceptions of academic staff

towards online learning. The study found out that the factors which determine online learning readiness were computer and internet availability, computer literacy, motivation of users and technical support. This study focused on the levels of adoption of university lecturers.

Another study was conducted by Omwenga (2003) on computer-mediated learning in which a system called wedusoft was developed to be used for online education. The results of the study indicated that factors that determine online learning readiness were computer availability, literacy, internet availability and online learning culture in the institutions.Gachau (2003) also conducted a study on the e-learning readiness of the higher learning educational institutions in Kenya: a case study of Kenya Polytechnic. The study focused on online learning readiness factors and the competencies required for an online learning environment. The key findings on the factors that determine online learning readiness were computer and internet availability, computer literacy, motivation of use and management support. This study is more comprehensive as it focused on levels of awareness and adoption in addition to the factors that influence adoption.

Universities have raised concern regarding the integration of online learning technologies into their current educational setup according to (Dooley et. Al 1999; Hinch, 2000; Rales and Casey, 2002) and therefore, this should not be ignored but rather a critical analysis of the factors for the successful adoption of virtual learning technologies within higher education should be undertaken. Given the above views of virtual learning, the study attempted to answer the following question. How have academic staff at the University of Nairobi responded to the virtual learning environment?

1.3 Research Objectives

The main objective of this research was to establish the factors which influence the adoption of virtual learning environments by academic staff of the University of Nairobi.

The specific objectives are:

a. To determine the level of awareness on virtual learning environments among academic staff of the University of Nairobi.

b. To establish the extent to which the academic staff of the University of Nairobi are using the multimedia portal.

c. To establish the factors that influences the academic staff of the University of Nairobi to adopt the multimedia portal.

1.4 Value of the Study

The study was aimed at establishing the extent to which the academic staff at the University of Nairobi is using the multimedia portal, their level of awareness on virtual learning environments and to establish the factors which influence the academic staff to adopt the multimedia portal for virtual learning within the university. The results of this study will help contribute to existing research by explaining the factors that could influence academicstaff to adopt VLEs within a university environment. This will also be important since it will highlight the essential implications for both administrators and decision-makers in terms of adopting virtual learning by reviewing the results.

Researchers and scholars alike can also use the report as a point of reference and as a source of secondary data for future research related to virtual learning. Developers of virtual Learning environments could use the results of this report to evaluate lecturers concerns and preferences at university level to inform the development of their products and technologies offering. This shall arguably enable them device ways to address the concerns and issues raised to enhance the general adoption of virtual learning environments within the Kenyan higher education.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapterpresents a review of literature on virtual learning environments and first begins by looking at various definitions of VLEs, next the components which make up a virtual learning environment and the architecture is examined and presented. The theories which are used by researchers to investigate the adoption of technologies are then presented before highlightingthe factors influencing academic staff adoption of virtual learning environments. A summary of the literature review is presented and most importantly, based on the literature review the conceptual framework which guided this research is finallydeveloped and presented.

2.2 Virtual Learning Environments

The recent developments in the field of information communication technology (ICT) has led to the spread of online learning as an important method of education delivery and as a result there have been widespread investments and adoption of virtual learning environments (VLEs) by higher education institutions (kikrup and Kirwood, 2005).

A Virtual Learning Environment (VLE) is a set of web based tools which are used for educational purposes (Ofsted, 2009). The Joint Information System Committee (JISC) also defines a VLE as an online system which is electronic in nature and provides interactions of various kinds between learners and tutors including online learning (JISC, 2009).

The British Educational Communications and technology Agency which later changed its name to Becta are of the view that a VLE is a software tool which combines together a range of resources that enable learners and tutors to make interactions which are online in nature in an integrated environment and it includes tracking and delivery of content (Becta, 2003). According to Poelmans et al. (2008), a virtual learning environment (VLE) is a multimedia tool which utilizes information and communications technology (ICT) and the worldwide web so as to provide support for educational support, educational solutions and training for both students and teachers.

Virtual learning environments are often referred to as online learning environments, learning management systems or collaborative learning software and besides there are many more names which can be used interchangeably (Britain and Liber, 2000). It is also very important to note that most people confuse VLEs with Managed Learning Environments (MLE). An MLE according to JISC (2000) encompasses a virtual learning environment and any other information system within an institution which is aligned to the process of learning and contributes either directly or indirectly to the management of learning.

Virtual learning environments are available in two categories i.e. either commercial or non-commercial, both of which are comprised of a number of authoring tools. There are a number of VLEs which are considered to be commercial in the educational context and are more widely used and utilized than their non-commercial counterparts and they include Blackboard, FirstClass, TopClass WebCT and Comentor each of which has been designed and developed in order to further supplement classroom learning through online medium (JISC, 2009). Within a virtual learning environment instructors are able to interact with students and amongst themselves and materials are different from traditional learning environments since they are in various formats including text, pictures, sound, and video and so on. Also given functionalities such as message boards, instant message exchanges, video conferencing, chartroomsetc. students can be able to interact with teachers and classmates both individually and simultaneously (Zhang and Zhou, 2003).

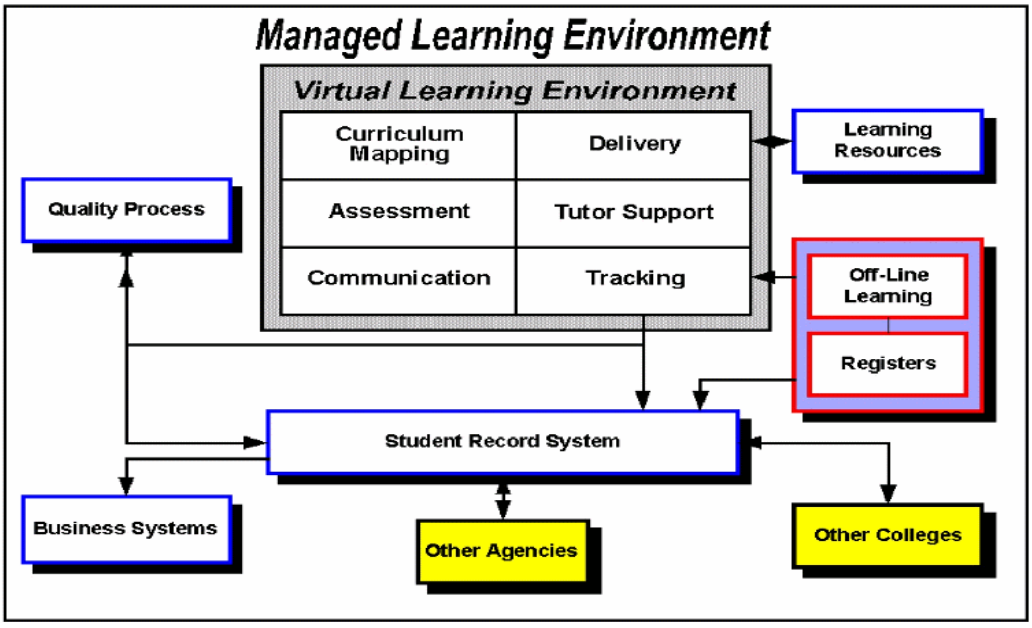
2.2.1 Virtual Learning Environment Architecture

According to Becta (2003) a VLE consists of a variety of components which are designed to assist in conventional classroom learning as well as offer support to distance learners who try to gain access to an institution's course and assessment materials. Becta further goes ahead to define the principal components of a VLE as follows: Curriculum mapping component which is used for mapping of the curriculum into elements which can be assessed or recorded; Assessment component which is used to monitor student readiness and progress by setting formative and summative assessments and makes it possible to

mark assessments automatically or submit them electronically to the tutor for marking and also feedback can be provided using a variety of methods and media, including Annotated scripts and video commentaries; Communication component which utilizes online tools augmenting face to face contact through facilities such as mailing lists, moderated discussion forums or group discussions, messaging either through email or the use of chat rooms, and wikis; Content delivery component for making available a wide range of electronic resources in a variety of media, ranging from lecture notes and reading lists, through to video demonstrations and podcasts, plus hyperlinks to external content hosted anywhere on the Internet.

The tutor support component which is useful to academic staff and can support the planning and delivery of courses across departments and schools covering course registration, student monitoring, and the administration of marks and also a tracking component which helps in tracking of student activity and achievement against the other elements. Most VLEs have links to other systems both internally and externally.

Figure 2.1: Virtual Learning Architecture within an MLE (Becta, 2003)



There are a number of benefits which are associated with VLEs including collaborative work, increase in the capacity of student number, less administration requirements,

sharing of resources, student-centered learning and time and place flexibility (Robertson and Shannon, 2009).

2.3 Theories in the Adoption of Technologies

Most literature on the adoption of technology into higher learning educational institutions often revolves around Rogers' diffusion theories and the Technology Acceptance Model (TAM). Diffusion theory is a collection of three theories by Everret Rogers and which is used as a baseline for some researches in ICT. The three theories which have been presented by Rogers (2003) and are more frequently used by researchers in relation to adoption of learning technologies are: Innovation decision process, Rate of adoption and Individual innovativeness.

In line with the theory of Innovation decision process, Rogers (2003) suggests that the adoption of an innovation is a process that individual adopters go through and is made up of five stages i.e. Knowledge, Persuasion, Decision, Implementation and Confirmation. Secondly, Rogers describes the Rate of adoption theory as one which maps the diffusion of an innovation against time and it states that a successful innovation will in the initial stages be adopted slowly and then followed by a period a period of more dramatic rapid adoption before finally slowing down.

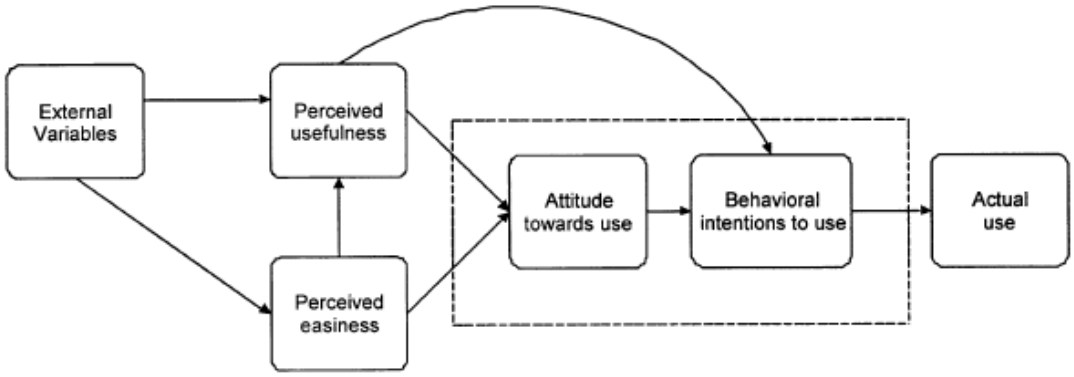
Finally, the individual innovativeness theory is the last of Rogers' theories and the one most frequently cited by most researchers in relation to the adoption of VLEs. According to Rogers (2003) this theory states that adoption can be grouped into categories each with its own set of characteristics which affect the readiness of individuals in that category to adopt an innovation. The five categories are innovators, early adopters, early majority, late Majority and laggards. In the beginning a small number of innovators adopt an innovation (2.5%), followed by early adopters at 13.5%, the late majority follows a short time later with 34% and finally laggards make up for 16%.

Technology Acceptance model (TAM) by Davis and Warshaw (1989) has also been widely used by researchers to predict the intention to adopt learning technologies by individuals. TAM is an adaptation of the Theory of Reasoned Action (TRA) which was

first proposed by Ajzen and Fishbein (1980). The Theory of Reasoned Action states that that an individual's intention to behave is a function of one's attitude towards the behavior (Ajzen and Fishbein, 1980). Therefore consistent to TRA, TAM asserts that individual's actual use of a system is influenced by the behavioral intention and the behavioral intention is determined by attitudes towards using the system.

Perceived usefulness and Perceived ease of use have a direct effect on attitude towards using and therefore behavioral intention is assumed to capture the factors that influence a behavior. Perceived Usefulness as presented by Davis and Warshaw (1989) is the belief that ICT adoption leads to an increase in workplace activity while perceived ease of use is described as the belief that a system is effortless in use.

Figure 2.2: The Technology Acceptance Model (Davis and Warshaw 1989)



2.4 Key Factors Influencing Adoption of VLEs

There has been a significant amount of work carried out in the past which seeks to investigate factors which influence the adoption online learning technologies within higher learning institutions. In order for an institution to be prepared to implement Virtual Learning environments, it first must be E-ready. E-readiness according to kariuki (2007) is defined as the readiness of a community to participate in a networked world. Watkins et al (2003) defines online learning readiness as the mental skills and the physical preparedness of people for an e-learning experience. VLE is a form of e-learning and for the purpose of this study VLE readiness can be considered to be individual and institution preparedness for virtual learning environment.

According to Chua, Chen and Wong (1999) computer anxiety is a factor which influences an individual to adopt online learning and it is defined as a fear of computers when using one or in more simple terms it is fearing the possibility of using computers. Also Heinsen and Knight (1987) characterize computer anxiety as an emotional fear of the expected outcomes which are negative, for example fear of damaging equipment or looking foolish. Individuals attitudes towards computers are critical issues in computer based learning and hence monitoring should be done continuously so as to make e-learning successful (Woodrow 1991).

Another factor is Self-efficacy which is defined as an individual's confidence in his or her ability, which may impact the performance of tasks. It reflects the confidence by an individual to perform the behavior required for producing specific outcome and it has a direct impact on the choice of whether to engage in a task, the effort applied in performing it and the persistence shown in finishing the task. (Kinzie, Delcourt and powers, 1994).It is therefore important to note that heightened self-efficacy may cause individuals to use little effort towards learning new computer concepts although according to Brosnan (1998) it could increase persistence in studying computing. Individuals' attitudes towards computers are thus critical in computer based learning and therefore monitoring of user attitudes should be done continuously so as to make e-learning successful (Woodrow 1991).

Theperceived ease of use and perceived usefulness of an online learning system helps in predicting the acceptance of online learning by lecturers. A system's perceived ease of use depends on the characteristics it possesses. One of these characteristics is functionality such as the ability of an e-learning system to provide flexible access to instructional and assessment media. Such media should for example allow lecturers to deliver course content, issue homework and assignments and be able to carry out tests and quizzes online.(Seels and Glasgow ,1998). Seels and Glasgow further add that functionality should include the ability of systems to allow access from remote locations which is useful for providing anywhere anytime access to the learning portal and thereby promoting the development of e-learning systems.

A second characteristic used by individuals to measure the perceived usefulness of a system is interactivity. Palloff and Pratt (1999) state that the key to achieving learning are interactions between lecturers themselves, interactions between lecturers and the students and the collaborations in learning that result from the interactions. In view of this therefore the system should provide tools to aid this interactivity including e-mail, bulletin board and chart room. The third characteristic is the response time which as indicated by Kerka (1999) may affect the delivering of sound video and graphics. Bailey and Pearson (1983) define response time as the degree to which a learner perceives that the response from e-learning system is fast and reasonable.

The quality of e-learning is the last characteristic which is very crucial in the development of e-learning systems. According to a report initiated by Swedish National Agency of Higher Education (2007), e-learning quality is made up of certain aspects which are crucial in assessing the quality of e-learning: Material/content; Structure/Virtual environment; Learner assessment; Support. The main quality issues that concern material and content are how material are selected and sequenced and the quality of material used and produced in a course (Connolly, 2005). Moore and Kearsley (2005) affirm that the combination of freely available learning content and development of standards have great potential for enabling quality improvements. The second aspect is the structure/Virtual environment. Useful features of a virtual environment include easy and structured ways of finding information and of communicating with other learners and teachers and therefore the technical infrastructure must be reliable, accessible and user friendly (Swedish national Agency, 2007).

Learner assessment is another important aspect of quality. According to laurillard (2006) learners tend to respond first to assessment requirements and so learning innovations have to include assessment. Online assessment also adds challenges due to issues of security, accessibility and identification (Clarke et al 2004). Academic staff therefore thinks that assessment must be legally secure and accessible for e-learning to be considered as quality.

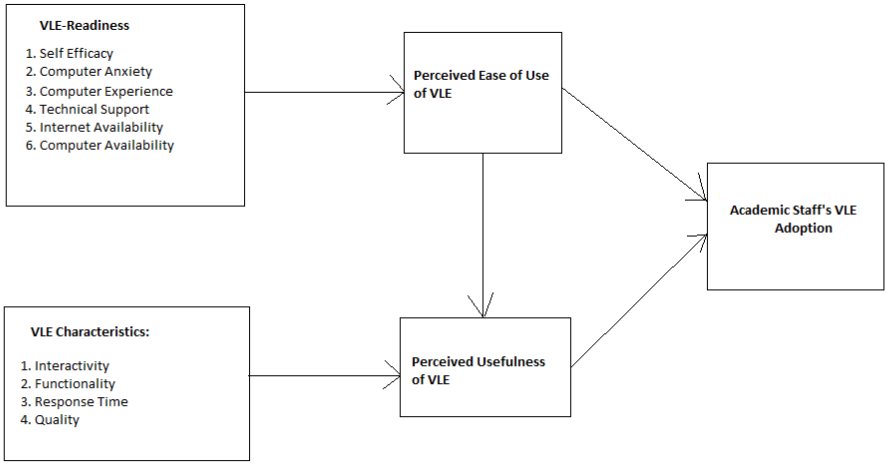
2.6 Summary of Literature Review

This chapter presented the insights of other researchers and scholars on the adoption of virtual learning environments, within higher learning education institutions and key factors which influence the adoption of online learning system are highlighted. The literature review sought to understand the concepts underlying VLE adoption and implementation and also establish the factors which influence academic staff to adopt a VLE within higher learning educational institutions. The literature reviewunearthed that there are two categories of external variables (i.e. Lecturer VLE-Readiness and VLE Characteristics) which influence the perceived ease of use and perceived usefulness of a VLE. Under the lecturer VLE-Readiness the variables under this category include self-efficacy, computer anxiety, education background, technical support, internet availability and computer availability. The variables under the category of VLE characteristics are: interactivity, functionality, response time and quality. The literature review also discovered that perceived ease of use has a direct influence on both the perceived usefulness and intention to adopt VLE. The insights obtained from the literature review in this chapter were very useful in the design of research questions and methodology in general as outlined in the next chapter.

2.5 Conceptual Framework

The main objective of this study was to determine the factors that influence academic staff at the University of Nairobi to adopt virtual learning through the multimedia learning portal and therefore factors which influence lecturers skills and attitude towards online learning environments were examined within the framework of TAM developed by Davis and Warshaw (1989) to establish factors which influence the lecturers to adopt VLEs and the extent to which were using the multimedia portal. TAM proposes that perceived usefulness and perceived ease of use are influenced by external variables which in turn influence the adoption and use of a system. Figure 2.3 in the next page presents the conceptual framework which was used to guide this research.

Figure 2.3: Conceptual Framework



Source: Adapted from Davis and Warshaw (1989)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology that was utilized in this research. The chapter begins with a discussion of the research design adopted. The population and sampling design; data collection methods and research procedures follow and the chapter will end with a discussion on data analysis and presentation methods utilized.

3.2 Research Design

This research utilized a descriptive survey approach. Since the study involved collecting data from the University of Nairobi (UON) academic staffto determine the levels of adoption, awareness and the factors which influence the use of the university's virtual learning environment (in this case the multimedia learning portal) a descriptive research was the best since data was collected at one point in time and analysis was comparative.

3.3 Target Population

The target population for this research was the academic staff from the school of business and the school of computing and informatics at the University of Nairobi where the current population of academic staff which stood at 93 and 24 respectively which gives a total of 117 academic staff from both schools. The University of Nairobi was chosen since it is the oldest and largest University in Kenya and also because It is located in Nairobi town. The school of business and school of computing and informatics were chosen since they had been at the forefront in the adoption and use if ICT at the University.

3.4 Sampling

Sampling design involves the determination of the number of participants. A sample is therefore a group of respondents, cases or records comprising of part of the entire study population. According to Kothari (2000), 30% of the entire population is considered a

representative sample. This study utilized the sample recommended by Kothari and therefore the sample size of this study was 35 academic staff from both the school of business and school of computing. The sampling method for the selection of candidates for this study used stratified random sampling. The sampling did not attempt to represent the wider population and it is important to recognize that the possibility of generalizing from the findings will therefore be negligible (Cohen et al, 2000).

School	Population(P)	Sample = (P ÷ 117 * 35)
School of Business	93	27
School of Computing and Informatics	24	8
Total	117	35

3.4 Data Collection

In this study primary data was used and it was collected by means of a self-administered, structured questionnaire to collect data from the respondents. The purpose of the questionnaire was to provide an insight on the factors which influence university academic staff to adopt a virtual learning environment and establish the extent to which the virtual learning environment is being used and hence the questionnaire was divided into fourparts. Part A of the questionnaire contained demographic data, In Part B; the concern was on the awareness on the VLE by the academic staff. Part C seek to establish the extent to which the VLE was being used by academic staff and finally Part D of the questionnaire was concerned with the factors which influenced the adoption and use of the VLE by academic staff based on characteristics such as functionality, interactivity, response time and quality.

3.5 Data Analysis

This research utilized quantitative data collected from the primary sources in order to answer the research questions objectively. Part A of the questionnaire concerned with demographic information employed descriptive analysis (percentages) as the data analysis technique. In Part B, where the concern was on VLE awareness data analysis techniques used was descriptive analysis (frequencies and percentages) and cross-

tabulation. Part C of the questionnaire concerned with the extent of use used percentages and finally responses to questions involving the factors which influence academic staff to use the VLE wereanalyzed using a regression analysis. The computer software used to aid in the analysis of the case study data wasStatistical Package for Social Software (SPSS Version 17.0) and Microsoft Excel.

CHAPTER FOUR: DATA ANALYSIS

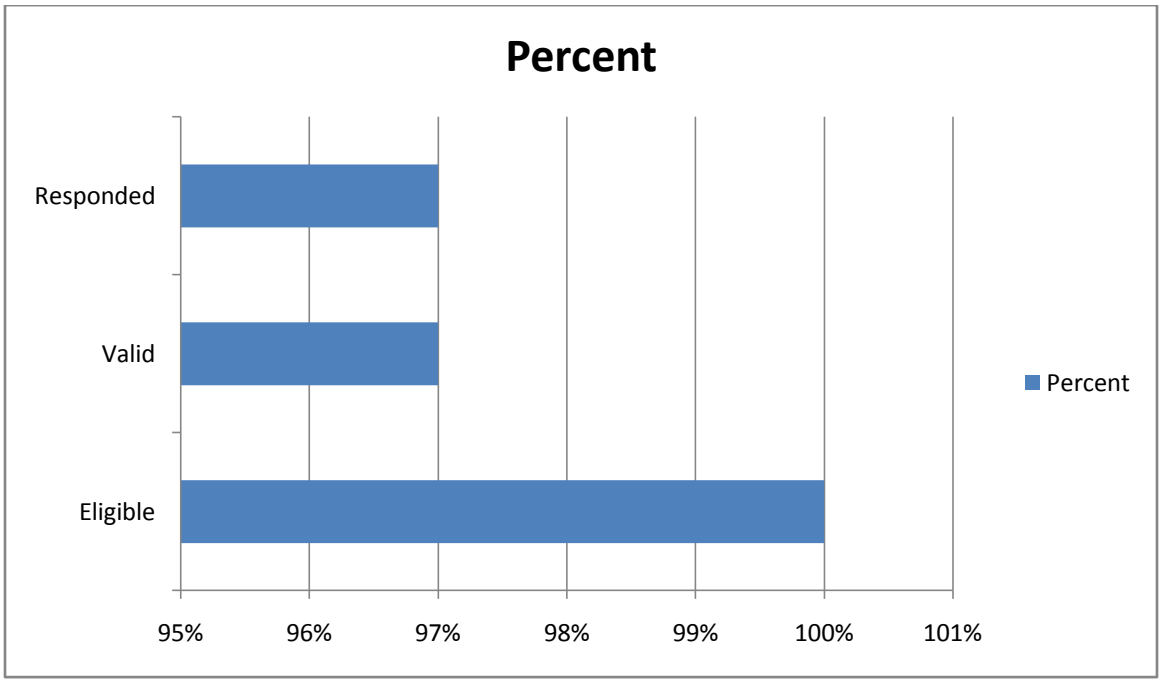
4.1 Introduction

This chapter presents the results of data analysis and findings. The findings are presented through the following subtopics: demographics of respondents, Awareness of the multimedia learning portal, extent of use of multimedia portal and factors influencing adoption of multimedia learning portal by academic staff. The chapter ends with a summary of key points and an introduction to the next chapter.

4.1.1 Questionnaire Response Analysis

With the reference of the sampling technique that employed as quoted by Kothari (2000) that recommends 30% of the population as a representative sample a total of 35 research questionnaires were distributed to 35 randomly selected academic staff at the university of Nairobi. As per data illustrated through figure 4.1, the response rate to the questionnaires was at 96% with 100% validity.

Figure 4.1: Questionnaire Response Analysis

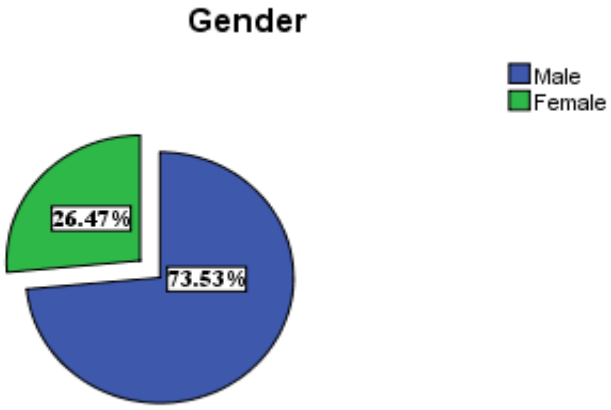


4.2 Demographics of Respondents

4.2.1 Age and Gender

A total of 34 out of 35 respondents who were targeted participated in the study. As per data described I figure 4.2, 73.57% of the respondents were male while 26.47% were female.

Figure 4.2: Gender



On the other hand as per data described in figure 4.3, 17.65% of the respondents were aged between 36 – 40 years, with 35.29% aged between 41 and 45 years and another 23.53% aged between 46 – 50 years. Also Only 23.53% of respondents were aged above 50 years.

Figure 4.3: Age

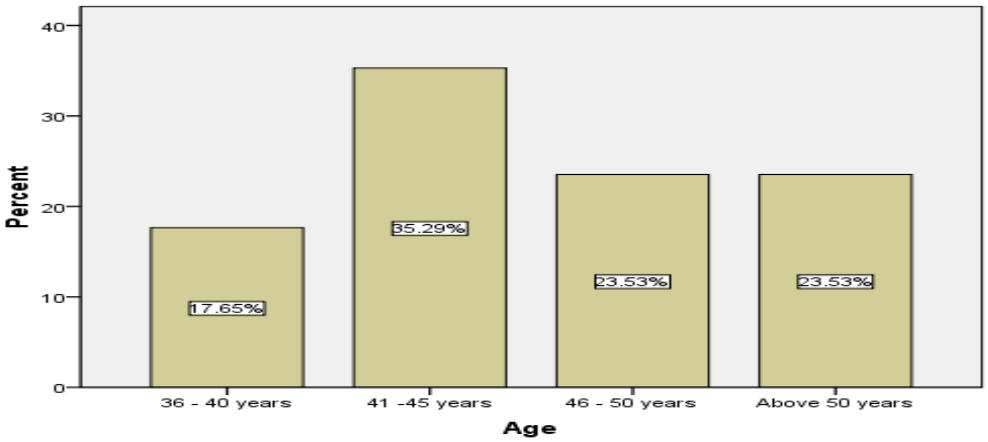


Table 4.1: Gender and Age Cross Tabulation

			Age				
			36 - 40 years	41 -45 years	46 - 50 years	Above 50 years	Total
Gender	Male	% within Gender	16.0%	36.0%	28.0%	20.0%	100.0%
	Female	% within Gender	22.2%	33.3%	11.1%	33.3%	100.0%
Total		% of Total	17.6%	35.3%	23.5%	23.5%	100.0%

As per data indicated in Table 4.1, 16.0% of the male respondents were in the age bracket between 36 – 40 years, 36.0% in the age bracket between 41 - 45 years and 28% between 46 – 50 years. The remaining 20.0% percent of male respondents were above 50 years of age. On the other hand female respondents in the age bracket of 36 - 40 years accounted for 17.6% of the female respondents while 35.3 % were in the age bracket of 41 – 45 years and 23.5% of the female respondents falling in the age bracket of 46 – 50 years. The remaining 23.5% of the female respondents were aged above 50 years.

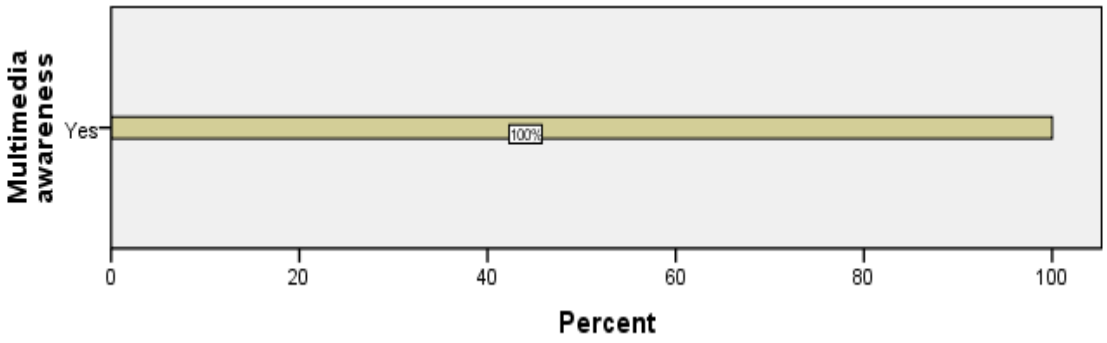
4.3 Level of Awareness on Virtual Learning Environments

The study sought to gather information from academic staff at the University of Nairobi drawn from the both the school of business and School of computing to determine the level of awareness among academic staff at the university of Nairobi. The findings are organized in categories in order to understand if the respondents have heard of the term multimedia learning portal before and their ability to define it, to determine how many days on average the academic staff gains access to the multimedia learning portal and how important they view the multimedia portal in assisting their teaching process.

4.3.1 Awareness of the Multimedia Portal

The study found out that 100% of the respondents had heard about the term multimedia learning portal before. This data is represented in figure 4.4 below

Figure 4.4: Respondents Awareness



4.3.2 Ability to define Multimedia Portal

The study also sought to establish the ability of the respondents to define the multimedia learning portal as 'a multimedia tool which utilizes ICT and the World Wide Web so as to provide educational support, educational solutions and training for both students and teachers'. As per data indicated in Table 4.2, 70.6% of the respondents who had heard about the multimedia learning portal before were able to define it whereas 29.4% of the respondents had an idea of what it meant. There was no single person among the respondents who was either unsure of what it meant or though it was another buzzword.

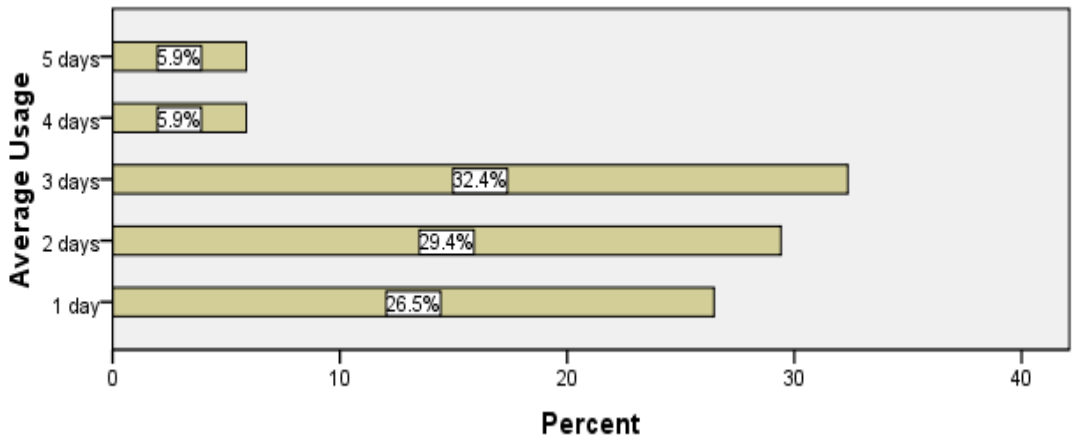
Table 4.2: Multimedia portal awareness and Portal definition cross tabulation

		Portal Definition		
		Yes	No	Total
Multimedia awareness	Yes (f)	10	24	34
	% within Multimedia Awareness	29.4%	70.6%	100.0%
	% of Total	29.4%	70.6%	100.0%

4.3.3 Access to the Multimedia Learning Portal

The respondents were asked to indicate on average how many days in a week they gained access to the multimedia learning portal to make use of the available resources. The Figure 4.5 below indicates the statistics.

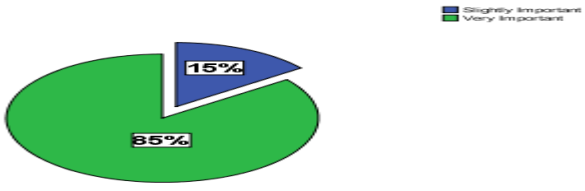
Figure 4.5: Average Usage of Multimedia portal in a week



As per data described by Figure 4.5 above, 26.5% of the respondents gain access to the multimedia learning portal once a week, 29.4% gain access to the portal 2 days on average in a week. 32.4% of the respondents indicated they access the portal 3 days a week on average with the number of the respondents which gains accesses 4 days and 5 days on average each accounting for 5.9% of the total number of respondents. It is important to also indicate that there was no one among the respondents who gained access to the multimedia learning portal either 6 or 7 days on average in a week.

4.3.4 Importance of Multimedia Portal in Assisting Teaching Process

Figure 4.6: Importance of multimedia portal



The study sought to establish the views of the respondents on how important they felt the multimedia learning portal was in assisting their teaching processes. 85% of the respondents felt that the multimedia learning portal was very important in assisting their

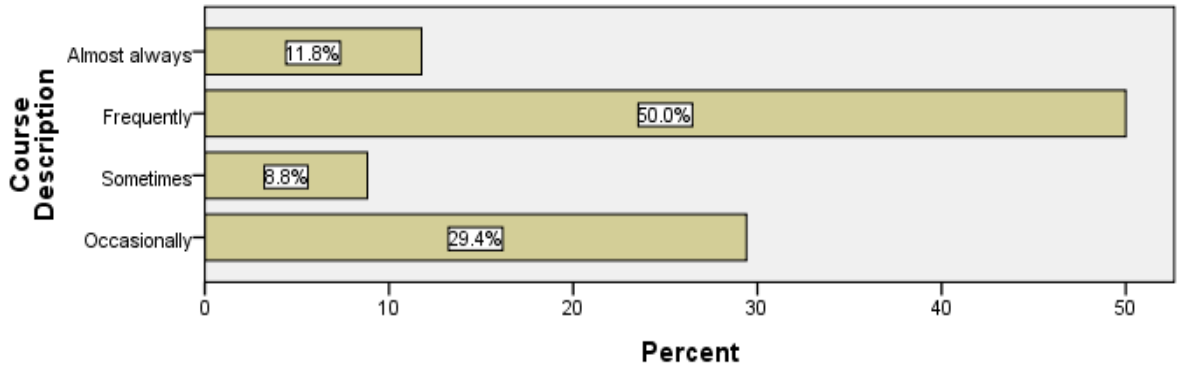
teaching process whereas the remaining 15% of the respondents indicated that it is slightly important. It is also important to note that none of the respondents indicated that the portal is 'Not very important', 'Not at all important' or was 'Not sure'.

4.4 The Extent of Use of Multimedia Portal

The second objective of the study was gathering information regarding the extent of adoption and use of the multimedia learning portal by the academic staff at the University of Nairobi. The extent of use was therefore measured based upon the extent to which the academic staff felt they made use of the various tools available in the portal. This subtopic therefore presents the findings pertaining to the extent of use of the various tools.

4.4.1 Level of use of course description

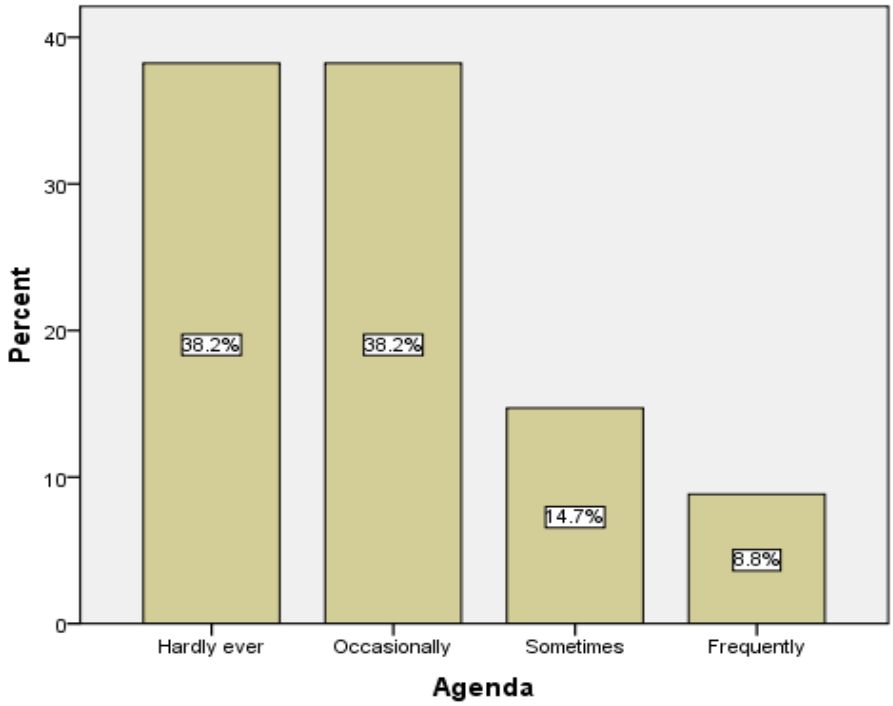
Figure 4.7: Extent of use of Course description tool



As per data indicated by Figure 4.7 above, 11.8% of the respondents felt that they only make use of the course description tool Almost always while 50% of respondents indicated that they made use of it frequently, 8.8% of the respondents indicated that they used course description sometimes. Only 29.4% indicated that they used it occasionally with no single respondent indicating that they had hardly ever used this tool.

4.4.2 Extent of use of Agenda tool

Figure 4.8: Level of use of Agenda



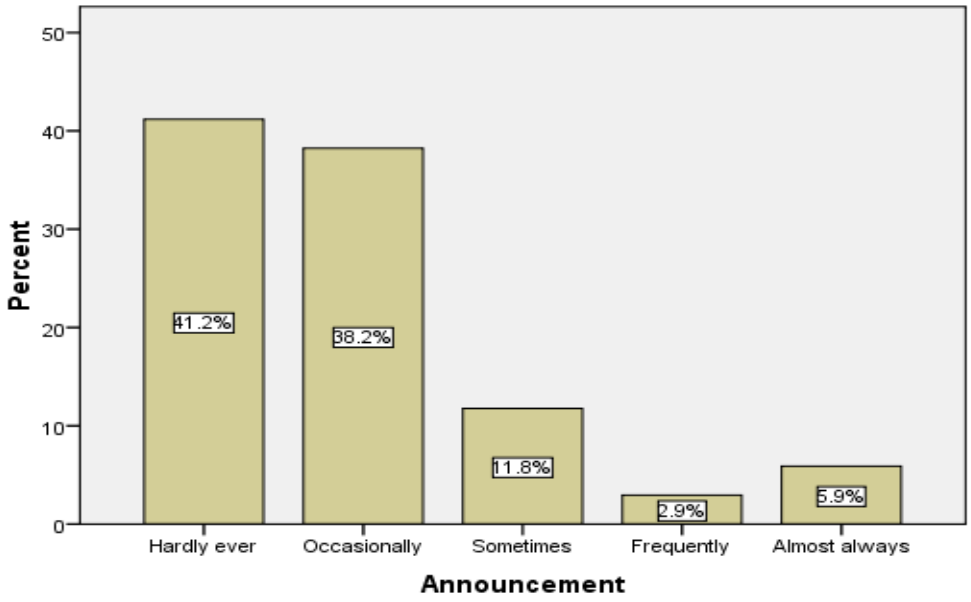
The respondents were asked to indicate how often they made use of the Agenda to post events in order of how they were supposed to take place. Figure 4.8 above indicates that 38.2% of the respondents felt that they hardly ever posted events with another 38.2% indicating they only posted occasionally. 14.7% felt that they posted events sometimes while the remaining 3.8% posting events frequently. No single respondent felt that they posted events almost always using the Agenda tool.

4.4.3 Making Announcements through the Multimedia Learning Portal

The respondents were asked to indicate how often they made announcements using the available Agenda tool in order to communicate with students. As per data indicated by Figure 4.9 in the next page, 41.8% of the respondents indicated that they had hardly ever made any announcements using the Announcement tool, 38.2% indicated that they used it occasionally with 11.8% indicating that they used it sometimes. Only 2.9% of the

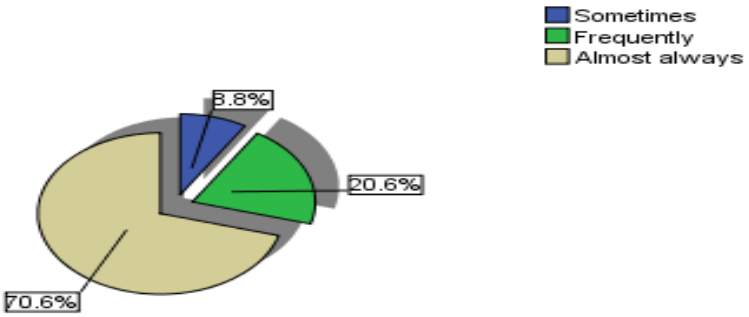
respondents indicated that they used it frequently with the remaining portion of 5.9% feeling they used it almost always.

Figure 4.9: Making announcements



4.4.4 Delivery of Course Content Online

Figure 4.10: Course content delivery



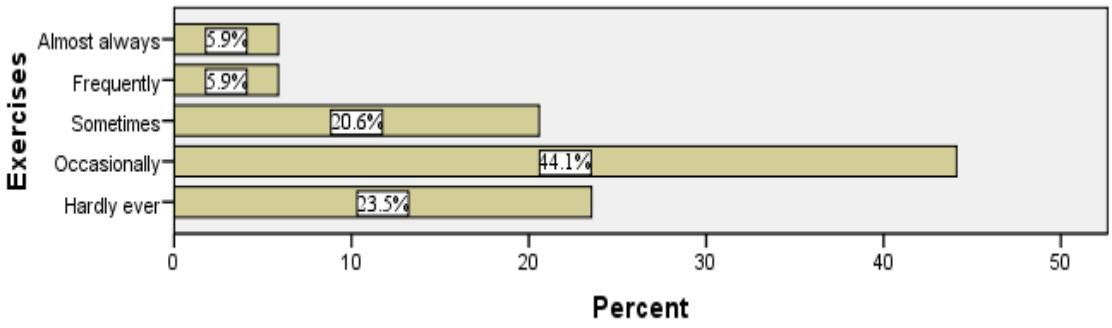
The study sought to determine the extent to which academic staff is using the Document tool available in the multimedia portal to deliver course content to students online and in this regard the respondents were asked to indicate how often they use this tool. 70.6% of the respondents indicated that they use this tool almost always with 20.6% of respondents

indicating they used it frequently. Only 8.8% indicated that they only use it sometimes. No single respondent indicated that they either hardly ever used it or used it occasionally.

4.4.5: Delivery of Course Content Online

The respondents were asked to indicate how often they used the exercises tool to post exercises to be used by students for study practices. 5.9% of the respondents indicated that they used it almost always with another 5.9% of respondents indicating they used it frequently. The number of respondents who felt they used it sometimes accounted for 20.6% while those who used it occasionally were 44.1%. 23.5% of respondents indicated that they hardly ever used it.

Figure 4.11: Extent of use of exercises tool



4.4.6 Extent of Use of Learning Path Tool

Table 4.3: Level of use of learning path tool

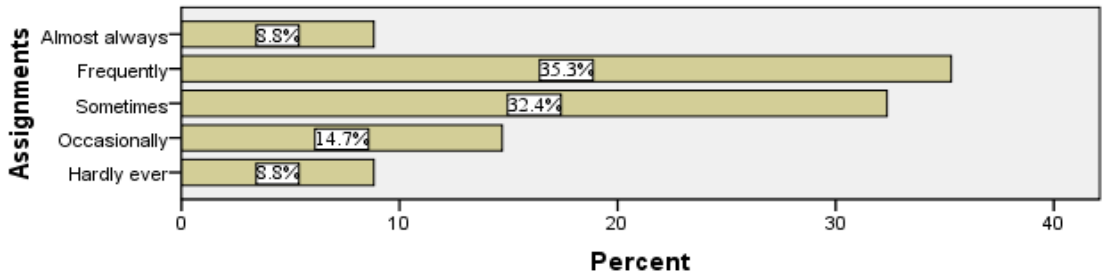
		Frequency	Percent
Valid	Hardly ever	29	85.3
	Occasionally	2	5.9
	Sometimes	1	2.9
	Frequently	2	5.9
	Total	34	100.0

The respondents were asked to indicate how often they made use of the learning path tool and as per data indicated by Table 4.2, 85.3% of the total respondents indicated that they hardly ever used it while those who used it occasionally and sometimes were 5.9% and 2.9% respectively. 5.9% of the respondents felt that they used it frequently whereas no single respondent felt that they used almost always used it.

4.4.7 Posting of Assignments Online

The study also sought to determine the extent to which academic staff made use of the assignments tool to post assignments online for students and respondents were hereby asked to indicate how often they used the assignments tool. 8.8% of respondents indicated they used it almost always whereas 35.3% indicated they used it frequently. 32.4% of respondents felt that they only used it sometimes while those who felt they used it occasionally accounted for 14.7%. 8.8% of the total number of respondents who participated in the study hardly ever used the assignments tool.

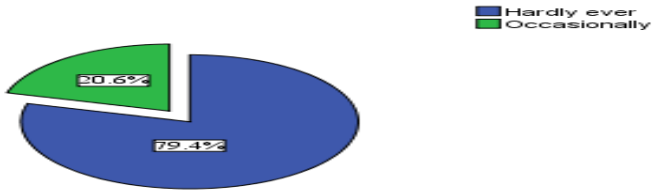
Figure 4.12: Level of use of assignments tool



4.4.8 Viewing and Participating in Forums

The respondents were asked to indicate how often they either viewed or participated in forums, 79.4% of the respondents indicated they hardly ever engaged in forums whereas 20.6% of the respondents felt that they only engaged in forums occasionally.

Figure 4.13: Level of use of Forums tool



4.4.9 Creation of Online Groups

The respondents were asked to indicate how often they made use of the groups tool to create online based groups and email based groups and monitor participation by students to these groups. 88.2% of the respondents indicated that they hardly ever used this tool while 2.9% felt that they only used it occasionally. The number of respondents who felt they used it sometimes accounted for 5.9% of the respondents whereas only 2.9% felt they made use of the tool frequently. No single respondent indicated that they used it almost always.

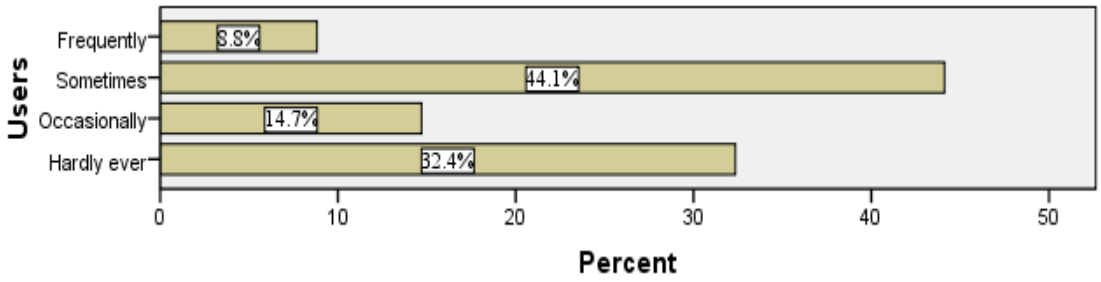
Table 4.4: Extent of use of groups tool

		Frequency	Percent
Valid	Hardly ever	30	88.2
	Occasionally	1	2.9
	Sometimes	2	5.9
	Frequently	1	2.9
	Total	34	100.0

4.4.10 Monitoring Users Activities

The study also sought to determine the extent to which respondents made use of the users tool to monitor activities of other users. As per data obtained from Figure 4.13 below 8.8% of the respondents indicated that they frequently used the tool, 44.1% of respondents indicated that they used it sometimes, 14.7% of respondents felt that they used it occasionally and finally 32.4% of respondents indicated they hardly ever used it.

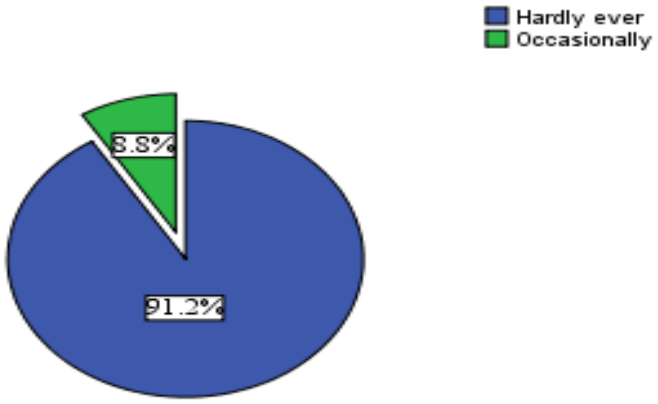
Figure 4.14: Extent of use of users tool



4.4.11 Creating and Editing of Web Page Content

The study revealed that 91.2% of the total respondents who participated in the study had hardly ever used the wiki tool whereas only the remaining 8.2% of the respondents indicated that they only used the wiki tool occasionally.

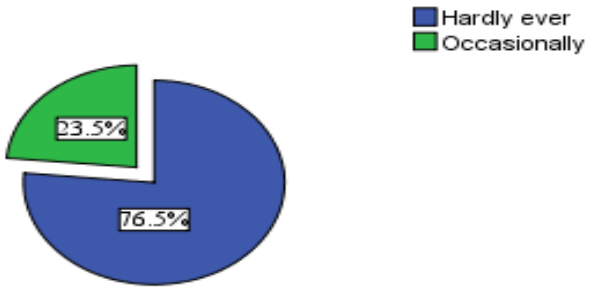
Figure 4.15: Extent of use of Wiki tool



4.4.12 Interacting With Other Users through Chat

The study sought to establish how often the respondents used the available chat tool to interact with other users. The study revealed that out of the total respondents who took part in the study, 76.5% of the respondents indicated that they had hardly ever used the chat tool whereas 23.5% felt that they used it occasionally. The findings are indicated by Figure 4.16 below

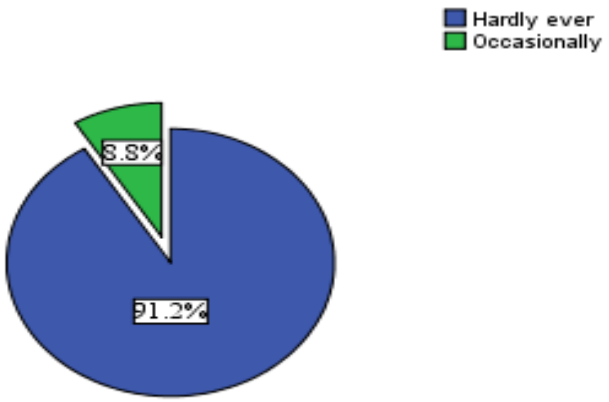
Figure 4.16: Extent of use of Chat tool



4.4.13 Usage of Media Center

The study sought to also determine the extent of use of Media center for posting content in Audio-visual form which can then be played by the dedicated player available within the media center. As per data indicated by Figure 4.17 below, 91.2% of the total number of respondents indicated that they had hardly ever used it while the remaining 8.8% indicated that they used it occasionally.

Figure 4.17: Extent of use of Media center



4.5 Factors Influencing Adoption of Multimedia Learning Portal

The third objective of this study was to gather information on the factors influencing the adoption of the multimedia learning portal by academic staff at the University of Nairobi. The respondents were asked to indicate the extent to which they felt they agreed with a number of statements which were meant to determine the factors which influenced their adoption of the learning portal. This subtopic therefore presents the findings of the factors influencing adoption.

4.5.1 Computer Experience

The respondents were asked to indicate if they possessed the required expertise in using computers which was useful to them when using the multimedia learning portal, 82.4% of the respondents indicated they strongly agreed, 11.8% indicated they agreed while the remaining 5.9% respondents felt that they disagreed. The findings are presented in Table 4.4 as illustrated below.

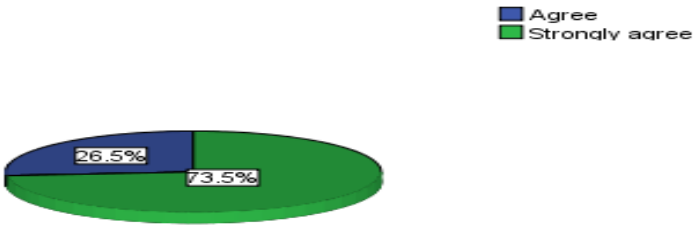
Table 4.5: Computer experience of respondents

Category	Frequency	Percent
Disagree	2	5.9
Agree	4	11.8
Strongly agree	28	82.4
Total	34	100.0

4.5.2 Internet Experience

The respondents were asked to indicate to what extent they agreed they had prior internet experience which was useful in using the multimedia portal, According to data indicated by Figure 4.18 below, 73.5% of the total respondents who participated in the study strongly agreed with the statement while the remaining 26.5% of the total respondents agreed with the statement.

Figure 4.18: Respondents Internet Experience



4.5.3 Self-efficacy

The study sought to establish if the respondents felt they were highly confident of their ability in using computer and information systems which influenced their use of the multimedia portal. As per data obtained from Table 4.5 at the beginning of the next page, 41.2% of the total respondents indicated they strongly agreed, 55.9% of respondents indicated they agreed whereas the remaining 2.9% of total respondents indicated that they disagreed.

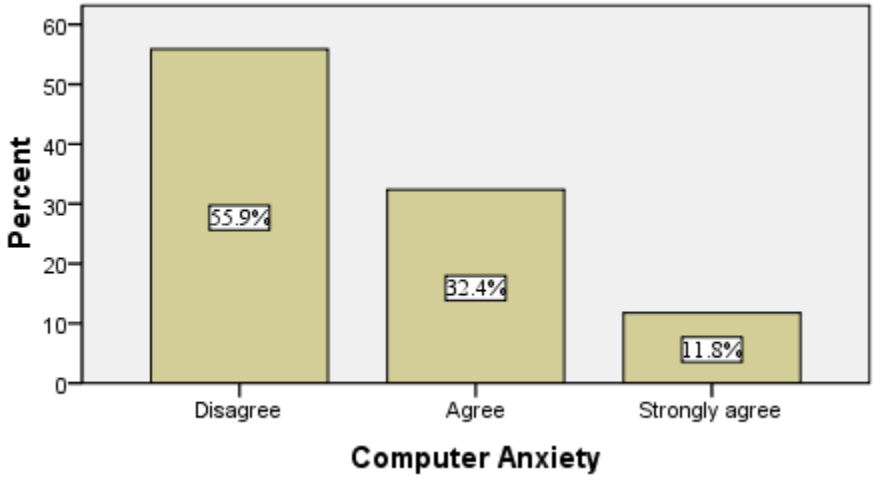
Table 4.6: Self-efficacy of respondents

Category	Frequency	Percent
Disagree	1	2.9
Agree	19	55.9
Strongly agree	14	41.2
Total	34	100.0

4.5.4 Computer Anxiety

The study sought to establish if the respondents had any fear when using computers and the multimedia portal and therefore they were asked if they were very cautious when using the multimedia portal to avoid making any embarrassing mistakes, 55.9% of the respondents indicated that they disagreed while 32.4% agreed. The remaining 11.8% of the total respondents strongly agreed that they were very cautious when using the multimedia portal to avoid making any mistakes which might cause them any embarrassments.

Figure 4.19: Computer anxiety of respondents



4.5.5 Technical Support

The study sought to determine if the extent to which respondents felt they were being accorded the much needed technical support to assist them in using the multimedia portal, 5.9% of the total number of respondents indicated that they strongly disagreed with

76.5% of the respondents indicating they disagreed, 5.9% of the respondents indicated that they neither agreed nor disagreed, 8.8% of respondents indicated that they agreed while the remaining 2.9 of the total respondents indicating that they strongly agreed. The findings are presented in Table 4.6 below

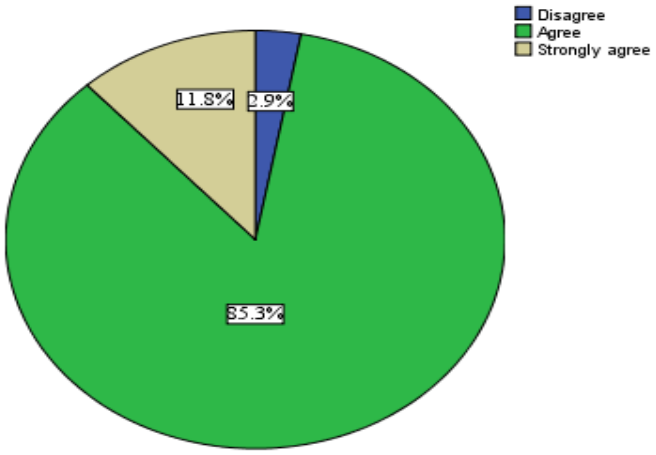
Table 4.7: Respondents' view of technical support

Category	Frequency	Percent
Strongly disagree	2	5.9
Disagree	26	76.5
Neither agree nor disagree	2	5.9
Agree	3	8.8
Strongly agree	1	2.9
Total	34	100.0

4.5.6 Computer Availability

The respondents were asked to indicate whether they felt they had adequate availability of computers at their disposal for use when accessing the multimedia learning portal, According to data obtained from Figure 4.20 below, 85.3% of the total respondents indicated that they agreed while 11.8% of respondents felt that they strongly agreed. The remaining 2.9% of the total respondents felt that they disagreed.

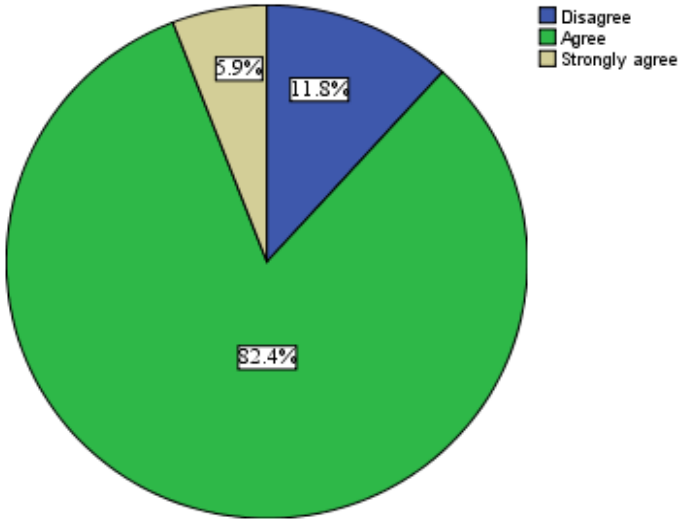
Figure 4.20: Computer availability by respondents



4.5.7 Internet Availability

The respondents were asked to indicate whether they felt they had adequate availability of internet at their disposal for use when accessing the multimedia learning portal, According to data obtained from Figure 4.21 below, 82.4% of the total respondents indicated that they agreed while 5.9% of respondents felt that they strongly agreed. The remaining 11.8% of the total respondents felt that they disagreed.

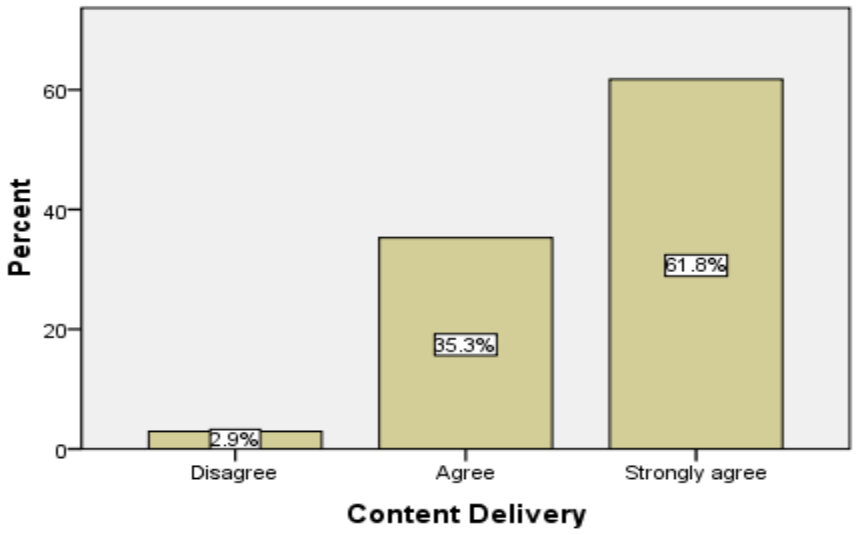
Figure 4.21: Internet availability by respondents



4.5.8 Content Delivery

The study sought to determine what the respondents felt about content delivery of the multimedia portal and the respondents were therefore asked if they felt the multimedia learning environment enabled easy delivery of course content and material, As per the data obtained from Figure 4.22, 2.9% of the total number of respondents who participated in the study indicated that they disagreed, 35.3% of the respondents indicated that they agreed and 61.8% of the total respondents indicated that they strongly agreed. The results of the findings are presented in Figure 4.22.

Figure 4.22: Respondents view of content delivery



4.5.9 Accessibility to the Multimedia Learning Portal

The respondents were asked to indicate to which extent they agreed that the portal was easily accessible from anywhere, According to data obtained from Table 4.7 below, 14.7% of the respondents indicated that they disagreed, 44.1% of the respondents indicated that they agreed whereas the remaining 41.2% of the total respondents felt that they strongly agreed that the multimedia learning portal was easily accessible from anywhere.

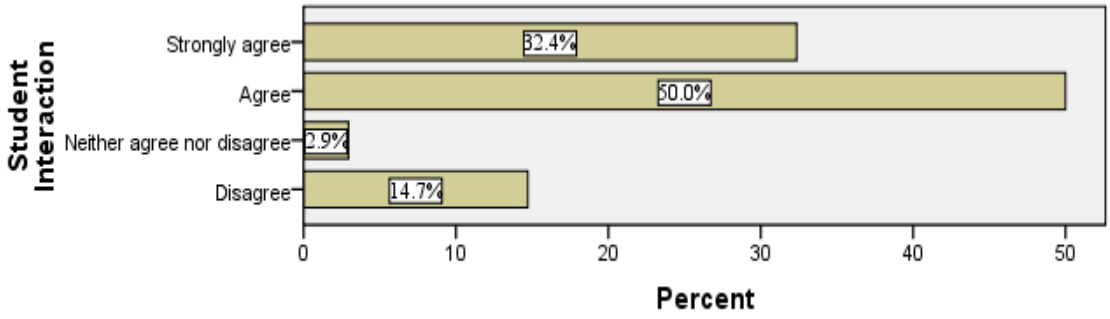
Table 4.8: Accessibility of Portal as viewed by respondents

Category	Frequency	Percent
Disagree	5	14.7
Agree	15	44.1
Strongly agree	14	41.2
Total	34	100.0

4.5.10 Student Interaction

The respondents were asked to indicate to which extent they felt that the portal enabled them interact easily with students, 32.4% of the total respondents indicated that they strongly agreed while 50% of respondents indicated they agreed. The number which indicated that they neither agreed nor disagreed accounted for 2.9% of the total respondents whereas the remaining 14.7% felt that they disagreed. The findings are as presented in Figure 4.23 below

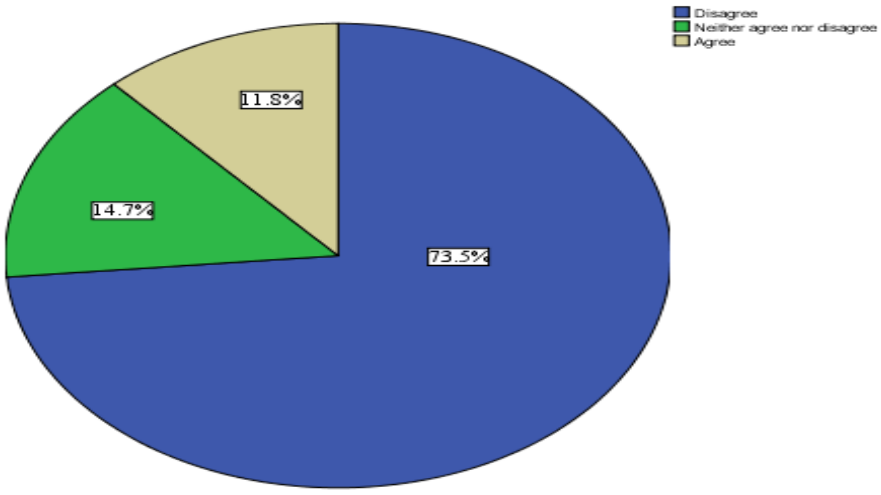
Figure 4.23: Respondents view of ease of portal to make student interactions



4.5.11 Academic staff collaborations

The respondents were asked to indicate to which extent they felt that the portal enabled them to collaborate easily with other academic staff, as per data obtained from Figure 4.24 below, 73.5% of the respondents indicated they disagreed, 14.7% of the total respondents indicated they neither agreed nor disagreed while only 11.8% of the total respondents felt that they agreed.

Figure 4.24: Respondents view of collaborations



4.5.12 Structure and Navigation of Multimedia Learning portal

The respondents were asked to indicate whether the extent to which they felt the multimedia portal was well structured and easy to navigate to the various locations, 2.9% of the total respondents indicated that they strongly disagreed, 35.3% of respondents indicated they disagreed, 8.8% of respondents indicated that they neither agreed nor disagreed, 50% of respondents felt they agreed while only 2.9% of the respondents indicated that they strongly agreed. The findings are presented in Table 4.8 below.

Table 4.9: Structure and navigability of learning portal

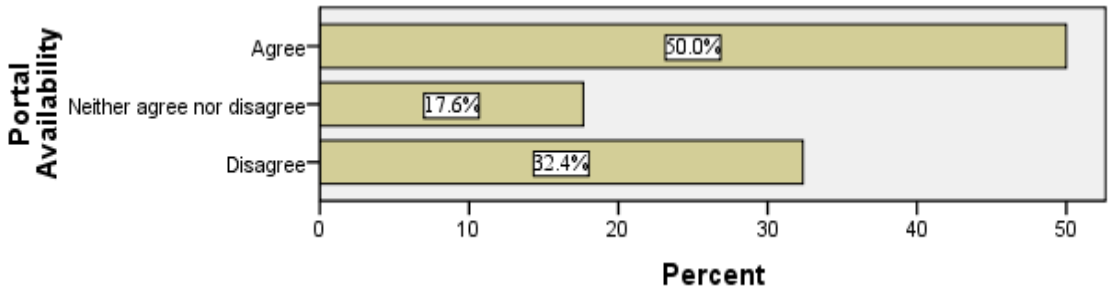
Category	Frequency	Percent
Strongly disagree	1	2.9
Disagree	12	35.3
Neither agree nor disagree	3	8.8
Agree	17	50.0
Strongly agree	1	2.9
Total	34	100.0

4.5.13 Availability and Security of Multimedia Learning Portal

The respondents were asked to indicate to which extent they felt that the portal was highly available and secure, 50% of the respondent indicated that they agreed, 32.4% of the respondents indicated that they neither agreed nor disagreed and 32.4% of

respondents felt that they disagreed with the statement that the portal was highly available and secure.

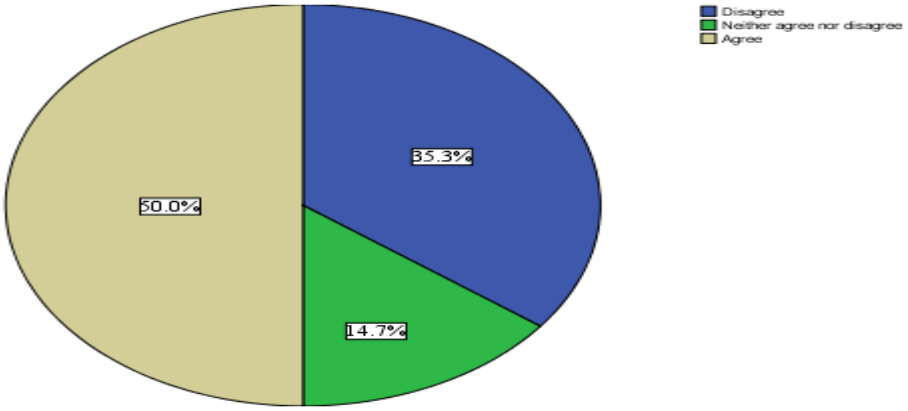
Figure 4.25: Portal availability and security



4.5.14 Response Time

The respondents were finally asked to indicate the extent to which they agreed that the portal took a very short time to respond to their requests, 35.3% of the respondents indicated that they disagreed, 14.7% of the respondents indicated that they neither agreed nor disagreed. The remaining 50% of the total respondents felt that they disagreed with the statement that the portal took a very short time to respond to their requests. The findings are presented in Figure 4.26 below.

Figure 4.26: Respondents view of response times



4.6 Regression Analysis Results

The study sought to determine the factors influencing the adoption of the multimedia learning portal by academic staff at the University of Nairobi. The independent variables

were determined as being staff VLE readiness and VLE characteristics whereas the dependent variable was extent of adoption of the virtual learning environment. The researcher performed a regression analysis to establish the association between the independent variables (VLE readiness and VLE characteristics) and the dependent variable (Extent of adoption).

The regression model was as follows:

$Y = a + bX1 + bX2$

Where;

Y = Extent of adoption of VLE

X1 = Staff VLE readiness

X2 = VLE characteristics

The regression results are as shown in Tables 4.9, 4.10 and 4.11

Table 4.10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.483[a]	.233	.183	7.515

a. Predictors: (Constant), VLE Characteristics, Staff readiness

Table 4.11: Analysis of Variance (ANOVA)

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	531.561	2	265.781	4.706	.016[a]
	Residual	1750.720	31	56.475		
	Total	2282.281	33			

a. Predictors: (Constant), VLE Characteristics, VLE readiness by academic staff

b. Dependent Variable: Lecturer's Extent of Adoption VLE

Table 4.12: Regression Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	61.596	7.857		7.840	.000
	VLE readiness by academic staff	-.522	.186	-.588	-2.802	.009
	VLE Characteristics	.160	.174	.192	.917	.366

a. Dependent Variable: Lecturer's Extent of Adoption VLE

The established multiple linear regression equation is as follows:

$Y= 61.596 – 0.522X1 + 0.160X2$

The sign of coefficients denote the nature of the relationship between the dependent and the independent variables in the study. From the study findings in Table 4.11 above, the VLE readiness by academic staff had a negative coefficient (-0.522) indicating the existence of an inverse relationship with Academic staff adoption of VLE.

The regression results show positive coefficient for VLE characteristics (0.160) and therefore a direct proportionality exists in which extent of adoption of the virtual learning environment increases with the increase in the perceived usefulness of the virtual learning environment which is influenced by the characteristics it possesses.

The regression results show that the t value of VLE characteristics was below the confidence level which is set at 1.96 for 5% level of significance. The t value of VLE characteristic is less than 1.96 i.e. 0.917 and therefore it is not significant. On the other hand the t value of VLE readiness is 2.802 and this could therefore be an indication that the fact that academic staff are not ready to use the multimedia learning portal, it reduce the adoption by 59% (t = 2.802). The findings of the study in Table 4.9 show that the R square value is 23.3%. This therefore implies that 11.8% of the variance is explained by the independent variables used. This is a very low explanatory power for the model.

4.7 Chapter summary

One of the objectives of the study was to determine the extent to which academic staff at the University of Nairobi drawn from both the school of computing and school of business has adopted the use of the multimedia learning portal. The respondents were asked to indicate the extent to which they felt they agreed with statements meant to measure the level to which they had adopted the use of the various tools available within the multimedia learning portal. The response was rated on a five point scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree and 5 = strongly agree. Mean and standard deviations for the responses were calculated and are presented in Table 4.12 below.

Table 4.13: Descriptive statistics of the extent of adoption of the learning portal

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Couse Description	34	2	5	3.44	.180	1.050
Agenda	34	1	4	1.94	.163	.952
Announcement	34	1	5	1.94	.189	1.099
Document	34	3	5	4.62	.112	.652
Exercises	34	1	5	2.26	.186	1.082
Learning Path	34	1	4	1.29	.137	.799
Assignments	34	1	5	3.21	.188	1.095
Forums	34	1	2	1.21	.070	.410
Groups	34	1	4	1.24	.120	.699
Users	34	1	4	2.29	.177	1.031
Wiki	34	1	2	1.09	.049	.288
Chat	34	1	2	1.24	.074	.431
Media center	34	1	2	1.09	.049	.288
Valid N (listwise)	34					

From the study findings in Table 4.12 in the previous page, majority of the respondents indicated that they had adopted the use of the tools available in the multimedia learning portal in this order; document (m= 4.62), course description (m=3.44), assignments (m=3.21), users (m=2.29), exercises (m=2.26), agenda (m=1.94), announcement (m=1.94), learning path (m=1.29), groups (m=1.24), chat (m=1.24), forums (m=1.21), wiki (m=1.09) and lastly chat (m=1.09).

The study findings indicate that most of the academic staff at the university of Nairobi drawn from school of business and school of computing are mostly using document tool almost always for content delivery (m=4.62) followed by course description (m=3.44) and assignments (m=3.21) tools respectively. The tools whose extent of adoption is lowest are wiki and media center each with a mean of (m=1.09).

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study was carried out to establish the extent to analyze the adoption of virtual learning environments by academic staff at the University of Nairobi. The study had three objectives: to determine the level of awareness on virtual learning environments among academic staff at the university of Nairobi, to establish the extent to which the academic staff at the university of Nairobi were using the multimedia learning portal and to establish and to establish the factors which influenced the academic staff at the university of Nairobi to adopt the use of the learning portal. This chapter presents the summary of findings for the three objectives mentioned above, the conclusions, recommendations made based on .findings and the suggestions on areas that need to be researched as far as this concept is concerned.

5.2 Summary of Findings

The study established that most of the academic staff at the University of Nairobi had heard of the term multimedia learning portal before and were able to define it. This is evident from the fact that 100% of the respondents who took part in the study were able to indicate that they had come across the term multimedia learning portal before and 70.6% of the total respondents were able to define the multimedia portal with the remaining 29.4% also showing that they had an idea of what a multimedia portal meant. Also most of the respondents indicated that they accessed the multimedia portal on average 3 days week i.e. 32.4% of respondents while 29.4% of the respondents indicated they accessed it on average 2 days a week and 26.5% accessing it on average once a week. The number of respondents who accessed the learning portal 4 -7 days on average in a single week was very low.

The study also sought to establish the extent to which the academic staff had adopted the use of various tools available within the multimedia learning portal and the findings indicated that the tool which was mostly used was the document tool which aids delivery of course content online. Other tools which were used either occasionally or sometimes

included the course description tool which was meant to give an overview of a course and what it entailed and the assignments tool used to issue assignments to students online. All of the other tools had not been adopted for use by most of the academic staff with the wiki and media center recording the lowest level of adoption.

The study also sought to establish the factors which influenced academic staff to adopt the use of the multimedia learning portal and the research findings indicate that most of the respondents indicated that they possessed the required computer and internet experience which was very useful to them when using the learning portal. Self-efficacy also emerged as being an important factor which determined the adoption of the learning portal since most of the respondents indicated that they felt confident when using computers and this confidence influenced their adoption. On the issue of computer anxiety, the respondents were divided in opinion with 55.9% of the total number of respondents indicating that they were not computer anxious while the remaining 44.1% of total respondents felt that they were cautious when using computers and the learning portal to avoid making embarrassing mistakes. According to the research findings computer availability and internet availability was not a problem to most of the respondents.

The study sought to establish what the academic staff felt in regards to the characteristics of the multimedia learning portal and it established that the staff feels that the learning portal enables easy delivery of course content and material and was easily accessible from anywhere. Also the respondents feel that the portal enables them to interact easily with students but does not allow them to collaborate and interact easily with other staff. On the other hand characteristics such as structure and navigability of the learning portal, availability of the portal and response time to requests have mixed results with 50% indicating they were satisfied with these characteristics while the rest were either not satisfied or not sure of these characteristics of the learning portal.

5.3 Conclusions

The successful adoption of any new technology is determined by the level of awareness on the technology by the users and therefore it is very important to ensure that first and foremost the users who are considered to be key players in the implementation of a new technology are made to understand the benefits and implications that will be reaped if it's adoption is embraced. The research findings in this case reveal that although all of the respondents have come across the term multimedia learning portal before and are either able to define it, the extent to which it has been adopted by academic staff at the university of Nairobi still lags behind.

The study concludes that although the multimedia learning portal at the university of Nairobi has a number of various tools available, the most adopted tool is the document tool which enables delivery of course content online followed by other tools such as course description and users which have also been relatively adopted. All the other remaining tools available within the portal are either used occasionally or are rarely used.

The study had a look at the VLE-readiness factors and therefore concludes that most of the academic staff possesses the required level of computer and internet experience which is very necessary in being able to access and uses the multimedia learning portal. Also on the same note computer availability and internet availability are also not a challenge since they are available adequately. The level of computer and internet experience can perhaps help to describe the level of self-efficacy among the academic staff since most of them feel that they are highly confident in their ability to use computers and related technologies which in effect helps them when using the multimedia learning portal. Also since most of the academic staff does not feel satisfied by the amount of technical support offered to them by the university, it can therefore be concluded that the level of technical support is dismally low and hence not satisfactory.

The study sought to establish what the academic staff felt in regards to the characteristics possessed by the multimedia learning portal as a system to support classroom learning and therefore concludes that most academic staff feel satisfied the multimedia learning portal in terms of interactivity and functionality, although they are divided in opinion on

characteristics such as quality and response time of the learning portal whereby about half feel satisfied while the rest are unsatisfied with the two characteristics.

5.4 Recommendations

The successful adoption and use of a virtual learning environment in the field of education is key to the realization of the visions of most of the institutions of higher learning. As most of the institutions of higher learning are now faced with the challenges of increased demand for places in their academic programs by prospective students and with limited space for expansion to match this demand, it is therefore necessary for these institutions to embrace the adoption of virtual learning to help in solving these problems so as to remain competitive while at the same time ensure they offer quality education to students.

The study found out that the level of adoption of the multimedia learning portal at the University of Nairobi by academic staff is still dismal. Although there are very many tools available for use within the learning portal and it's surprising to note that it's only the document tool which is mostly being used followed by tools such as users and course description. The study recommends that the university should discover the reasons behind the high level of use of the document tool as compared to other tools so as know ways through which they can increase the use of other tools.

The multimedia learning portal like any other technology requires that the prospective users must be ready to use the technology. Some of the readiness factors include computer experience, computer availability, self-efficacy, internet availability, technical support among others. The study found out that the amount of technical support offered to the academic staff is not in any way satisfactory and therefore the study recommends that the university administration should increase the amount of technical support offered so that the academic staff are able to feel confident when using the multimedia portal.

The characteristics of any system to a very large extent influence the perceptions by users regarding the usefulness of that system. For a good virtual learning environment, its usefulness is judged on factors such as interactivity, functionality, quality and response time. The study sought to establish what the academic staff felt in regards to these

characteristics and they were rather satisfied with the learning portal in terms of its functionality and interactivity as compared to quality and response time which posted mixed opinions and therefore the study also recommends that the university of Nairobi should ensure that it improves on the quality of the portal by improving its structure and also ensure that the learning portal is able to service requests much faster.

5.5 Limitations of the Study

It was such an uphill task for the researcher to find and convince the respondents to participate in the study since the study involved distributing questionnaires to academic staff most of whom are very busy most of the time. Also since the academic staffs are very knowledgeable in the field of research most of them agreed to feel the questionnaires after asking questions to the researcher so as to prove that the researcher really understood the area of research.

The area of research on virtual learning involves the use of technical jargon for the mostly non-technical academic staff and therefore the questionnaire had to be structured and questions asked in a way that made sense to the respondents and therefore this may have affected the accuracy of the data collected in one way or another. The limited size of the sample may relatively make the data unreliable and therefore it might be difficult to make generalizations based on the research findings of this study and it is therefore important to note that they can only be used for comparative purposes and not any direct application in another university.

5.6 Suggestions for Further Research

As the integration of virtual learning environments into classroom learning has not been fully adopted and implemented in this part of the world and is still immature, the scope for future research is wide, listed below are some of the immediate areas that might add value to this area of study;

1. A study can be conducted on the attitudes and behaviors of academic staff on virtual learning environments.
2. The data collection method applied was based on questionnaires and involved collecting quantitative data. Further research can be carried out using qualitative

data collection methods such as focused group discussions comprising of academic staff.

3. The study was focused on collecting data from two schools within the University of Nairobi. Research can be extended to all six colleges at the University of Nairobi.

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APPENDIX 1 – QUESTIONNAIRE

Questionnaire

This questionnaire on adoption of virtual learning environment by academic staff at the University of Nairobi aims to determine the extent to which academic staff at University are using the multimedia portal, assess the level of awareness on virtual learning environments as well as establish the factors which influence academic staff to adopt the use of multimedia learning portal.

NOTE:

- Please answer all questions as required to the best of your knowledge.
- Do not indicate your name as all feedback should be anonymous.
- Information discussed will strictly be treated as confidential
- This research is for academic purposes only and your co-operation will be highly appreciated.

PART A: DEMOGRAPHICS

Please provide the following information:

1. Gender ☐ Male ☐ Female

2. Age ☐ 18 -25 years ☐ 6-30 years ☐ -35 years
   ☐ 36-40 years ☐ 41-45 years ☐ 46-50 years
   ☐ Above 50 years

PART B: AWARENESS OF THE MULTIMEDIA LEARNING PORTAL

1. Have you ever heard of the multimedia learning portal before?
   ☐ Yes ☐ No

2. On average how many days in a week do you gain access to the multimedia learning portal?
   ☐ 1 day ☐ 2 days ☐ 3days 4☐ 5 ☐
   ☐ 6 days ☐ 7 days

3. When you hear the term multimedia portal, which definition first comes to mind?
   ☐ A place where course content is delivered online.
   ☐ A multimedia tool which utilizes ICT and the worldwide web so as to provide educational support, educational solutions and training for both students and teachers.
   ☐ Another buzzword

☐ Unsure / No idea

4. How important do you think the multimedia portal is in assisting your teaching process?

☐ Very important ☐ slightly important

☐ Not very important ☐ Not at all important

☐ Not sure

PART C: EXTENT OF USE OF MULTIMEDIA PORTAL

To the best of your knowledge please rate the following tools which are available in the learning portal according to the extent to which you feel that you make use of them. Please indicate by ticking the boxes appropriately whereby Hardly ever = 1, Occasionally = 2, Sometimes= 3, Frequently = 4 and Almost always= 5.

Tool	**Extent**				
	1	**2**	**3**	**4**	**5**
1. Course description					
2. Agenda					
3. Announcement					
4. Document					
5. Exercises					
6. Learning path					
7. Assignments					
8. Forums					
9. Groups					
10. Users					
11. Wiki					
12. Chat					
13. Media center					

PART D: FACTORS INFLUENCING ADOPTION OF MULTIMEDIA LEARNING PORTAL.

Please tick appropriately in the boxes provided against the following statements according to the extent to which you feel you agree with each one of them using a likert scale whereby, (Strongly disagree = 1, Disagree = 2, Neither Agree nor disagree = 3, Agree = 4 and Strongly agree = 5)

Multimedia Portal Readiness:

Statement	Influence				
	1	**2**	**3**	**4**	**5**
1. I possess the required expertise in using computers which helps me in using the multimedia portal.					
2. I have experience in using the internet					
3. I am highly confident of my ability in using the multimedia portal					
4. I am very cautious when using the multimedia portal to avoid making mistakes which might cause me embarrassment.					
5. There is adequate technical support from the university administration to assist in using the multimedia portal					
6. I have adequate availability of computers for use in accessing the multimedia portal					
7. I have sufficient internet availability for accessing the multimedia portal					

Multimedia Portal Characteristics:

Statement	Influence				
	1	**2**	**3**	**4**	**5**
1. The multimedia portal enables easy delivery of course content and material					
2. The multimedia portal is easily accessible from anywhere					
3. The multimedia portal enables easy interactions with students					
4. The multimedia portal allows for easy interactions with other lecturers					
5. The multimedia portal is well structured and it is easy to navigate					
6. The portal is highly available and secure					
7. The multimedia portal takes a very short time to respond to my request					