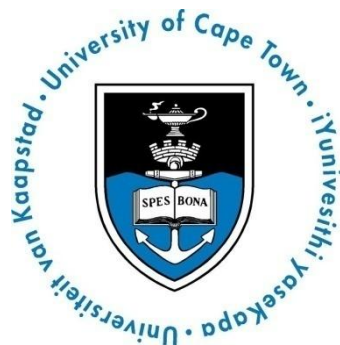


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**AN INVESTIGATION INTO THE INITIAL ADOPTION OF
E-LEARNING INNOVATION IN TEACHING AND LEARNING:
THE CASE OF MAKERERE UNIVERSITY**

MICHAEL WALIMBWA (WLMMIC005)

**A MINOR DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
AWARD OF THE DEGREE OF MASTER OF EDUCATION IN INFORMATION
AND COMMUNICATION TECHNOLOGIES**

FACULTY OF HUMANITIES

UNIVERSITY OF CAPE TOWN

2012

SUPERVISOR: DR. CHERYL BROWN

COMPULSORY DECLARATION

I, **Michael Walimbwa**, hereby declare that the work contained in this minor dissertation entitled: *An investigation into the initial adoption of e-learning innovation in teaching and learning: The case of Makerere University* is my own work and that it has not been submitted for any other degree or examination at any other university. I have made all efforts to ensure that work from other sources is cited and referenced in APA referencing format.

Signature

Signed by candidate
Signature removed

 Date 31/08/2012

University of Cape Town

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It is always very difficult to go through academic issues, most especially when you are an academic far from your country. It sounds happier to note however, that there are people out there who are supporting you while you are far from home and people are praying and supporting you to finish up as soon as possible. It is on that note that I would like to acknowledge the role of the following individuals and organisations:

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- The Scholar at Risk Trust that supported me and enabled me to stay at All Africa House for three months in constant touch with my supervisor, computing and library facilitation, leading to the production of this report. I was really at risk of not completing my research due to funding had it not been Eric Abraham Academic Fellowship!
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LIST OF ACRONYMS

DICTS	Directorate for Information and Communication Technology Support
DLE	Digital Learning Environment
DoI	Diffusion of Innovations
E-learning	Electronic learning
E-readiness	Electronic readiness
E-resources	Electronic resources
ICT	Information and Communication Technology
LAN	Local Area Network
LMS	Learning Management System
MU	Makerere University
SIDA	Swedish International Development Agency
UCT	University of Cape Town

ABSTRACT

E-learning is the use of electronic devices and networks to engage in synchronous and asynchronous learning activities. E-learning is being increasingly adopted in higher educational institutions. Research in this area has tended to focus on innovations and implementations and little has been done on adoption of this highly pervasive technology at an institutional level, particularly within Africa. The motivation for this study was to examine how an African University, in this case Makerere University, can enhance the adoption of e-learning in teaching and learning. The research used Rogers' diffusion of innovations (DoI) theory to explore the initial adoption of e-learning. It was felt that the enormous amount of experiences that early adopters and innovators could share regarding e-learning could assist as e-learning becomes more of a mainstream activity within the university.

The study was interpretative in nature and employed qualitative methods to gain insight into subject behavior through analysis of views and opinions regarding innovation and initial adoption of e-learning. It was conducted in 2011 at Makerere University where a number of respondents directly involved with matters concerning e-learning were interviewed. Respondents were selected based on their leadership at Makerere and their experience in e-learning. Data was collected through semi-structured interviews. A case study approach was employed in line with the objective of the study: to focus on e-learning as a single innovation worth mainstreaming.

Findings of this study indicate that initial adoption of e-learning was not straight forward and that early adopters played an instrumental role in further adoption of the innovation. The study reveals that Makerere University is fertile ground for continued adoption of e-learning technology. It concludes that a little more efforts and resources specifically economic and human resources from both the institution and individuals will see e-learning mainstreamed. Nonetheless there are constraints in the initial adoption of e-learning such as the mindset, the limited resources, harmonization of policies and disorganized operational environment; which need to be sorted for more adoption of e-learning innovation. The study recommends that mainstreaming e-learning innovation requires more concerted and networked effort among the innovators and adopters at all categories.

The contribution of this study to academic scholarship is the use of Rogers' framework to understand how e-learning developed as an innovation at a resource constrained university. The framework highlights the key issues to be considered for more widespread uptake of e-learning. E-learning has the potential to address some of the teaching and learning related challenges that face Makerere University. It is imperative therefore that emphasis be placed on the positive attributes of the innovation in order for it to be mainstreamed as a blended approach to teaching and learning.

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CHAPTER ONE: INTRODUCTION

Overview

There are various attempts by governments, complemented by the private sectors to innovate by integrating the use of Information and Communication Technology (ICT) in the curriculum for all levels of education for enhanced teaching and learning globally. Educational systems the world over are changing in conformity with the ICT revolution (Selwyn, 2010a). It is common to find governments or the private sector supporting higher educational institutions with modern ICT in an attempt to gain effectiveness in teaching and learning (Selwyn, 2010b). This kind of support oftentimes comes as the higher educational institution is trying to be innovative. An innovation is an idea, behavior or object perceived as new by its audience (Rogers, 2003; 1983; 1962). According to Greg, innovation is viewed as an anticipated improvement of an existing service, system or process (like teaching and learning) and sometimes the introduction of something better (Greg, 2003).

Information and Communication Technology, is a varied set of technological tools and functions including resources used to communicate, create, disseminate, store, manage and manipulate information (Anderson, 2010). Technology includes computers, the internet and computer peripherals like image scanners, webcams, digital cameras, printers, PowerPoint projectors etc. Older technologies such as the telephone, radio and television, although now given less attention, have a long and rich history as instructional tools (Cuban, 1986). Innovativeness is the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system. The rate of adoption is the relative speed with which an innovation is adopted by members of a social system.

E-learning has been variously defined; but according to Curran, it is a learning process in which learners communicate with instructors and peers, and access learning materials over the internet or other computer networks (Curran, 2004). According to Naidu, e-learning is the intentional use of ICT in the management of collaborative, synchronous and asynchronous teaching and learning activities (Naidu, 2006). The term e-learning is very appropriate for education because it combines e (electronic) and learning and therefore puts an emphasis on learning in a way that the term ICT in itself does not (Anderson, 2010). According to this researcher, e-learning encompasses learning that use technologies and information networks: the internet, intranet or extranet and electronic systems- whether wholly or in part, for course delivery, interaction, evaluation and/or facilitation.

Makerere University (MU), established in 1922 as a technical school, is one of the oldest universities in Africa. In January 1922, the school which was later renamed Uganda Technical College, opened its doors to 14 day students who began

studying carpentry, building and mechanics. The College soon began offering various other courses in medical care, agriculture, veterinary sciences and teacher training. It expanded over the years to become a Centre for Higher Education in East Africa in 1935. In 1937, the College started developing into an institution of higher education, offering post-school certificate courses. In 1949, it became a University College affiliated to the University College of London, offering courses leading to the general degrees of its then mother institution.

With the establishment of the University of East Africa in 1963, Makerere's relationship with the University of London came to a close and degrees of the University of East Africa were instituted. In 1970, Makerere became an independent national university of the Republic of Uganda, offering undergraduate and postgraduate courses leading to its own awards. Today Makerere University offers not only day but also evening and external study programmes to a student body of about 30,000 undergraduates and 3,000 postgraduates (both Ugandan and foreign). The University has since July 2011 become a Collegiate University, consisting of 9 Colleges and 1 School, operating as semi-autonomous units of the University (Makerere University, 2012).

The growth of the student enrolment at Makerere University from the initial 14 to the current tens of thousands is what has brought about the desire for innovations to enable provision of effective instruction to learners including blended e-learning approaches. Increased enrollment and continued establishment of satellite campuses points to ideal circumstances and inevitability of e-learning as an intervention. Initially, at Makerere University e-learning entailed providing the necessary staff and infrastructure to allow application to routine tasks like facilitating student access to syllabi, course readings, and bibliographic services; providing the essential infrastructure for tutor-student communication, and on a more systematic and centralized basis, taking care of the whole institutions' instructional requirements.

The institutional decision to take on e-learning was the belief that with enabling ICT innovations like e-learning, Makerere University can face the challenge of the information age with courage most especially, when different technologies are used in combination rather than as the sole delivery mechanism for instruction (Makerere University ICT Policy/Master Plan 2010 - 2014). In the same master plan, it is projected that with e-learning, Makerere University can move forward in ensuring the provision of flexible, accessible, quality and functional education for her trainees. It is this hope that motivated Makerere University as a higher educational institution into innovations like e-learning.

Innovations make their way into systems with people called innovators. An innovation can either be accepted or rejected by stakeholders. Accepting or rejecting an innovation is a decision based on several attributes of that innovation,

basing on the diffusion of innovation theory (Rogers, 2003). Diffusion of innovations (DoI) seeks to explain how, why and at what rate innovations are taken up by people in a social system. As the process of integration of an innovation continues, institutions generally adopt additional measures to support stakeholders in the engagement and promotion of the use of the innovation like online learning activities, providing funding to encourage teaching staff to use ICT and e-learning resources in their regular teaching practice; setting up dedicated units with the responsibility for promoting the use of technology-based teaching; or providing the necessary infrastructural and training support to staff and students engaged in e-learning initiatives (Anderson, 2010; Curran, 2004).

Rationale

The purpose of this study is to systematically document innovation practices and determine the enablers that occurred for early adoption with the intension of being able to learn from the past experiences in the current phase. Experiences concerning e-learning in educational institutions indicate that many factors affect the integration and rate of adoption (Anderson, 2010). Innovations and their adoption base on decisions made by individuals and units. Decisions towards acceptance or rejection of an innovation like e-learning go through a multi-faceted process related to technology, pedagogy, institutional readiness, competencies, and long-term financing, among others. There is no universal and conventional framework regarding successful innovation and adoption of e-learning in institutions (Omwenga, Waema, & Wagacha, 2004). Many higher educational institutions in resource constrained contexts initially take on the e-learning initiative using an *Everest syndrome approach* (Gallo & Horton, 1994) (just because it exists approach), without clear strategies to manage the complexities, therefore hindering attempts to reap from the real benefits of the innovation.

Main research question

How can MU enhance the adoption of e-learning innovation in teaching and learning? This question leads to the following subsidiary questions:

- a. How has e-learning innovation diffusion process happened at MU?
- b. What have been the enablers and constraints in the initial phase of e-learning innovation at MU?
- c. What are the roles of innovators and early adopters in the adoption of e-learning at MU?
- d. How can e-learning move from isolated innovation to mainstream adoption at MU?

This study was aimed at:

- i. Establishing the e-learning innovation diffusion procedure at MU.

- ii. Establishing the enablers and constraints in the initial phase of e-learning innovation at MU.
- iii. Assessing the role of innovators and early adopters in the success of e-learning at MU.
- iv. Establishing fast-track issues in mainstream adoption of e-learning at MU.

Significance and scope

As an educational technologist and a teacher trainer, I have curiously followed the integration of technology in teaching and learning at Makerere University. I am very keen at integrating technology into pedagogy and sharing successful strategies. It became fascinating when the university announced mandatory usage of blended e-learning, I wanted to know which strategies were going to be used in the broader implementation, and I wanted to see how things had progressed so far. This research project intends to explain how the e-learning innovation happened at Makerere University. It is the hope of this researcher to gain a deeper understanding of effective innovation and successful adoption of e-learning that can be drawn upon in a more universal way to mainstream e-learning. This study was conducted at Makerere University and focused on the e-learning since the year 2005.

Definition of key concepts

Diffusion of innovations: is a theory that seeks to explain how, why and at what rate new ideas and technology spread through cultures

E-learning: Learning that is supported by use of electronic devices

Initial adoption: This is a stage of the innovation where the innovation is moving from its innovative stage to being used by the individual

Innovation: An innovation is an idea perceived as new by the individual

Innovation decision: A decision taken to either accept or reject the innovation

Structure of this minor dissertation

Chapter One: Over view of the study

This chapter introduces the study by giving an overview to the introduction of e-learning at MU. It outlines the research objectives, research topic and necessity of the research before providing an overall structure of the dissertation.

Chapter Two: Literature review

This chapter is an empirical and theoretical literature review. It details the theoretical underpinning of e-learning, and also details the DoI theory. It incorporates a selected review of the literature on e-learning.

Chapter Three: Research methodology

This chapter covers the research methodology employed during the study. It outlines the research design and data collection procedures. It draws on methodology literature to justify the methods used. This chapter also outlines the data analysis procedures and the ethical issues and how they were dealt with.

Chapter Four: Data presentation and analysis

This chapter is a presentation of data. It entails what exactly the respondents said in interviews, with excerpts of what they said and how they said it. This chapter focuses on the data as it was availed by the respondents.

Chapter Five: Discussion of findings

This chapter discusses the findings in the light of the literature and the DoI theory so that it can be understood properly. There was no other way to understand the findings without proper interpretation and discussion of the same.

Chapter Six: Conclusion and recommendations

This chapter discusses the conclusions of the study. The chapter also reviews the research questions and makes recommendations based on the findings and conclusions.

Chapter summary

This chapter presented an introduction to the minor dissertation. It has provided an overview of the rationale for e-learning. The chapter has also outlined the topic, objectives and the rationale for the research undertaken, in addition to giving an outline of the dissertation. The next chapter discusses both the theoretical underpinnings and empirical literature related to the study.

CHAPTER TWO: REVIEW OF LITERATURE

E-learning as an educational reform

One of the most commonly cited reasons for institutions to take on e-learning (Rodrigues & Wafula, 2008) has been to prepare the current generation of learners for a workplace where particularly computers, the internet and related technologies, are becoming more and more universal (Anderson, 2010). The ability to use technology effectively and efficiently by both the institution and the workers is thus seen as representing a competitive edge in an increasingly globalized environment by higher educational institutions. There is an argument for the need to reform education in a society that is increasingly complex, requiring educated citizens who can learn continuously and work with diversity locally and internationally using technology (Fullan, 2007). E-learning, is one of the educational innovations aimed at reforming the education system to cater for the demand for quality of and access to education for all (John, 2010).

E-learning provides one way of educational reform, through catering for the ever divergent learner characteristics and therefore need for education that caters for individual differences. Unwin, carried out a survey of e-learning Africa and Walimbwa, researched e-learning in East African higher educational institutions. In both of these surveys, (Unwin, 2008; Walimbwa, 2011) it is noted that the characteristics of e-learning are:

- Ability to go beyond time and space- synchronous and asynchronous learning.
- Online course materials accessed 24 hours a day, 7 days a week.
- Little need for all learners and the instructor to be in one physical location.
- More individualized working environment.

Effectively implemented therefore, e-learning may solve the problem of limited space in universities (Bruck, 2010). It may also be a solution to limited time to attend lectures, as one is able to only study at the time convenient to them. Additionally, certain types of e-learning technologies, like tele-conferencing, enable instruction to be received simultaneously by multiple, geographically dispersed learners (i.e. synchronous learning) (Instruction at FSU: A guide to teaching and learning practices, 2011). This study tries to explore whether these are some of the reasons for the motivation into e-learning at Makerere University.

While engaged in e-learning, institutions no longer have to rely on only printed books and other materials in physical media, which may be old and housed in physically built libraries (and available in limited quantities) for their educational needs (Omwenga, Waema, & Wagacha, 2004). There is access to remote learning resources with the internet and the World Wide Web (depending on bandwidth), a wealth of learning materials in almost every subject and in a variety of media

can be accessed from anywhere at any time and by an unlimited number of people (Anderson, 2010). This is particularly significant for many educational institutions in developing countries that have limited and outdated library resources. E-learning also facilitates access to resource persons, mentors, experts, researchers, and professionals all over the world (Thomas & Brown, 2011). Accessing the popular search engines like Google, Bing, AltaVista, Cuil etc. can link people to many resources from many known popular professionals. This study tries to explore how sensitized the Makerere University community is exploiting the benefits in the initial stages of e-learning.

Improving the flexibility and quality of education and training through e-learning is a critical issue particularly in educational expansion and reform at higher educational institutions. Appropriate use of e-learning can catalyze the paradigmatic shift in both content and pedagogy that is at the heart of education reform (Naidu, 2006; Dori, 2007). E-learning can enhance the quality of education in several ways (Hardman, 2008):

- Increasing learner motivation and engagement,
- Facilitating the acquisition of basic skills and
- Enhancing training most especially through online professional development approaches.

E-learning technology, as a transformational tool used appropriately, can promote the shift to learner centered environment. Increasing learner motivation and engagement however, depends on the quality of digitized material and the facilitation skills of the instructor among other factors (Anderson, 2010). If an institution has only digitized lecture room notes, learner motivation and engagement cannot be automatically achieved. The focus in e-learning is not the technology but the learning and engagement (Anderson, 2010). These are some of the perceptions that influence the innovation and adoption of e-learning to be explored in this study.

Designed and implemented properly, e-learning can promote the acquisition of knowledge and skills that empower students for lifelong learning, important aspects of education (Fullan, 2007). When used appropriately, (e-learning especially computers and internet technologies) can enable new ways of teaching and learning in a more innovative way (Mayer, 2003). These new ways of teaching and learning are underpinned by constructivist theories of learning and constitute a shift from a teacher-centered pedagogy to learner-centered characterized by more learner interaction and self-oriented ways of accumulation of knowledge and skills (Jonassen & Crismond, 2008). These are enablers to e-learning that are to be investigated.

Teaching and learning as the core function of MU is based on equity and ensures the value addition/transformation processes of university students to graduates.

These graduates have to be relevant in the world of work and society at both national and global levels (Makerere University Strategic plan 2008/09- 2018 ; Makerere University Educational Technology Strategy 2009; Makerere university ICT Policies and Procedures 2009). The strategic focus of MU to producing graduates who will not only command traditional academic and subject specific skills but also possess generalist skills, such as, problem solving, reflective abilities, willingness to learn and a tendency to lifelong learning that is better catered for and enhanced through e-learning. This therefore entails a shift to more learner centered methodologies and provision of high quality and relevant programs using ICT, attributes which this study is to venture into.

Theoretical framework - diffusion of innovations

An innovation is something or idea considered to be new by an individual while diffusion is the process by which an innovation is communicated through channels over time among the members of a social system (Rogers, 2003; 1983; 1962). Rogers has written extensively about the DoI since 1962, but the fifth edition of his book summarizes almost all his publications since 1962. According to Rogers, in the newest edition of his book, people’s attitude towards the adoption of an innovation, is a key element in its diffusion. Rogers’ DoI theory asserts that innovation diffusion is a process that occurs over time through stages and begins with awareness that creates interest which leads to trial and evaluation and finally adoption or no adoption.

Diffusion of Innovations takes a radically different approach to change than most other theories regarding change. Instead of focusing on persuading individuals to change, DoI sees change as being primarily about the evolution or ‘reinvention’ of products and behaviours so they become better fits for the needs of individuals and groups. In diffusion of innovations the innovations themselves that evolve and becomes appealing to the people so the people factor helps most especially their attitudes.

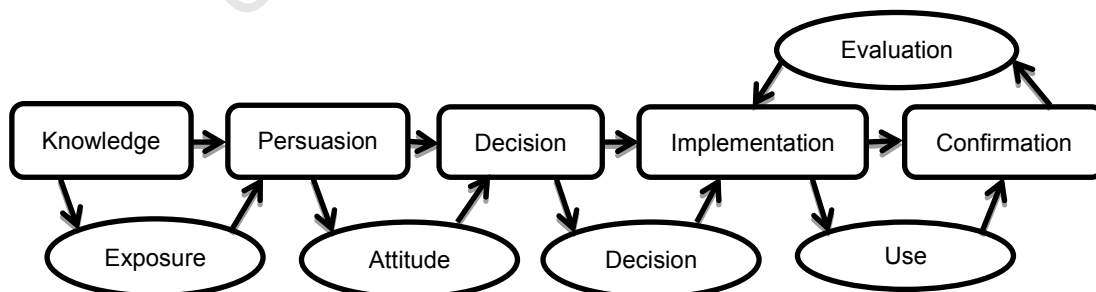


Figure 1: Phases of the innovation decision. Source (Chigona & Licker, 2008)

Awareness is the first phase of communicating an innovation and influences decision making to adopt or reject an innovation. At this phase, individuals and

organizations become aware of a new idea or technology, but lack detail about it (Surry, 1997). For example, they may be aware of its name or the underlying technology, but not know how this manifests itself, or how it works. Not knowing how things work brings about curiosity to know- interest. The next stage concerns evaluation and assessment and trying out. The individual and organization theoretically "tries out" the idea or technology. The final stage is adoption. The phase is characterized by large-scale continued use of the technology, and by the "satisfaction with" the technology group. This does not mean that the individual and organization having accepted the idea will use it constantly; rather, it means that the diffused idea has been integrated into their plan or mental model as a valuable asset or resource (Surry, 1997).

In studies done in Nigeria, South Africa and United States of America, it was proved that; individuals and organizations go through the adoption process at varying speeds, depending on factors ranging from the innovation itself, time, and effort required to implement the diffused concept, the communication of the innovation, how well it aligns with their previous experience with similar concepts, as well as the complexity of the innovation under consideration (Chigona & Licker, 2008; Achimugu, Oluwatolani, & Oluwaranti, 2010; Warford, 2005). There are some innovations that spread more quickly than others. Certain attributes relate to the rate of adoption and therefore the spread of an innovation including: relative advantage of the innovation, compatibility, complexity, trialability and observability to the people within the social system (Rogers, 1962). These attributes make the DoI theory relevant to the study of e-learning in its initial phase at MU.

Communication is the process by which participants create and share information with one another about the innovation in order to reach a mutual understanding. Keller carried out a review of virtual learning environments in higher education in a Swedish university using DoI to understand the ways of communicating an innovation to the public. The review revealed that mass media channels are more effective in creating knowledge of innovations, whereas interpersonal channels are effective in forming and changing attitudes towards an innovation (Keller, 2005), and thus influencing the decision to adopt or reject an innovation. Most individuals evaluate an innovation, not on the basis of scientific research by experts, but through the subjective evaluations of near-peers who have adopted the innovation (Greg, 2003). It is the venture of this research into understanding how e-learning is communicated for potential adoption around Makerere University.

Samarawickrema and Stacey carried out a study in an Australian University using DoI and found out that time dimension is involved in successful diffusion (Samarawickrema & Stacey, 2007). In this study, it is concluded that the innovation decision is a mental process through which an individual (or other

decision making units) passes from first knowledge of an innovation, to forming an attitude towards the innovation over a period of time. That is why there is a derivative of the DoI to exposure, attitude, decision and use (Chigona & Licker, 2008). The use of DoI in this study will inform the research about the time taken, levels of exposure to e-learning and their effect on attitude, decision and use of the same e-learning.

Another element that has been widely studied in the diffusion of new ideas is the social system (Naidu, 2006; Warford, 2005). Naidu published a manual for e-learning in Asia, while Warford looked at teacher innovativeness in society and they conclude the following regarding social systems;

- a common goal
- units of a social system are individuals, departments and or subsystems where individuals belong
- social system constitutes boundaries within which an innovation diffuses
- system's social structure affects diffusion
- norms in a social system affect diffusion
- Opinion leadership, the degree to which an individual is able to influence informally other individuals' attitudes or overt behavior in a desired way with relative frequency is important in diffusion.
- Early adopters are often opinion leaders, and serve as role-models for many other members of the social system and they are usually young members of the social system.
- Early adopters are instrumental in getting an innovation to the point of critical mass, and hence, in the successful diffusion of an innovation.

This study deals with the first two categories of an innovation: innovators and early adopters, because e-learning innovation at Makerere is still in its infant stages. Not a lot of adoption has therefore been done as the innovation is in its innovation stage. It is therefore necessary to explicitly explain what it means to be an innovator or early adopter and point out roles in the innovation process to learn from if e-learning has to be mainstreamed appropriately.

Innovators are the first individuals in a system to adopt an innovation. Venturesomeness is almost an obsession with innovators; the interest in new ideas leads them out of a local circle of peer networks into more cosmopolite social relationships (Rogers, 2003; 1983; 1962). Communication patterns and friendships among a clique of innovators are common, even though the geographical distance between them may be considerable. Being an innovator has several prerequisites including ability to understand and apply complex technical knowledge (Rogers, 2003; Samarawickrema & Stacey, 2007; Surry, 1997). Innovators must be able to cope with a high degree of uncertainty about an innovation at the time of adoption. While an innovator may not be respected by the other members of a social system, they play an important role in the diffusion process: launching the

new idea in the system by importing the innovation from outside of the system's boundaries. Thus, the innovator plays a 'gate keeping' role in the flow of new ideas into a system (Rogers, 2003; Warford, 2005; Thomas & Brown, 2011).

Early adopters are the next individuals (after the innovator) in a system to adopt an innovation. Early adopters are a more integrated part of the system than innovators. Whereas innovators are cosmopolites, early adopters are localities. This adopter category, more than any other, has the greatest degree of opinion leadership in most systems (Rogers, 2003; Singhal, 2005). Potential adopters look to early adopters for advice and information about the innovation. This adopter category is generally sought by change agents as a local missionary for speeding the diffusion process. Because early adopters are not too far ahead of the average individual in innovativeness, they serve as a role-model for many other members of a social system. Early adopters are typically young and respected by their peers, and are the picture of successful, discrete use of new ideas. Early adopters know that to continue to earn this esteem of colleagues and to maintain a central position in the communication networks of the system; they must make sensible innovation-decisions. The early adopter decreases uncertainty about a new idea by adopting it, and then conveying a subjective evaluation of the innovation to near-peers through interpersonal networks (Rogers, 2003; 1983; 1983).

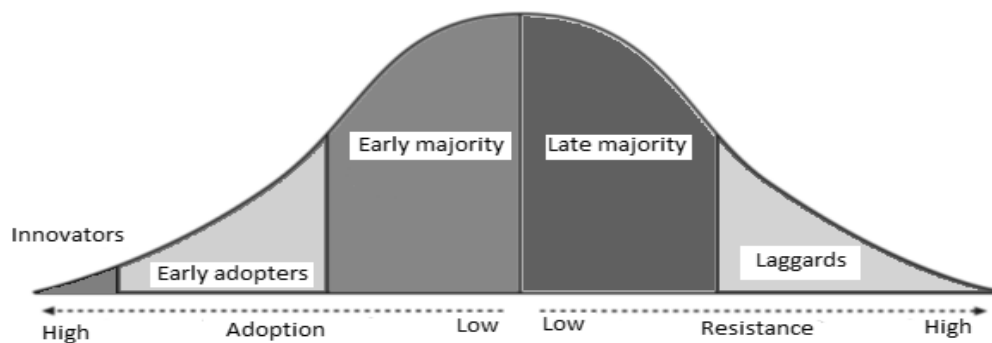


Figure 2: The phases of diffusion of innovations. Source (Greg, 2003)

Informed by the diffusion of innovations theory, this study assessed initial e-learning at Makerere University. The study focuses on participants' perception about the innovation, how the innovation is communicated and their influence on diffusion of an innovation, how the innovation diffuses initially and the influence of the social systems in the coming up of the innovation. This study also embeds detailed testimonies of the people called innovators and early adopters and their views about the initial constraints and the way forward in the e-learning innovation at MU.

Innovations typically involve creativity including acting on the creative ideas to make some differences in the institution where the innovation is to occur (Singhal,

2005). Innovation decisions begin with creative ideas from some people. However, for innovation decisions to be successful, something more than the generation of creative ideas is required. There should be the preparedness of the community or system to accept the innovation. Once the innovation has occurred, it may be spread from the innovator to other individuals and groups. In the early stages of the innovation, growth is relatively low as it establishes itself. At some point in time, the demand for innovation increases more rapidly. Each individual's innovation-decision is largely framed by personal characteristics, and this diversity is what makes diffusion possible (Greg, 2003). Research has it that for successful implementation of an innovation, decisions oftentimes are dependent on the extent to which the needs and concerns of the stakeholder groups involved are addressed by that innovation (Wagner, Hassanein, & Head, 2008).

Given that decisions in diffusion are not authoritative or collective, each member of the social system faces his/her own innovation-decision that follows a five-step process (Rogers, 2003) as shown in Table 1.

Table 1: Stages in the diffusion decision process and their explanation

Stage	Definition
Knowledge	This stage involves the individual's first exposure to an innovation but the individual lacks information about the innovation. During this stage the individual has not been inspired to find more details about the innovation.
Persuasion	This stage includes the individual getting interested in the innovation and actively seeking information and details about the innovation.
Decision	This stage involves the individual taking the concept of change and weighing advantages or disadvantages of using the innovation and deciding whether to adopt or reject it. Due to the individualistic nature of this stage Rogers notes that it is the most difficult stage to acquire empirical evidence.
Implementation	This stage involves the individual employing the innovation to a varying degree depending on the situation. During this stage the individual determines the usefulness of the innovation and may search for further information about it.
Confirmation	Although the name of this stage may be misleading, at this stage the individual finalizes the decision to continue using the innovation and may end up using it to its fullest potential.

Diffusion of e-learning and policy frameworks

E-learning as an institutional initiative begins in most cases with policies and their implementation in an institution. A study at a higher educational institution in Kenya using DoI (Omwenga, Waema, & Wagacha, 2004) reveals that financing, time, curriculum change, responsibility are pertinent if there should be sustainability of the e-learning project and are therefore at the forefront of an e-learning initiative. Skills-set and competencies of stakeholders are very important too. At the center of e-learning are computers and their peripherals, and the internet that transforms into a Digital Learning Environment (DLE). Central is constant training of both staff and students. Because technology is very dynamic (Naidu, 2006), training and updates of all forms are called for and all these is explored to determine the possibility of mainstreaming e-learning into an institution wide innovation.

Three types of innovation-decisions have been identified within the diffusion of innovation (Rogers, 2003; 1983; 1962):

- Optimal innovation decisions are taken by individuals who in some way is distinguished from others in a social system
- Collective innovation decisions are made collectively by individuals in a social system and
- Authority innovation decisions are made for the entire social system by few individuals in positions of influence or power

This study also ventures into innovation decisions and how policy influences them.

For successful e-learning, institutions need clear understanding of who is involved and what their needs are including policies that create a coherent diffusion of the innovation (Achimugu, Oluwatolani, & Oluwaranti, 2010). This calls for a clear and well stipulated policy framework and a systematic implementation of these same policies. The rate and process of adoption and use of e-learning technologies by the potential users in an institution is not the same though even where the policies are systematically implemented (Scheuermann & Pedró, 2009).

Innovation-decision making has a direct implication on policies and how they are implemented in an institution for a successful innovation. In most institutions, innovations are from the few people called the innovators. Enabling policies, among other factors can enable the smooth evolution of an innovation. Organs responsible for formulation of user friendly policies thus promote innovations. Policy addresses a number of issues directed towards the purpose of an innovation for transformation and decision to adopt an innovation like e-learning (Plenderleith & Veronica, 2009). But policy is also supplemented by organizational culture (Czerneiwicz & Brown, 2009). So organizational management cultures and

the way policies are implemented are very pertinent in the decision to adopt an innovation. This study tries to venture into how policy implementation affects innovativeness.

Chapter summary

This chapter has provided theoretical perspective and underpinnings of e-learning in teaching and learning. Through the literature, it has been found out that e-learning brings in some educational reforms including constructivist approach to learning, flexibility of content provision and thereby trying to hammer out a solution to higher education limited space issues. It has reviewed some other studies that use DoI to study e-learning in teaching and learning, which points towards the effectiveness of e-learning. The theory that underpins this study by revealing that innovation diffusion process occurs over time through five stages: knowledge, persuasion, decisions, implementation and confirmation. The next chapter looks at the methodology of this study.

CHAPTER THREE: RESEARCH METHODOLOGY

Research design

This study is located within an interpretative paradigm and the study uses qualitative research methodologies where e-learning is looked at as described by the respondents. The study does not only focus on practicalities of e-learning, but rather the meaning attached to events and actions in e-learning in its initial stage. This is a case study because it examines a single innovation at MU looking closely at innovation and early adoption. The study takes an exploratory approach because e-learning is a fairly new phenomenon (Baxter & Jack, 2008; Babbie, 2007) where views of some key officials at MU are put as the case in consideration. The choice of the diffusion of e-learning among many innovations was because, since the year 2000 the university has been integrating e-learning in teaching and learning, which is transforming the university teaching and learning platform.

Selection of respondents

The intension of this study was to neither generalise the findings to every innovation in MU nor to e-learning innovation elsewhere. However, the criteria used to select respondents based on the following:

- Knowledge of policies- someone who ensured that policies for the overall institution are implemented, particular focus was the implementation of e-learning policies.
- Knowledge of ICT support- working in the directorate for information and communication technology support for a long time, to ensure that e-learning is appropriately implemented.
- Expert in the e-learning unit- having directly worked at the e-learning unit, where they play a role in implementation of e-learning.
- Experience in using e-learning- having taught using ICT for a minimum of five years since its establishment, considered as innovators and early adopters.

A purposeful selection of respondents was therefore done (Babbie, 2007). The choice of respondents was intended to deal with people who are closest and influential to e-learning at MU. Study participants included the top university manager, staff from the Directorate of Information and Communication Technology Support (DICTS), the E-learning Manager and the E-learning Administrator. The views of this category fairly represent the institutional plans, user perceptions and progress of e-learning.

A pair of participants: one considered as an innovator and the other an early adopter were identified. The e-learning unit has records of how e-learning has evolved and who have been involved longest. These records were used to identify

the innovators and early adopters, from whom I purposively chose. The choice of these respondents was based their availability, the discipline they handled, experience and the willingness to be part of the study. This study being qualitative is emphasising what respondents say, not how many have said what (Maxwell, 2005), therefore the study had six respondents in total.

Research instruments

This study was undertaken by using a qualitative method of data collection focusing on particularly factors that affect the innovation and rate of initial adoption of e-learning as determined by the diffusion of innovations theory and the literature in chapter two.

Semi-structured interviews consisting of oral question responses were conducted among respondents. Guided by an interview guide (Appendix A) detailed enough for sufficient data, the six interviews were carried out and carefully recorded.

The interviews were recorded using a digital audio recorder. The audio recorder was useful in ensuring that the researcher accurately captured respondents' responses without being overly concerned with summarizing, paraphrasing or misrepresenting respondent's views. Recording the interviews also provided the researcher with audio files which could be re-played over again for continued study and analysis, which also ensured accurate representation of respondent's views (Fraenkel & Wallen, 1990). During each interview, the researcher took notes of opinions and feelings arising and used these together with the transcripts of the interviews to provide a rich data set (Creswell, 2008).

Interviews were conducted in May and June 2011. The officials were called by phone, some of them e-mailed to book interview appointments. I had to reschedule the appointment with one respondent because of a tight schedule. We pushed the interview two times and I ended up interviewing him one very early morning at a quarter to Seven O'clock! The researcher walked to their offices one by one and introduced the study, telling them the purpose on the research and asking them for permission to be recorded. Interviews were carried on in a conversational way, guided by the questions. Interviews lasted for averagely 30 minutes per respondent.

Validity and reliability

Items on data collection instrument used in the study were used in other researches and yielded positive results, (Wagner, Hassanein, & Head, 2008; Omwenga, Waema, & Wagacha, 2004). To ensure that the respondents did not just tell me what I wanted to hear, I probed using some of the items. Besides the question items across all respondents were similar, to make sure there is construct validity.

Ethical issues

Ethical principles are a crucial aspect of research, especially research involving human subjects. They provide guidelines on what to do in the research process, and especially in difficult situations (Cohen, Manion, & Morrison, 2007). Ethical clearance (Appendix C) was obtained through the Graduate School of Humanities at the University of Cape Town (UCT) before the study was conducted. A proposal outlining the intended study was submitted when obtaining ethical clearance to the Graduate School of Humanities that offered me ethical clearance. The researcher adhered to ethical guidelines as closely as possible throughout the duration of the study. The researcher followed Cohen et al.'s suggestions for undertaking field studies, as well as UCT's Policy Document for research involving human subjects including:

- familiarization with the university's ethical framework, guidelines and codes of practice involving research with human subjects and,
- gaining access to and acceptance in the research setting via establishment of rapport with participants and eventual interview of subjects.

In this case the respondents were not anonymous, so I availed them a copy of their transcribed interview, to read and be sure they are happy with what was written, and then they consented and accepted I would go ahead and present the data.

Data processing and analysis

Data collected was transcribed at the end of each day to check for consistency, completeness and accuracy. Daily analysis was done to avoid data from piling up which makes final analysis difficult and discouraging (Maxwell, 2005). After all the answers to the questions were recorded, the responses were summarized, categorized into themes for analysis (Table 1), in order to draw conclusions from the results. Data was transcribed and analyzed thematically through transcribing and writing memos, (Maxwell, 2005) by identifying salient issues, and citations. All transcriptions were done by the researcher.

Respondents were interviewed and questions related to initial developments in e-learning, enhanced and increased uptake of e-learning in the semi-structured interviews rotating around knowledge, persuasion, decision implementation and confirmation. These themes were discussed in view of how they create viable environment for e-learning and how they are motivated into participating in e-learning and how policy implementation motivates innovation and adoption at MU.

Table 2: Link between theory and research questions

Theoretical view	Research question
Knowledge	How can ICT are integrated into teaching and learning
Persuasion	Enabling and constraining factors in e-learning
Decisions	How staff started on e-learning
Implementation	How structures for e-learning were created
Confirmation	Enabling and constraining factors in e-learning

Chapter summary

This chapter has discussed how the researcher approached the research process. It has outlined the research design and data collection approaches used. The chapter also justifies the research methodology and data collection techniques used. The chapter has presented details about how participants were selected and the interview process. The next chapter goes further into data presentation.

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

Introduction

This study investigated how the initial establishment of e-learning at MU can enhance the further adoption of e-learning, specifically looking at the role of innovators and the early adopters and the enabling and constraining factors for e-learning. A number of interview items were constructed (Appendix A) in relation to the research question and in light of the DoI theory guiding this study and presented to six selected respondents. Presentation of findings is done respondent by respondent using a grounded theory approach.

Overview of the process of an e-learning innovation at MU

In an effort to understand how the e-learning started at Makerere (the electronic platform represented in Figure 3), respondents were asked to state the number of years they had served at the University. Some had served the University for a very long time and others had served for a shorter time. Out of the six respondents, one had served for over fifteen years, the other ten years, and two of them had served for five years.



Figure 3: The Makerere Moodle E-learning platform (Source Makerere University)

Six participants holding several positions in direct relation to e-learning at Makerere were part of this study. Respondent 1 (R1), who was among the innovators of e-learning offered to share experiences and R1 had been in Makerere

University for over fifteen years dealing with ICT and e-learning issues. He was at the university when the establishment of the e-learning unit was initiated and so had historical knowledge about the innovation. R1 was the first officer directly care-taking the e-learning unit when it was created. Respondent 2 (R2) had worked in DICTS for ten years, dealing with ICT policy and Technical issues of e-learning at MU. Respondent 3 (R3), was once a dean, and is an enthusiast of ICT and e-learning. R3 gave opinions about the bigger picture and institutional policy issues concerning e-learning at MU. Respondents 4 and 5 (R4&5) were from the e-learning unit. They were the first staff members to be recruited in the e-learning unit. R4&5 gave data about the e-learning users, their perception and attitude towards e-learning that leads to either adoption or rejection. R4&5 preferred to have a detailed discussion (some kind of focused group discussion) instead of an interview. Respondent 6 (R6) is an early adopter, who has been teaching using ICT since 2005.

For ethical reasons respondents have been referred to using codes: R1, R2, R3, R4&5 and R6, and the data is presented in reference to the codes.

Table 3: Respondent categories

Place in this research	Years in service	Category	%
Innovator	6	Administrative	67%
Early adopter	10	Academic	17%
Potential adopter	5	Academic	17%

Many of the early e-learning initiatives at MU were developed by staff in departments with computers and networks and where the synergy between research and teaching was strongest. The essential infrastructure for course development and delivery was most accessible in the Department of Mathematics where the first computer in MU was located, explaining why most of the respondents came from this department. At some time similar synergistic opportunities in the university stimulated the decision to involve specialised departments in pedagogy like the School of Education and Institute of Adult and Continuing Education to streamline e-learning now called College of Education and External Studies.

Respondent one (R1)

R1 has a long experience in e-learning and acts as an interface between e-learning users and the ICT system. He mediates between the daily users and the technical people involved in the management of the e-learning system. He helps users navigate through the system smoothly, because some raise questions like:

inability to understand this, inability to do this and that is when the question of support comes in, and therefore that is why R1 is vital in this study. As an innovator, he is instrumental in supporting others into the adoption of e-learning. R1 has roles like acting as a channel through which users get their experiences in ICT use at MU for possible sharing. Users say they can do this, but not that, then R1 figures it out with a team, how to ensure that someone can do what they would like to do. As a team, they look at what the user has asked and try to help, but if the question requires more technical and specialized answers, they direct them to those specific departments like networks, systems administration etc. It is also the responsibility of R1 to follow up and get the answers back to the user. This kind of support to users makes some of them confident into the use of the e-learning system. One can envisage the challenge one has in trying to set an enabling environment for other people to adopt e-learning.

The beginning of e-learning

R1 says that the late 1990's saw beginning of ICT revolution at Makerere University. It was the first e-learning attempt and it worked for few people as he says.

"ICT existed in isolated places, people had computers but there was no network, people had individual connections, in the late 1990's there was the first attempt to do email, there was a little service in Mathematics department that would call to London".

The next step was the United States of America e-learning initiative, they funded some small wireless networks and therefore some places within campus had wireless networks (local area networks-LAN) about late 2000. There came the Carnegie e-learning grant through the government of Uganda, sponsoring a network and connection of about 4.5kms long. ICT integration progress and most specifically e-learning at MU are generally okay of course amidst encumbrances, though it can be better, even within the existing constraints.

The progress of e-learning

R1 claims he was lucky to have been at MU at the beginning of e-learning so he has the best knowledge of how people worked before and how they are working now. He was the care-taker when the e-learning unit was established as he explains.

"It all started with people just getting e-mails and so they were on yahoo and hotmail. Then we set up our own internal system of 'dot mak', and encouraged people to communicate using e-mail."

Some people did not even know what they were to do; sometimes they would fail and not even ask. The change in e-learning is described as follows:

“But now things have changed, if there is a problem, they will get to you, before you even think about it. E-mail and internet are now basic needs, but they were not before. If Internet was off for one hour, someone will call using a phone to ask, what the problem is. The transition is very clear now”.

The use of ICT by staff at individual level is perfect, but at institutional level, there are things to be sorted for more acceptable use of e-learning as the respondent explains.

“When it comes to using ICT to teach and educate students, there is still need for improvement. There are multiple e-learning systems running at times because e-learning was here at such a critical stage, but you find people doing things like these systems are none existent or none functional.”

In reference to the running multiple learning platforms Moodle™, Blackboard™, and another LMS in the various colleges, the possibility of harmonisation would be necessary.

Some lecturers go to Europe or anywhere else, get the exposure and see the practical importance of e-learning and they come back and do the implementation. If they come back and experience the LMS they worked with out there, they could be able to work, as a matter of continuity, explaining how a critical mass affects e-learning, a respondent said:

“That critical mass was big enough and people appreciated. The cost involved in Blackboard™ and running multiple systems is very high and so we shifted to an open source learning management system and people are using it, we are in the process of migrating to Moodle.”

The problem is that so many people from the technology and computing side are the ones using the technology in teaching and some very few in the humanities are involved, reason being that there are more ICT resources in those units than in the humanities. Historically, there are more people in Arts than Science, so the ratio of ICT resources to students tends to be perfect in the Science than the humanities. When you look at computing and information technology, the students pay more money as they priced their courses differently and they got some money from students and invested the same many in ICT resources.

Respondent two (R2)

He is in charge of formulation and execution of e-learning policies in the University. Having worked in Makerere for 10 years, he noted that ten years ago,

there was literally nothing to do with e-learning, and then things were just put in place so everything was just starting, explain that-

“There were a few scattered things here and there so the university started a more integrated and comprehensive approach towards using ICT in Makerere, so the infrastructures and basic systems, training of people also started at that time. The use and growth of use of IT inevitably grows with the growth of ICT environment. With trained users, better infrastructure and better services, we expect e-learning to inevitably grow.”

The number of computers in the university is much more, internet connectivity is much higher, and there is a LAN in every building, wireless access all over campus, and there are so many users who are aware and knowledgeable in the use of ICT. ICT use has gone up, I do not know how many times since I came in here.

The role of DICTS in e-learning

R2 operates at the Directorate for Information and Communication Technology Support (DICTS), where he is in charge of directing overall use of ICT in the university, giving direction, policy and operations as seen from this statement.

“It is from ICT that we get e-learning and ICT in this university has a mix of things: operations of the day-to-day services of internet and e-mail, central databases, anything which is central and cross cutting is run by DICTS.”

Other aspects like ICT services in the library; user training are catered for by Computer science, but DICTS guides the strategy of ICT in the entire university. He guides ICT policy and handles the day-to-day running of the common services, which are not college or unit specific like e-mail, internet, and licenses of software across the board.

R2 describes the use of ICT and specifically e-learning as fair at the moment though it could be better reading through statements like:

“Fair in the sense that the students and staff are using ICT for the basic services like accessing the internet, communicating like e-mail, they are using it in the basics of e-learning, like: uploading content and just using a computer for its computing purposes like for programming.”

He believes that there is more potential, though things like using e-learning platforms and exploiting into their potential beyond just LMS being an archive for notes and PowerPoint presentations, using it in an interactive way, that is an aspect which is still lacking, the e-learning platform has more.

Enablers and constraints in e-learning at Makerere from R2's perspective

R2 says other aspects expected like using ICT for distance learning, collaborations with other universities and other institutions are in the offing. Many of those other aspects are limited due to bandwidth. This has a direct impact on the e-learning potential users once they find the internet slow as he states:

"Once the internet bandwidth limitation is sorted, there will be increased usage of e-learning. Awareness and capacity building for students and lecturers can bring increased usage of e-learning too."

In addition support is needed across the board, even if there was provision of all the bandwidth that there is, if a lecturer who is supposed to use it is not aware of collaboration with someone elsewhere, still they will not use it, they will use the bandwidth for the basics like surfing and nothing else not the mainstream e-learning issues said R2.

It is exposure that drives involvement into e-learning, when lecturers and students are exposed to other peers elsewhere and they see what is possible; they come to us with demands. One of the approaches R2 uses is not to push a function to users and say there is something called digital computing or there is something called collaboration so go ahead as he said:

"It is better that people get to these things by themselves. They should appreciate it that the network is put in place and can support so many things. To inform them about the capacity of the networks and they can do what they want within those limits."

When things are put in place, we inform users that this is possible on our network, but it comes more from the users demanding for a service. In a situation where people want to be so innovative, you would not wish to be patronizing at all. Like Facebook is possible on our network and many students are using it, the lecturers may not be aware of this possibility and therefore may not exploit it for teaching and learning purpose stated R2.

Some progress has been made on the e-learning platform: courses have been put up and there is possibly some use of these courses, but the use has been at that level of an archive, lecturers posting some document and students accessing them as seen from this statement

"There is still need for creating awareness among lecturers about the potential of how e-learning can be used. Probably they are aware, but it requires a lot of input to make the material interactive, so that we get the full potential."

E-learning in his opinion is still at the technology level, where we set the platform and put materials. There is need for a strategy on how e-learning should be

adopted and integrated in the university. Right from the institutional structures, how should it be institutionalized? What structures should be put in place, now there is an e-learning unit?

The e-learning unit is a small unit of two people which seemingly does not belong anywhere as R2 explains

"There was a proposal for learning and pedagogy support, now with the changes in the university; I do not know where that is heading, because I have not seen it anywhere being mentioned."

R2 explains that, it has been recommended that the unit should be taken to DICTS. It was initially at DICTS, and then Distance Education, now the committee says put it back, This shows that there is no clear strategy for e-learning, and what style should the strategy take, is it a unit which engages different colleges to have their courses online, should it have facilities like video conferencing labs, which are hired out and scheduled for different activities. Right now the e-learning unit has some little infrastructure. There is need for a strategy to fully equip the unit so that it can attract people's attention, then they explore.

From R2's experience over the years, e-learning among lecturers has picked up, but initially it was a struggle to get anybody involved and to get a Lecturer put a course online. There is a report that most lecturers created accounts for courses on the LMS but those that are active are very few as he explains.

"It takes a lecturers interest to post courses online, because it requires you to create time and keep updating it, and if there is no incentive, unless it is a self-driven incentive, most people see it as wasting the effort or not worth any effort."

At some point the university thought of making a policy requirement for at least one course online per instructor so as to promote e-learning, I am not sure how practical that is.

"If you force people the challenge is, they will put the courses up and it will become like the 'yellow notes'. The policy requirement was to put one course up, they will upload the PowerPoint and not go back to update them for ten years, or even not inform the students about it at all."

It is an individual interest; it is awareness and getting them to appreciate. It is through that appreciation that they will engage their students and refer to these materials and therefore promote e-learning.

The strategy, one area is access most especially for the students. There is some access but it is still limited. There is a strategy for access though as he explains;

“By the end of five years, every student should have access to a computing device, and the network including internet and all those services in an attempt to roll out e-learning.”

R2 assures that until that is achieved; we can't talk much about other things because access by students will determine so many other things. That is why we are thinking about wireless hotspots, now buildings are covered with LAN but we need even the outside. Laptop loan schemes for the user will be another strategy so that they can own laptops and have access to the network twenty four hours at the same time.

Respondent three (R3)

R3 is at the top of the university administration in a management position by the time of the study. He is in charge of ensuring that university policies are implemented. His vision, he says is the vision of the university, contained in the University strategic plan. He says, if you look at the strategic plan, ICT, gender, internationalization, quality assurance are looked at as cross cutting themes. This means that we are supposed to integrate ICT in teaching and learning, administration and even the other areas like outreach like information dissemination or even when it comes to accessing research materials. He explains:

“If we subscribe to a book for example so many people can access it online at the same time, compared to buying one hard copy and putting it on the library shelves, so we are really emphasizing the use of ICT. E-learning is a priority area for the university.”

The role of the administrative authority in e-learning

There were plans for e-learning since 2002, there have been several units and several lecturers attempting to design e-learning courses, what has been realized is that there is need to get more people in ICT education technologies. As a lecturer, one needs to have people can convert content into digital format. These people must have the educational background and also the ICT background and we have been trying to build capacity for that area.

“The administration has the mandate to employ educational technologists to work collaboratively with the lecturers to support them in the implementation of e-learning.”

But there is a feeling of the need to have all programs in the next five years available online, so that there is increased access for people who are out there and cannot come to Makerere University. There are plans for increased enrolment and coming up with a virtual university so as to extend education, especially on the

post graduate level to people who are working up-country calling for increased use of ICT and e-learning technologies as stated:

“In order for the virtual university to be possible, we have requested each school to ensure that by the end of this academic year (2011/2012), to have at least one undergraduate and one post graduate program available online as a pilot. This is a policy issue and we hope it will be implemented”

There is also need to provide training which has been done, but what has been happening is that when people are trained, they do not use what they have been trained, so we are saying now, people must do that. There has been a requirement that all lecturers at the rank of lecturer and below should be able and teach a course using a DLE.

“The issue has been enforcement; we now want to enforce that. It is a matter of enforcing such policies.”

Experience shows that people have been trained in e-learning but implementation is lacking. If anything has to happen, there has to be commitment. If there is commitment at the top, but when you come to college level, and find a Principal not interested in that, people under there do not take it serious. We are looking at a clear chain of command where everyone is responsible, thus saying:

“Like you may say that every week for every course there is an assignment on a learning management system, if you say it from the top, and the Principal believes in it, the Dean and the Head of Department also, they will be able to implement.”

But if you reach a level like that of a Head of Department who thinks they should not even do it, then Lecturers, because they report directly to the Head of Department will not do it, they will have a gap. One person may want to implement but because the Head of Department is not interested, the staff will take advantage of that.

So you need to make sure that when you need to do things including implementation of e-learning, people should feel like they own them. It should not be like a directive coming from above and he said:

“Actually people down there should be able to initiate and say that we want to do this in e-learning, how can we be enabled and it comes all the way to the top, the college level then the centre. To me the issue has been people really owning up e-learning and what they feel they want to do for the university.”

In reference to the university strategic plan, R3 notes that there is a strategic plan, which came out of consultations; we all want to implement the strategic plan. The

strategic plan talks about student centred learning, which indirectly supports e-learning and using ICT in instruction.

“When you look at student centred learning, there is no way you can eliminate the use of ICT and e-learning strategies, it is at the centre of it, but do people read the strategic plan, do they know what as the university we want to do?”

You ask people what is the vision of the university, they do not know and yet you find it hanged everywhere. So people must first of all know where we want to be from where we are in as far as e-learning is concerned. There is need for teamwork to achieve our mission so each one of us must say look, how am I going to contribute towards this.

Differences in e-learning uptake levels

In some units the environment for e-learning is fine, where people try out e-learning with little difficulty, because the infrastructure is in place.

“But I am aware of the digital divide in this university, but this is due to budgeting, some units do not think ICT is a priority.”

Units make money and I will give you the example of the school of law. They have students and their students pay a lot of money, but almost no money is put on facilities on their budgets, like computers for students and so on, they think that the centre should do that for the unit. Now if the centre has to purchase e-learning infrastructure for every college, then a lot of waiting is going to be done.

Again when people are writing proposals, what do you write in your proposals? A course like law, you need the students to be conversant with ICT, most of the laws, most of what lawyers need are available online through e-learning strategies.

“To know what case was decided how, online, but these students are not exposed so much. So to me, it is an issue of who should do what in e-learning? Some people say that they should do it, but what I would like to hear is that we should do it.”

Do your part and the centre will also do its part. But we are going to continue creating central facilities like e-learning access centres, like we have been putting in some faculties, but like we are saying, let each unit look forward to equipping their own facilities.

“As a former Dean of Faculty, more than 90% of the equipment in the faculty I headed was bought from donor funds brought in by proposal writing. We had to write winning proposals to convince people that we need this and we did it and got over 3000 computers from donor funding.”

We could have done otherwise, we do not need to wait for other people to come and do things for us. If you are heading a unit at any level, you want it to grow, how do you want it to grow, most especially regarding to ICT infrastructure? If you want to transform the small unit into a school, you have to know what it takes and are ready for it.

“So leaders take the initiative to do certain things while looking at the broader future including writing funding proposals for innovations like e-learning.”

If we are talking about distance education, you are basically talking about tele-education, where lots of ICT must be used, instead of people coming to pick hard copy books, but how are you moving on as a college? Are you thinking of setting up recording studios, production studios, for materials and so on? Are you trying to use some of these social networks like YouTube for videos? It is actually up to how a college wants to be and then you come up with how you want to get there.

“But we cannot tell everybody to this do that, it can just happen. For policy to be implemented we discuss with people and share experiences, implementation is a matter of consensus.”

We have had forum where Principals share experiences and so on. But I also think about what legacy we need to leave behind our work place. Commitment is also another issue.

Respondents four and five (R4&5)

The two have been working at Makerere University since 2006, averagely five years of service. According to their experience, there is the change of attitude among the people who use e-learning; they develop e-learning materials for students use. There is some change that may not be so significant. From the time they got into e-learning, the numbers of users have significantly improved from 3% to 40%.

Directly in charge of training and e-learning, they stated that people are trained and availed with e-learning resources. Some lecturers have changed attitude because they have been exposed to institutions that are using e-learning in other universities, some have probably gone abroad and have been involved in a course and they found that they had in one way or the other use materials that have been developed.

“When they come back at their own initiative because of exposure, some of them have contacted the e-learning desk requiring their course to be created and they go ahead and develop materials and use them.”

The change in attitude towards e-learning

In the five years a number of people have been trained in the e-learning practice. We have been able to cover the entire university in training people into e-learning.

“Sometimes we have been called by colleges, schools and departments at times have their own initiative.”

They have sometimes targeted students and trained them into e-learning. As an e-learning unit, they managed to develop fliers for the students, which contain some help tips on how to access the Learning Management System (LMS), and we sometimes take them to the Academic Registry and they are distributed as part of the admission package.

But sometimes learning materials have been put there (LMS) and students are informed to access it. This somehow pushes the students to find a place for access ICT so that they are able to use those courses.

“But in the Colleges where lecturers are involved in e-learning, when they feel the need for the students to be taken through how to use the LMS, they have always contacted us to give a brief training session for the students. For the students it does not take a lot of time like it does for the lecturers.”

There is a noticed change of attitude in the lecturers since they began working with e-learning as they said lecturers are recently the initiators of e-learning materials production.

Previously, lecturers were not getting anywhere in as far as digitizing content is concerned. Now, it is their initiative, we avail them with access and some support resources. Some have taken on e-learning because of exposure; someone goes for abroad for a short or long course and has been able to use e-resources.

This is the value of the innovation having predicable attributes amidst it complexities. So when they come back, at their own initiative they have taken on e-learning.

Support in e-learning uptake

Some units have technology resource centres, where the students can do some e-learning. The School of Women and Gender studies have an e-learning laboratory for students. College of Education and External Studies has an e-learning laboratory at the School of Education for students too. The Department of Mathematics in the faculty of Science have an e-learning laboratory equipped with computers and smart boards, which in case one needed to use them, they are available.

“The labs have support staff that should be able to help students learn smoothly when the lecturers have posted material on the LMS.”

There is some guaranteed support for those engaged in e-learning.

According to R4&5, academic staffs that use e-learning resource more are youngish. It is on rear occasions that there is an elderly professor involved in e-learning. Though, it is interesting that the older professors attend the trainings and participate, attend fully and are very active.

“They are very keen with the training sessions, but when it comes to implementation, they go silent. We believe it is the mind-set, because they are still stuck in the old school where the lecturer is the source of the information and the master, with all the content and all the right to the content. They have phobia and they imagine they would lose the monopoly over teaching, by putting up a course on the LMS.”

They are afraid of students access their content in advance, because they feel that it is problematic. Some of the lecturers have gotten exposed to ICT a little earlier maybe in high school, at university they have had it and they are very comfortable in their ICT literacy. They also appreciate a lot more what ICT can do, the benefits that come in using technology in the delivery of instruction.

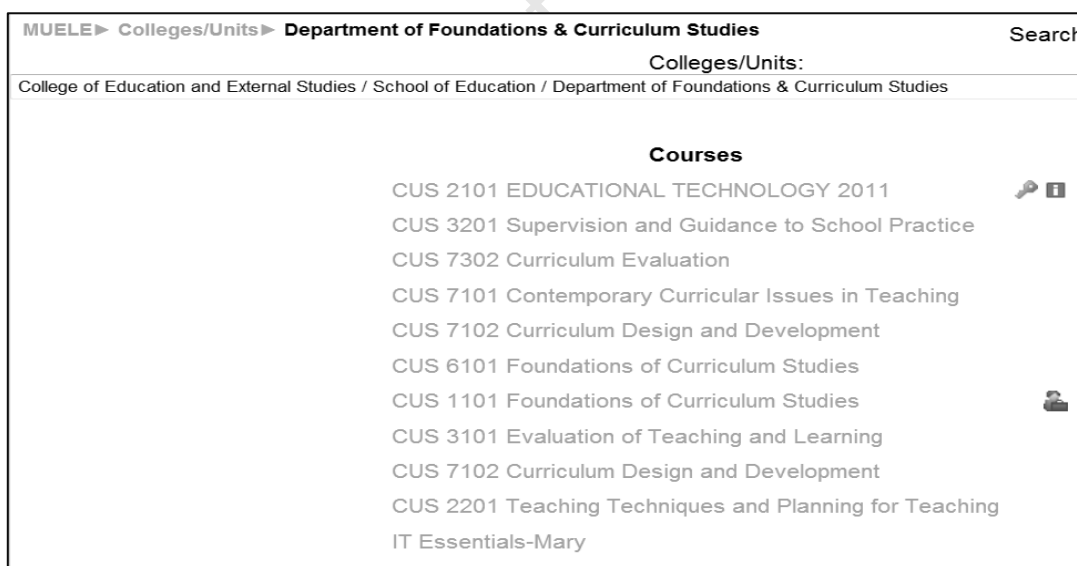


Figure 4: Some of the course headers on the LMS in a department (Source: Makerere University)

There is room for improvement on the over 100 courses available on the LMS as indicated on the sample (Figure 4), because some of them are static files like PowerPoint presentation, which was a good start anyway. We now need to improve our courses, add interactivity, and to move away from uploading files

with no added value to teaching and learning. Redesigning the courses to make them more instructionally rich and sound and start building various learning materials in the course online. There should be learning objectives, learning tasks, assignment etc.

Respondent six (R6)

R6 is an academic with about five years of teaching. The university has prepared a couple of trainings concerning e-learning, mostly on the usage LMS under the auspice of Makerere University e-learning environment (MUELE) and he has been active in most of them. R6 also believes the university has worked so much to make sure that computers and other infrastructure are available for e-learning. When R6 was an undergraduate, he begged the guardian to take him for a computer course, unfortunately at the time it was very expensive and therefore it could not be possible. But that love for computers grew on with time until when this respondent got to his third year and had a small introduction to computer course. When R6 graduated with the first degree, he had another basic training.

Rationale behind my adoption of e-learning

R6 uses webmail, internet and the LMS, with the use of e-mail based technologies to communicate to students in e-learning. There are also messaging components, where students can receive information in their inboxes when it is sent from the learning platform. Basing on the nature of the course he teaches, he does not use discussion boards very frequently. This also bases on the fact that uses e-learning in a blended format. He still has to go to class and scribble on the board something. R6 has a web page and uses videos too.

“The professor at MIT could go to class and some people would film and these videos are accessible to students, later on meaning that if a student misses a lecturer, they can access the videos, watch and pick up from there, this inspired me into e-learning.”

Once in a while R6 use PowerPoint projection, like introducing students to the LMS, something that could not be explained well in class etc. The problem is limited time, and most teaching labs are not equipped with these facilities, and we have one hour lectures, which is between another two lectures and to set up a projector and all other equipment take time. PowerPoint technology in the view of R6 is not suitable for my subject; it may be very perfect for others.

R6 thinks e-learning has not taken off fully, so to comment about this would mean we are fully fledged into it.

“Even the units that have some courses online, they are as someone calls them “notice boards”. You find a whole course, and the only thing you find is to

look at a week with a PowerPoint or pdf with no activities, no interactivity etc. There is little connection between the student and the lecturer electronically. A student is not comfortable that they missed a course; they will find key points or anything on the LMS to help me."

R6 thinks students do not rely on the LMS to have a preview of what is to be covered next. Students would be comfortable even if they were late or did not attend any lecture. There is this fear of people thinking that they are the authors of knowledge and when they put stuff on the internet, it is going to be taken up by someone else.

Extending e-learning frontiers

To change e-learning for the better, R6 recommends getting an e-learning unit which has people who are enthusiastic about e-learning. It may not matter whether these people are academic or non-academic staff.

"If these people can create courses and replenish them, it is walking the talk, not talking the talk every day. It is very difficult to emphasize something that you may not know what goes with it."

People who know e-learning are those who have studied through e-learning or those who are thoroughly trained and understand it and these people could benefit the e-learning unit to give support from understanding not technology. These are expected to take it up. R6 expects University management to be the initiator of e-learning in the university. Administrators can be the one to champion the mass take on of e-learning among the academics, which is a policy issue.

"We are blessed to have a VC who has a passion for technology and any decision towards e-learning are handled very fast, that has quickened the e-learning development over the past two years."

Get people sensitized about the power of technology in instruction. Take examples people enjoy football, movies, why can't we enjoy education through these same technologies. In football, teams study tactics of others through watching them on screens, people learn to dance why can't we learn to get information through these same technologies?

Table 4: Summary of respondent views and their categorisation in the innovation

	Knowledge	Persuasion	Decision	Implementation	Confirmation
R1	General e-learning	Knowing potential of e-learning	University wide decision	Team approach	Not Applicable
R2	Policies in e-learning	Awareness about e-learning	Individualized decisions	Individuals	Every one decides
R3	Role of policy in e-learning	Potential of the technology	Consensus decisions	Needs to be a top down approach	Good management
R4&5	General practice of e-learning	Flyers to Students	Responsibility of all	Everybody's function	Not applicable
R6	Practicing e-learning	Ability of e-learning	Exposure to e-learning	Administration to create the arena	Personal decision

Chapter summary

This chapter has presented the findings of the study. The participants came from both administrative and academic structures of MU. Data presentation related what the participants said about e-learning. The researcher endeavored to preserve the participants' voices as this has been shown to bring out their actual perceptions. There are a number of enablers and constraining issue in the e-learning process, which is shown by the levels of uptake of e-learning by individuals. Support in e-learning is central to e-learning uptake. Strategies for increased up-take of e-learning are revealed. The next chapter discusses the findings of the study.

CHAPTER FIVE: DISCUSSION OF FINDINGS

Introduction

This chapter presents the discussion of findings. The findings are discussed in relation to the research question, the theoretical framework and the related literature.

The first journey into e-learning at Makerere University

The year 2000 was the beginning of ICT and establishing of e-learning infrastructure. ICT and particularly computers existed at MU but they were isolated, some computers were in places around the university, there was however no network initially. The Department of Mathematics, pioneered into computer use, had a computer service used by people who knew to make calls to London and download materials, and this was the first real attempt to get computer usage at Makerere University.

The next stage of computer use and e-learning at Makerere University was by the United States of America e-learning initiative, with some money given to Makerere University from to support e-learning. The United States of America e-learning initiative advocated for a small wireless network at Makerere University and thus the creation of a local network in the late 1999. The first small fibre of about four kilometres long came in place. The big initiative in the use of e-learning in Makerere came with Swedish International Development Agency (SIDA). SIDA wanted research, but there could have been no meaningful research without connectivity as access to resources is majorly on the internet. SIDA considered the request by Makerere University for connectivity and e-learning and bought some of the first computers to establish e-learning labs for units like Education, Technology and Social Sciences. This was first step into rolling out computing to the university community most especially students as dedicated e-learning laboratories came to exist.

Makerere University in the early 2000 took a decision to place the duty of planning for e-learning under the Directorate of Information and Communication Technology Support (DICTS). This was because of the compatibility of the innovation. In 2006, the University appointed both the e-learning Manager and Administrator, who were housed under DICTS before transferring to the College of Education, an attempt to build a structure for e-learning at Makerere University.

At MU, there is a policy framework for e-learning to regulate ICT use as there is high investment and there is therefore intentional use of ICT in teaching and learning. Policy governs the whole university e-learning process, however some

colleges where ICT has been the mainstream business have come out be innovative with supplementary in-house policies. The ICT policy has created the environment for e-learning as an innovation to be nurtured as it advocates for computer use in teaching and learning. But this policy should be clear about the implementation of e-learning. The way the timetable is made may hinder actual use of e-learning as lecture rooms are not always equipped with ICTs, it is a one hour lecture, time is dedicated to setting up the equipment and therefore lots of wasted time by the end of the lecture.

With regard to access to e-learning technological equipment, the enactment of ICT policy impacted positively on e-learning innovation. The attainment of some e-learning equipment like computers and projectors enabled the e-learning initiative to move from innovation status to adoption. Equipment acquisition has been an instrumental supportive environment for both the innovators and early adopters. There are collaborations and some of the state of art ICT equipment came into existence because of the e-learning policy that enabled innovators and early adopters write proposal for funding. However policy implementation has also been influential in that those who make the policy have normally left the big part of implementation to the small units, which affects adoption.

The role of innovators and early adopters in e-learning

In innovations, innovators play an important part in other people's attitude formulation towards an innovation. It ought to be noted that attitude towards an innovation is either positive or negative depending on the decision of the perceiver. DICTS as an innovative unit guides the strategy of ICT in the university and the role of DICTS has been important in the general uptake of e-learning in at Makerere University, by planning, executing and communicating the innovation to the potential users.

Innovators are very instrumental in training and therefore communicating the innovation to others. Training in the use of e-learning is beneficial in getting more people aboard. Training in the use of ICT is the role of the School of Computing and Informatics at MU for implementation. When e-learning started at Makerere University, there was some basic training by the then faculty of Computing and Information Technology, user support training was also carried out and it brought more people on board. There were trainings carried out at the very beginning of the e-learning project. This has an implication that innovative units and the innovators are very instrumental in kick starting an innovation.

Some lecturers started using ICT at individual level to teach and these are the ones typically called early adopters. Initially, they were trained in using Blackboard™ LMS. Some innovators and early adopters went for training abroad. Currently, there is an open source learning management system, Moodle™ which operates much the same way, therefore knowledge transfer is attained. Exposure and

training from within and outside the MU plays an important role in opening up opportunity to practice e-learning.

Wireless network made possible by the management through the provision of finances is vital in e-learning. MU has a management unit which is curious about the success of e-learning. Makerere University innovators and early adopters use the wireless network to induct potential users into the e-learning arena. The University created wireless networks which enabled potential early adopters with personal equipment, access resources for teaching and learning on the internet. Donations to the e-learning innovation at Makerere University though; are a little biased focusing on faculties that deal with technology, veterinary and medicine, which created the imbalance with humanities in as far as e-learning, is concerned. The provision of these facility has enabled many early adopters chance to get to e-learning.

Understanding the needs of the innovators and early adopters in e-learning

The scenario described earlier portrays that the e-learning at MU as moving on amidst a number of encumbrances. There are a number of issues to be dealt with if e-learning is to acquire a more acceptable shape and be adopted by more users. To arrive to a conclusion about the e-learning at MU, there is need to consider the challenges there in.

At MU where the e-learning has apparently taken off, the unit that oversees e-learning for the entire university is floating, because it seemingly does not belong anywhere. There was a proposal for a learning and pedagogy support unit to replace the current e-learning unit, but so many reforms around the University have swallowed the idea. There was a suggestion change of name of the e-learning unit to conform to the fact the evolving innovation. The unit has been moved back and forth from DICTS to distance education several times in a very short period of seven years, implying an unclear e-learning strategy. This affects the stability of the unit as there is no concentration on e-learning because of constant migration from one location to another.

Another challenge has been curving e-learning unit out of DICTS. Potential users still think about e-learning as the technicalities because it is housed under a technically oriented service provider, as efforts to take it to Distance education has almost failed, though this would actually be a strategy to roll e-learning out to the wider catchment area. So the perceiving e-learning in the technical sense impedes on attempts to try out the innovation. Besides there is insufficient support for e-learning due to financial constraints that exist though on the whole, the university community appreciates the value of e-learning. Understandably, there will not be sufficient resources for e-learning because the demand keeps growing all the time, but there is so far good background for engagement in e-learning.

At MU, the sluggish ways of doing things have and shall continue to cost negatively including on projects like that of e-learning. For instance, distance education- directly concerned with e-learning, are not in the good books of Carnegie Corporation of New York because of failure to pass the Open and Distance Learning Policy in record time, due institutional bottlenecks. The decision making processes are too lengthy and archaic to cope up with the operations of modern times. At the Distance Learning Unit in one University in Africa, decisions and policies are made in such a record short period of time. When one attends a conference and scoops a new idea, it is brought to the University, discussed and immediately implemented once found to be useful. At MU, the a new idea has to be discussed at the Department level, School level, College level, Senate Committee level, Senate level, then Council level. The difficulty of getting an opportunity to 'push' the idea on the agenda of any of these levels is directly proportional to the depth (height) of the levels. The more you ascend the levels the more difficult it is to get an idea placed on the agenda. You need to be a persistent person not to give up along the way. These are the problems that e-learning is struggling through, and certainly affects the uptake of this wonderful innovation.

While there is a clear merit in collaborative endeavors that attract e-learning users such as sharing e-learning materials, curricula that are pedagogically sound and managed well, integration of e-learning has efforts, the slow uptake can be attributed to lack of coordination between the innovative units in the university, as seen from the moving of the unit from one department to another. An enabling environment for e-learning is research. Innovators have been able to carry out studies, write and publish scientific articles related to specific aspects of e-learning. Sharing of research knowledge is communication of the innovation that informs and persuades some people to engage in e-learning. Research has brought in the aspect of exposure and communication of the e-learning innovation.

Sensitization is a key element in communicating e-learning for possible adoption and change of attitude among potential users of e-learning. Communication of e-learning has an impact on attitude formation and use. There is however, a conflation between distance education and e-learning to most of the participants, which calls for increased sensitization and directly impacts of the e-learning. The strategy to increase awareness to e-learning is coined as electronic readiness- 'e-readiness'. There has been an underestimation of the complexities and difficulty to change people's attitude towards e-learning because of the conflation. Efforts of the academia are often individual ones that eventually impact less on the university. The university ICT master plan emphasizes positioning of the University in the global economy, so there is need to recognize the academia that may not be available in the local context thus, ensuring that collaborations enable tapping on the global resources and travel for trainings outside the university.

ICT is used for basic services like communication, e-learning, uploading content and using the computer for its programming power. Users always venture into innovation they perceive to find value in the engagement. Though the e-learning platforms at MU are used none interactively; it can be changed, from just being repositories for notes to interactive systems. E-learning is in existence and courses are up and running. Using e-learning for distance learning and collaborations with other institutions will bring people on board. For users to continue venturing into e-learning there should be support and this has been instrumental.

Knowledge about the e-learning innovation

In every society there are people who have been around for a long, medium and short time. It is the existence of the variation in existence that allows continuity of adoption of ideas as those who are old usually pass on the traits to the upcoming. The late 1990's saw the beginning of the e-learning innovation as an idea and at that time resources were limited. Innovations do not necessarily begin when every resource is available. The confession of respondents that there was no network and the innovation was from without, not within Makerere community explains it all.

For innovative decisions to be successful, something more than the generation of creative ideas is needed (Singhal, 2005). This is supported by the fact that there was one person at Makerere University, ready to accept the innovation as proposed by the US Carnegie project. The social system like that at MU should be prepared to accept an innovation. But this preparedness comes with awareness (knowledge about an innovation) and awareness comes through the way an innovation is communicated. MU has over 100 courses on the LMS that has grown over time. There is also a help desk that has been offering online support, useful in motivating those who would feel discouraged about small things in e-learning. All these are done due to perceived usefulness of the ICT and e-learning available at Makerere University.

The reason why some people have been innovative at MU is because of exposure to other working environments elsewhere, mostly outside MU. This compares well with Greg (2003), that an individual innovative decision is framed by personal characteristics. To some, it takes more time to adopt e-learning than to others. It is on this basis that individuals may not be pushed into e-learning, they have to be given sufficient time to try out the innovation, when they deem it fit, they will take it on. People are sceptical about engaging in what they are not familiar with, it takes a bold decision. Innovations like e-learning come into being and are adopted because of the extent to which they are perceived by the social system to address their concerns.

At MU, there is absence of institutional technological plan, which is characterized by short term funding and absence of acquisition and replacement plans

consequently bringing about into a slow pace of e-learning innovation and uptake. This comes because of the complexity of the innovation process. Makerere University ICT policy frameworks (and probably many institutional policy frameworks) do not clearly spell out the issues of quality assurance, academia involvement, workload and e-learning strategies that at times negatively impacts on e-learning implementation strategies. It is true that e-learning policy at MU has been debated and approved and the e-learning unit (implementers) established and sanctioned. The ICT master plan and e-learning policy are not very clear on e-learning procedure, which also sometimes impedes on adoption and implementation.

Persuasion into the e-learning innovation

At institutional level, MU is struggling with putting up recognized and accepted pedagogy paradigms, pedagogically sound and appropriate to the institutional e-learning context that allows active engagement. This can be linked with the strategies for organizing the instructional process in e-learning including defining objectives, components and mechanisms for implementation. A case in point is where the university has a 'back bone' connecting three campuses, the intention of the back bone was to improve access to learning materials and library material though the learning materials are not yet readily available. So the innovative units have established the network, but what is on the network especially learning materials need to be reworked so that it can persuade other users to the network and attain active engagement.

Where materials are available, there is some evidence of quality. Some colleges like that of health sciences have better quality online material compared to other colleges. For materials in e-learning to become quality, it needs time. Nonetheless, the backbone has helped some people come aboard e-learning. Most online content were static files with some pedagogic value, not enticing many people to come aboard e-learning. The DoI theory exposed the issue of relative advantage of an innovation (Greg, 2003; Rogers, 2003). But this must be appreciated as it marks the beginning of trying out of an innovation. It also came out that senior academics (who are often the decision makers) are technologically shy making it a little difficult for others to be very innovative and adopt e-learning. In essence, observability and triability are not being promoted well at MU.

In addition, respondents pointed towards the challenges that hinder adoption of e-learning: large student numbers, high staff workloads resulting into limited time for design and development of quality online material, limited finances to acquire teaching materials and limited space and ICT facilities to accomplish the intended change. These challenges have been a factor in the innovation and initial adoption of e-learning as it is perceived to be a solution. These should be seen as motivators

towards the implementation of the e-learning innovation because it should be seen as a solution to these problems (Fullan, 2007; Anderson, 2010).

Training into use has capacity to change people's attitude towards e-learning. There is also training in e-learning that has enabled people to innovate and take on e-learning. The entire university has been covered as far as training is concerned both at the initiative of the unit and the e-learning unit, trainings have occurred sometimes targeting the entire university. The e-learning unit has fliers for the students; they contain basic information to access to the LMS and enrolment. These fliers are given to students as part of their admission package. This has helped students and instructors get on board. Sometimes it has been using some indirect force to bring people aboard e-learning, a lecturer posts materials then informs the students of what has been posted. It is upon the students to now look for places where they can access what the lecturer has posted. Sometimes lecturers request the e-learning unit to train students in the basics of using the LMS.

Decisions into practicing e-learning

It is the perceived advantage of ICT that can bring more and more people into e-learning. Successful experiences and practical working scenarios could therefore be a booster into adoption of e-learning. ICT has brought a difference in the way people in Makerere University operate. People use email now and they find value in it. The academia realizes the value of e-learning so much that they communicate what is wrong before the technical committee gets to work. Internet use and e-mail has become user-driven, a sign of successful diffusion of the innovation. Users have realized the value of e-learning so early and they keep asking for more. The perceived benefit of e-learning technology has brought more people into it.

After understanding the potential benefit of an innovation, there is a likelihood of taking it on for example, there is information that can be shared in e-learning but people are not sharing the information, because they have not tried out. This potential can be popularized through seminars and workshops for e-learning, i.e. communication of the innovation. In terms of e-readiness; the University units are at different stages. The diffusion rate at individual level has been good and much faster, but at institutional level there are disparities. At individual level, people find value in e-learning, there is an indication that interest in e-learning has picked up. It takes a lecturer's interest to put a course on the LMS because it requires time and constant updating, in a situation where there are no incentives.

Implementation of e-learning

It is sometimes difficult to understand why an innovation like e-learning is seemingly not being taken up as fast as it is anticipated. But issues of capacity for e-learning, training of personnel to handle and manage the e-learning resources, acquisition of infrastructure and connection to the internet, including the

structures upon which an innovation is executed are essential (Greg, 2003) in explaining the rate at which innovations are taken up and accelerating the implementation pace.

With a number of challenges for the innovation as previously explained, it became sensible to venture into an enabling environment for clearer understanding of both sides. There are issues of computer illiteracy among the academia, which underlies the absence of accreditation and evaluation criteria to ensure quality and success of online programs. There is still little capacity in the design of online programs for e-learning at MU by the early adopters, and the manpower responsible for maintenance and update of the same programs. Two staff members constitute the e-learning unit, there is need for more specialized skills in educational technology and adoption of e-learning can be enhanced by improving the academia capacity in adapting learning materials to the digital environment and adjusting roles, which actually requires time for effective implementation of e-learning.

On analysis of colleges within MU, there is bare discrepancy in as far as implementing e-learning is concerned. A probe into the infrastructure available to support academia in appropriate adoption of e-learning in teaching and learning reveals lack of technical and more specialised support for effective e-learning. There is however, a commitment towards improving e-learning infrastructure, with documentation of how much infrastructure is in existence, and how it is being used. A case in point here is the presence of a state of art video conferencing facility in one of the colleges that is used and has attracted a number of adopters. Nonetheless, low initial capital, inadequate development and recurrent expenditure, college priorities that are not e-learning related have hampered innovation from further adoption.

Amidst the discrepancies in implementation of e-learning, Makerere University has a dedicated directorate of ICT that provides research and systematic support for the entire university in the development of e-learning. However, access to e-learning is skewed to the young academia. Generally, the young have a more active role to play in e-learning than the seniors. The directorates should devise strategies to sensitize the academia into the usefulness of e-learning, emphasising the role of the young and more susceptible to e-learning. The target can be the most senior academic staff members to avoid the skewed practice.

Policy constraints in implementation of e-learning

To improve e-learning uptake and therefore get more adopters, policies that require academics to engage in e-learning and use of ICT in their work could be a very important strategy. For example, promotion can be tied to some use of ICT in the class. To prepare e-resources requires investment in time and money that can be rewarded with a promotion. Promotion can be tagged to teaching online as

opposed to purely teaching in the normal classes. People would be encouraged to put publications in the institutional repository where they can be seen. These could be communicated and the benefits outlined for the attention of the staff. But the institutional policy environment will be important whether it is top down or bottom up (Czerneiwicz & Brown, 2009). If they perceive their efforts being rewarded, they will certainly get on to e-learning.

Policies should be clear on how to integrate ICT in teaching. There is a requirement that all lecturers should deliver one course in a digital learning environment, but this has not been implemented. Policy could for example recommend having a website, having some course/s online, using learning technologies. There are some online courses (in Educational Technology for example) that are blended; there is no purely online course. But there is a contention on policy and its implementation. In contrast with this view, at some point the University wanted to make a policy requiring each lecturer to put a course on the LMS, but this may not be practical, because people will put there courses that will become like the “yellow notes” as they will not update them, they will never go back to them for ten years. This implies that policies should be well made so that they can be owned up and taken on by users.

Experiences the innovators and early adopters

Making sure that the academia is aware about the value of e-learning is a strategy in communicating e-learning to the university users. Awareness comes with exposure and peers elsewhere who are actively involved in e-learning. It is not possible to push demand on the academia, they need to appreciate and get on board. It needs time and people do not have the time for the quality e-learning material production. There is need for a clear strategy into how it can be integrated into the mainstream teaching and learning across the university, through sensitizations. Even if there was all the bandwidth needed, if someone is not aware of a possible collaboration somewhere, they will sit back and relax. Awareness of the potential makes people venture into putting the pressure on the university to provide more.

Appreciating the value of ICT makes different people have a variety of input to e-learning, which calls for teamwork. DICTS should work with the humanities and the natural sciences, and the bigger picture of e-learning. The future of e-learning in MU would be very bright if there was all the support needed. There is need for equipment, software to capacity building in terms of training and more manpower for the e-learning unit. Everyone should do their part in as far as e-learning is concerned in a team work format. Change of attitude may come in to sort some of the problems.

There is a plan for better e-learning facilities like video conferencing labs for the e-learning unit, because now it had very little infrastructure that can contribute a

very minimal impact on the university wide e-learning project. For innovations like e-learning to be taken on, there is need to brand it in a way that people can appreciate the service, right now, people may appreciate the ICT service but the e-learning there is no deliberate move forward strategy.

It is not pay as an incentive that will bring more people aboard e-learning, because at one time they offered money in one unit to have a course on the LMS, and nobody did it. Once a unit perceives the advantage of technology, tries it out and it works, pay may not be sustainable either. Time is invested in something liked so it still goes back to understanding e-learning so as to get on board. There is need for support to the academia to get courses up and running and probably they will get started and invite others to join. Let the university not stop at training; create a kind of sustainability of the skills, through constant support.

A strategy for e-learning at Makerere University is to create access for both students and lecturers through creation of wireless networks. Computing devices and networks to be liberalized and the benefits will be enjoyed. Lap top loan schemes for students are also in the offing and could be a good strategy to roll out e-learning. Since 2002 several lecturers have attempted to design e-learning course materials with minimal success. There is need for educational technologists or educational background even if it means a small pedagogy course for successful e-learning. This will be the support that enable up take on e-learning.

The University strategic plan specifies integration of ICT in teaching and learning. Policies made well involving all the stakeholders can be another strategy in the rolling out of e-learning, but there is also need for adventurous minds. Some respondents said that in making and implementation of policy, commitment should come from the top, and everyone is responsible. Everyone in the hierarchy should conform to the vision of the top, from the Principal, the Dean to the Head of Department. People should be the initiators so that they would be owned up. A clear chain of command where everybody is responsible is effective in implementation of e-learning. The institutional policy provides enabler for people to be innovative otherwise innovation is an individual issue.

Plans for rolling out e-learning

Plans to have Makerere University programs available online to increase enrolment are set, which implies that e-learning is taking a neater shaper. By the end of the 2011/2012 academic year, colleges had at least one undergraduate and one graduate course available online for piloting purpose. This is an innovators idea from the university management and such input go a long way into increasing the adoption of an innovation. There is need for training to engage in effective and efficient e-learning. But many times people are trained and they do not do what they have trained, so a change of strategy is called for.

Some units have more ICT infrastructure and are therefore engaged in more e-learning than others; some have not taken it as a priority and therefore lack infrastructure. It is a deliberate university policy that all units spare some money on their budgets for purchase of ICT infrastructure. Unit planning plays a pertinent role in the integration of e-learning and all colleges should plan to have the equipment and trained manpower trained for e-learning.

A strategy to roll out e-learning as suggested is technology resource centers work well and there are colleges that have them, like Gender has an e-learning lab specifically dedicated to student e-learning. This has helped bring many interested users aboard e-learning including many early adopter lecturers. There are facilities in such labs, smart boards, computers, support staff, to ensure effective and efficient use of e-learning. The support staff is hired by the units, and this may affect the quality of support.

Student access to e-learning should be emphasized as students are the ones who will demand that their lecturers to do things differently including electronic delivery of instruction. If students demand that they want to access a course on an LMS, then the lecturer will have no choice but to do that, thus more adopter lecturers on board. There is little that can be done if someone is not ready to do e-learning. It will not help to get an ultimatum, it will not work.

Chapter summary

The first journey in every innovation process is never simple as the innovation is not fully understood by many. It takes bold decisions by the initial adopters. Understanding the needs of the various user segments in the adoption cycle can be very useful in the adoption process. Indeed innovators and early adopters may have very revealing scenarios to tell when it comes to the innovations that have come to pass in an institution. However a number of challenges move along the e-learning adoption journey and are better managed with better focused strategies.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

Introduction

This study set out to investigate the initial adoption of an innovation called e-learning in teaching and learning at Makerere University. The study took over one year to be conducted. A clear research design and methodology was followed to carry out the study. The previous chapters engage in the data presentation and discussion. It is now time to make some concluding remarks and recommendations in this chapter.

Summary

In this study, a deliberate attempt was made to understand e-learning and how it can be mainstreamed for a more generic implementation at Makerere University. The diffusion of innovations theory was used. There are four main elements influencing the e-learning innovation at Makerere: the innovation, communication channels, time and the social system. Individuals go through five stages in an attempt to make full use of the innovation: knowledge, persuasion, decision, implementation and confirmation. Communication of an innovation is instrumental to its adoption and adoption is a decision made by an individual basing on several factors relating to the innovation.

The rate of adoption of the e-learning innovation varies from individual to individual. But for now, since e-learning has just started at Makerere, it is tactical to talk in detail about the rates of adoption. This was a major reason why this study investigated only the initial adopter categories i.e. innovators and early adopters. The initial adopter categories have some attributes in society in that they are usually opinion leaders and therefore capable of commanding others into accepting or rejection an innovation.

Six respondents participated in this study. In conformity with the theory, these respondents were selected on their leadership capacity as leaders influence the adoption of an innovation. The study was titled: an investigation into the initial adoption of e-learning innovation in teaching and learning: the case of Makerere University. The main research question of this study was how Makerere can enhance the adoption of e-learning in teaching and learning.

Conclusion

Respondents provided a wide variety of information about their e-learning practices, and it is difficult to draw single overarching or general conclusions to answer the main research question. Nevertheless, three main issues can be drawn from this study:

- wide variety of different e-learning practices at MU;

- e-learning is still very much in its infancy (the innovation and early adoption stages) across MU;
- enthusiasm amongst innovators and early adopters for developing the potential of e-learning at MU.
- experiences of the early adopter categories can play a great role in the further mainstreaming of e-learning at MU.

The following are very specific conclusions based on the study objectives.

i. Establishing the e-learning diffusion procedure at MU.

The study looked into the e-learning diffusion process. It is concluded that e-learning was an innovation that came from outside Makerere University. At the beginning very few people are involved. E-learning has taken a number of resources including time. The first people to be involved in e-learning had support from donors in the United States of America and SIDA. The first network for e-learning and ICT was only 4kms so it was definitely too small to support any meaningful e-learning activity to take place. It is appreciating the stage and resource constraints that the infant e-learning is operating with that clear strategy for growth can be mapped out.

ii. Establishing the enabling and constraining factors in the initial phase of the adoption of e-learning at Makerere University.

A number of factors have enabled e-learning process at Makerere University. Teamwork, training attitude and policy all play hand in hand. All the involved people have been supportive to the thriving of the e-learning environment. Amidst these successes however, a number of factors keep constraining the initiative, mindset, disorganized strategies, and limited resources both economic and financial among them. Every innovation has its constraints and enablers, once clearly identified and categorized, and then it is easier to capitalize on the enablers while trying to avoid the constraints.

iii. Assessing the roles of innovators and early adopters in the successful e-learning at Makerere University.

Two categories in the innovation adoption process: innovators and early adopters have a big role to play in e-learning initiative. The decision of everybody else to adopt or reject e-learning has a basis on the decisions of the innovators and early adopters. The innovators and early adopters have influential positions in the university and hold a key to further adoption through sensitization. These categories can be used to communicate the innovation beyond the initial adoption level however; it takes some time and resources for the communication.

iv. Establishing fast-track issues in the mainstream adoption of an e-learning at Makerere University.

E-learning in Makerere is based on training, support and teamwork. A mixture of well-focused and implemented policy and more allocation of both skilled human and financial resources could enable the further development of e-learning. It will need Makerere University to put resources into workshops, trainings and all sorts of public campaigns to make e-learning as accessible as possible.

Recommendations

This study was carried out in an attempt to get a clear understanding of the diffusion of e-learning in the initial stages at Makerere University. The findings are not for generalisation to other situations. However, I would specifically recommend the following about e-learning within the confinements of Makerere University:

- More resources for e-learning are provided. E-learning at Makerere is trying to succeed but this success will depend on the availability of more resources for it to flourish
- Innovators and early adopters need heavy institutional backing. A number of well-meaning innovations end up failing because of lack of this support.
- Training is vital to the progress of e-learning. Technology is very dynamic recently. It may be difficult to have a one off training for effective e-learning. Constant and updated trainings are called for.
- Vigilance and team work should be exhibited. Everybody- those who are already in and those who are out should work together, supporting each other. Mistakes can be corrected if people explicitly express their lack of knowledge. This is the philosophy through which we can mainstream e-learning.

Way forward

There are both negative and positive consequences in the adoption of an innovation, but there is always a biased positive attitude towards adoption of an innovation like e-learning at MU. However, e-learning has many well-meaning attributes that can be used to manage some of the teaching and learning related challenges at MU. It is imperative therefore that emphasis be placed on the positive attributes of the e-learning innovation in order for it to be mainstreamed mostly as a blended approach to teaching and learning.

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APPENDIX A: INTERVIEW GUIDE

Directions: Give as much information as you can possibly give. There are no right answers so respond thoughtfully but quickly.

I am **Michael Walimbwa** pursuing a Masters Degree in Education, ICT at the University of Cape Town. The study is entitled: *An investigation into the initial adoption of E-learning innovation in Teaching and Learning: The case of Makerere University*. I am at the data collection stage. You have been identified as a resourceful person to input into the process. All ideas are welcome. Thank you for your support.

Questions for any of your interviewees

1. How have ICTs been integrated in University activities?
2. What is your knowledge of e-learning?
3. What is the role of e-learning at MU? What do you think that MU's vision for e-learning has been/ is?
4. How has MU created structures to support e-learning in the university?
5. How does the staff start on e-learning? Is this by policy on ground or by default? [How did you start?]
6. What personal, departmental, or institutional enabling or restricting elements have you encountered that facilitated or inhibited e-learning success?
7. I invite you to add comments about e-learning that my questions have not covered.

Questions to ask the DICTS /e-learning Unit

1. Please tell me your story about being involved in e-learning in the university?
2. How many people are in the e-learning unit?
3. What are the specific roles for the people in the unit?
4. Does e-learning make a difference in teaching and learning?
5. What kind of conditions do people work in, are they paid well; do they get motivation to use e-resources in the university?

6. *Are there e-learning workshops, how are they organized and what is covered? [For some people this might also have you ever attended these?]*
7. *What are the units that need to team up to kick start e-learning?*
8. *I invite you to add comments about e-learning that my questions have not covered.*

Questions to ask people engaged in e-learning (innovators and early adopters)

1. *Please tell me your story about being involved in e-learning in the university?*
2. *How knowledgeable and skilled do you think you are in terms of utilizing e-learning facilities?*
3. *What got you into e-learning?*
4. *How did you learn about e-learning?*
5. *What e-learning technologies do you use? Internet, email, social forum, discussion board, web page, lecture notes chat, video conferencing, PowerPoint presentations.*
6. *What works well for you in terms of e-learning*
7. *What do you have as problems with e-learning*
8. *What (if any) changes would you like to see MU make in terms of e-learning*
9. *Do you ever recommend e-learning to your colleagues? Why or why not?*
10. *What do you think MU or your faculty could do to assist more academics in the adoption of e-learning?*
11. *I invite you to add comments about e-learning that my questions have not covered.*

APPENDIX B: INTERVIEW TRANSCRIPTIONS

RESPONDENT ONE (R1)

Question: How long have you been working here?

I worked in Makerere before DICTS was there. I am an Architect by training and I have worked with ICTS for long, my Masters degree was in computer science but I am more experienced in user support.

Question: Tell me about the genesis of ICT use in Makerere University?

Well, that is a tough one, I do not know where to begin, but the late 1990's saw beginning of ICT revolution in this university. ICTs existed in isolated places, people had computers but there was no network, people had individual connections, in the late 1990's there was the first attempt to do email, there was a little service in Mathematics department that would call to London. It was the first attempt and it worked for few people. The next was the US e-learning initiative, they funded some small wireless networks and therefore some places within campus had wireless networks (local wireless networks) in about late 1999, 2000 there. There came the Carnegie e-learning grant through the government of Uganda. They sponsored our network and connection of a small network of about 4.5kms long.

SIDA came on board to support us in the ICT area. It was interested in research, but there could not have been research without internet and the network. Research and collaboration needed access to resources and communication with each other through the networks. So we convinced SIDA about the necessity of investing in ICT so that we can kick start research and collaboration. SIDA was however hesitant as Makerere was still working in terms of curriculum issues, but they accepted later on to support the university with ICT in 2000. This is when some members of staff went to Sweden for training.

Question: Are you happy with where Makerere has reached in e-learning and the use of ICT?

I am generally happy with the progress of ICT in the University, but I am not happy with where we are, because we can do better, even within the existing constraints. We are actually constrained by the way we think, we are constrained by institutional issues, and some members within the institution are not ready for change. You could see that if I woke up tomorrow and suggested that this should be done, there could be a problem. I could just give some examples.

In Makerere, a graduate can now get their transcripts on the day they graduate, but when you look critically, nothing really changed, it was just the leadership

that gave the direction. All that changed was somebody to complain about the long process involved in making and acquisition of transcripts. Getting a transcript involved looking for peoples files. The person whose file is being sought has been registering once each year and has been in campus for three years. So the innovative mind said, we should eliminate that process of looking files and comparing someone's bio data as it can be done electronically once and for all. And there we were, when data was captured electronically, it does not have to be captured again and again like it used to be so when checking for details they are on the ICT system and now it takes a week for someone to get their transcript. There are so many other examples. We can always do better when it comes to using ICT and e-learning in this university.

Question: What is your specific role as the end user manager of ICT in this university?

As the end user, I mediate act as an interface between the user and the ICT system. I mediate between the daily users and the technical people involved in the management of the e-learning systems. I help users navigate through the system smoothly, because someone raises a question, I can't understand this, I cannot be able to do this, and that is when the question of support comes in, and therefore that is why I am here. I also act as a channel through which users can channel their experiences in ICT use. They say I can do this, but I cannot do that, then I figure it out with my team, how to ensure that someone can do what they would like to do. We look at what the user has asked and try to help, but if the question requires more technical and specialized answers, we still direct them to those specific departments like networks, systems administration etc. It is also my responsibility to follow up and get the answers back to the user

Question: You were very instrumental in setting up the e-learning unit in this university; tell me your story about e-learning in Makerere.

E-learning started with donor agencies. Carnegie, given their experiences in the US, know that e-learning systems were important for a University like Makerere, and therefore thought that Makerere should start thinking about it. Remember the Mathematics department, it had Dr. F.F.Tusubira, who took the Carnegie thinking and said, by the way we can exploit this potential of e-learning. He went to the US, talked to the Carnegie people, shared experiences with them, drew up a program and they gave Makerere some money in relation to setting up specifically the e-learning unit.

Question: In your opinion, are the people getting any difference in the way they work using ICT?

Yes. I am lucky to have been here at the beginning of e-learning so I have the best knowledge of how people worked before and how they are working now. It all

started with people just getting e-mails and so they were on yahoo and hotmail. Then we set up our own internal system of 'dot mak', and encouraged people to communicate using e-mail. Some people did not even know what we were telling them to do; sometimes they would fail and not even ask you. But now things have changes, if there is a problem, they will get to you, before you even think about it. At the beginning for a network in the unit would be down, we could not detect this through our system, you could only not see the communications from that unit, and then you start thinking of what could have happened. Now, that is not the case anymore, immediately someone posts a communication and it is not through, they get to you. Things have really changed for the better. E-mail and internet are now basic needs, but they were not before. If Internet was off for one hour, someone will call using a phone to ask, what the problem is. The transition is very clear now.

The other thing am happy with is the way things have changed for example in the Academic Registry. When you went to the AR, they would direct you to various offices, if you want this, go that room; that go to the other, this go to the other. This is no more as we created Academic Registry Information System (ARIS). When we created a lab, people at the beginning would refer you to the lab, but the lab was meant to help even when you are right at your desk. People were used to centralized files, they were not very eager to do things differently, when they learnt of how to do them differently, life is not the same anymore. People will give you the same information but now they are empowered by ICT gadgets.

Question: Give me your say on the diffusion rate?

The diffusion rate as to you and I who are here now, is much higher that other people and generally at institutional level. I want to give you examples, we have the library information system and students still go to the library to look for books on the shelves. They still go to the library manually to clear for graduation. If they understood these things why would anybody go through the hassle? Students should clear online because the library system should be able to tell that so and so has our book or not. If all the systems communicated to each other, why would a student walk all over campus to be cleared for graduation with the ICT system in place?

Question: What are the challenges in the use of ICT in Makerere?

People have lots of information and they do not know they can share it using the ICT available. Sometimes it takes sensitizing people into what ICTs can do. When you tell people that technology can do this and that you see them literally waking up and saying, we did not know this could be done. This gives you a hint into readiness, in terms of readiness we are different people. In terms of institutional, we are making the progress.

Many funders are focusing on Technology, Computer Science, Medical School and they are pumping more and more resources in those places, this is creating a gap. Very many times there is an assumption that staff in the humanities has not appreciated the value of ICT in teaching and learning and this is a big challenge too.

Question: Do you do any training into ICT and e-learning

When ICT was beginning to be used, they assigned roles to different units, CIT was responsible for training, pedagogy was supposed to be an issue of the School of education, though at that time SOE had issues, so it was taken to the then IACE. Those units have the primary mandate in as far as those specific issues are concerned. So when we were starting e-learning, CIT trained people, there were projects related to training man power into ICT use. There is some little training we did, but I think these were mostly high level, mostly when we are introducing new systems

Question: Comment about the academic staff involvement in e-learning

The use of ICT by staff at individual level is perfect, but at institutional level, there are things to be sorted. When it comes to using ICT to teach and educate students, there is still need for improvement. There are multiple e-learning systems running at times because e-learning was here at such a critical stage, but you find people doing things like these systems are none existent or none functional.

Some lecturers go to Europe, get the exposure and see the practical importance of e-learning and they come back and do the implementation. If they come back and experience blackboard they worked with out there, they could be able to work, as a matter of continuity. That critical mass was big enough and people appreciated. The costs involved in blackboard were very high and so we shifted to an open source learning management system and people are using it.

The problem is that so many people from the technology and computing side are the ones using the technology in teaching and some very few in the humanities are involved, reason being that there are more ICT resources in those units than in the humanities. Historically, there are more people in Arts than Science, so the ratio of ICT resources to students tends to be perfect in the Science than the humanities. When you look at CIT, the students paid more money as they priced their courses differently and they got some money from students and invested the same many in ICT resources.

Question: Some suggestions to the challenges?

We changed strategies and are now emphasizing wireless access to the network. If we have e-learning labs, the responsibility of managing it and ensuring student

access is at the faculty level. But with a wireless network, students do not need anybody to manage them most especially as some of them are using personal equipment. If you are student and can afford your own device, you are empowered by the wireless network. You see computer labs close at 5.00pm, yet a student needs access 24hours. So extending the wireless network to places is a commendable issue.

Question: Anything else that can possibly be done to widen adoption of e-learning

Academics are very interesting people and if we have to manage to get them aboard in using e-learning, incorporate it in the way they are promoted. Use of ICT in teaching and learning should be one of the scores for promotion. Why should I promote you when you have never used ICT in teaching students? People have accumulated 'yellow notes' and they keep using them year in, year out. They are so used to availing students' notes to photocopy, trying to make the notes in digital format, getting animations requires extra work from the lecturer and this can be rewarded by a score. So people wonder, even if they type notes there is no increment in salary, so if we encourage people, that more courses online means a higher score, it would be a wonderful strategy. Why should the university require a lecturer to produce hard copies of publications? Why should it not be a requirement for publications to be somewhere in the repository for one to be promoted?

Question: Those are good strategies, are policies supporting them here in Makerere?

No, policies are not clear on these issues. We have an ICT master plan and ICT policies, which do not necessarily roll down to people using ICT in specific areas like teaching and learning. For example I have already said on promotion they should say, do have courses online, do you have a website, do you have a publication in the repository

Question: Are there any online courses in the university?

Purely online, no, I doubt that there is any course that is purely online, in as we do not do face to face we do it online. The people who would benefit from such courses would be distance education, and there is no single course in distance education purely on line, how do you expect others to be online?

Question: There are other campuses apart from the main one, what implication has this got on our ICT resources?

Infrastructural issues are covered by us, for example we are networked to the Jinja campus. The network technically is robust enough to handle our traffic. Maybe we

could talk about bandwidth, but as or now we have sufficient band width to even go out. We have 16kms of fibre and this is sufficient enough, even if you wanted to create your own YouTube.

Question: Do we have the necessary support for e-learning and ICT

Most stuff is user need driven, but the university has to do more to cater for the user needs. Sometimes we can put the best systems in place but users have their own needs. There was one time why we wanted e-learning out of DICTS. E-learning was housed in the technical department and did not sound good; we wanted the people with the pedagogical knowledge to man e-learning. We decided that it goes to IACE, but probably we created more problems than solutions. We have to bring back e-learning Unit to DICTS and this means we have to maintain it in the technical area.

The university is putting in a lot of money to support e-learning, but I cannot say it is sufficient. They can put in more. When you look at the budgets they show a hefty sum of money but the actualities are very different.

Question: Talk about the e-learning structure

E-learning has two people that were recruited by DICTS in 2006. That should have grown bigger by now, actually when we passed the e-learning unit to the institute, which would have been an opportunity to grow bigger, they could have recruited more people even when they were running as a project. The structure does not provide only for two, there are many people to come on board.

The tendency for CIT to look more successful in ICT is because of their own creativeness and their industriousness; it is not because DICTS has supported it more. People think that DICTS support CIT more because there is a network operating centre there. And therefore the generator runs when there is no power, that NOC is there for historical reasons but not to show that we support it more.

Question: Talk about e-learning policy and how it was made

We are involved in making ICT policies, and this is probably why they work well, because we make them ourselves. We do the consultations as DICTS, we make the recommendations and we generally bring everybody on board. Even when it comes to implementing, we are doing very well. For example in the support arena, there is no new policy, we analyse the user demands and then create something around it- what we popularly call it a 'bottom-up' approach to policy making. I meet the relevant stakeholders, come up with a proposal, which gets circulated for input, sometimes for example it involves academics and e-learning, the academics must have an input, sometimes we have one on ones.

Any general comment you would like to make relating to e-learning

The challenge of getting people to appreciate that amidst these constraints, we are doing very well. People are blaming us for the failure of ICT, but they do not appreciate even the little we have been able to avail. There is need to appreciate the fact that systems are not 100% perfect but can do some work, instead of blaming the people who manage it. Unfortunately, the people who blame are those who are consulted during the needs assessment.

RESPONDENT TWO (R2)

Question: How long have you worked here?

I have worked in this place for 10 years.

Question: What has changed since 10 years ago?

There is a great and massive use of ICT in this university. Ten years ago, there was literally nothing, and then things were just put in place so everything was just starting, there were a few scattered things here and there so the university started a more integrated and comprehensive approach towards using ICT in Makerere, so the infrastructures and basic systems, training of people also started at that time. So the use and growth of use inevitably grows with the growth of the ICT environment. So with trained users and those who know what to do, with better infrastructure and better services, we expect use to grow inevitably. That is the picture that there is a very big difference since the time I first came into University service. The number of computers in the university is much more, internet connectivity is much higher, and there was no network, now there is, there are the LANS in every building, wireless access all over campus, and there are so many users who are aware and knowledgeable in the use of ICT. The ICT use has actually gone up, I do not know how many times since I came in here.

Question: What is your role in DICTS?

DICTS is in charge of directing ICT overall in the university, to give direction, policy and then from policy level, to operations of ICT. ICT in this university has a mix of things: operations of the day today services of internet and e-mail, central databases, anything which is central and cross cutting is run by DICTS. There are other aspects like ICT services in the library, user training which Computer science is, but DICTS guides the strategy of ICT in the university in summary. It guides ICT policy and handles the day to day running of the common services, which are not college or unit specific like e-mail, internet, and licenses of software across the board.

Question: Do you have enough support (financial, moral etc.) from the university to support you perform your roles well?

This is an IT era and so people appreciate it and they morally support it, but the challenges of funding which are across the university continue, which means that we need to continue struggling and pushing for money. You can ask for what you want but the university has limited resources and can only do much, so you will ask for 2 billion of bandwidth, but they will say you can only get this much say 1 billion, so is that support or not, so it depends.

We are in an environment which is constrained financially, but I think IT has been adopted and appreciated by Makerere across the board and Makerere looks at ICT as the potential of doing so well for it and that buy in is so critical. But when it comes to resourcing, that is a challenge, the demand is big, because the appreciation is there, and the resources are little so we keep struggling for them.

Question: Comment on the flow of ICT use in this university

Use of ICT is fair at the moment though it could be better. Fair in the sense that the students and staff are using ICT for the basic services like accessing the internet, communicating like e-mail, they are using it in the basics of e-learning, like: uploading content and just using a computer for its computing purposes like for programming and all, I believe that there is more potential and as we mature, it is going to even grow. Things like using e-learning platforms and exploiting into their potential beyond just LMS being an archive for notes and PowerPoint presentations, using it in an interactive way, that is an aspect which I think is still lacking, I think the e-learning platform has more.

There are other aspects which we would expect, like using it for distance learning, collaborations with other universities and other institutions. Much of those are limitation due to small bandwidth. You cannot think about them unless, you have enough internet bandwidth. I am sure once the internet bandwidth limitation is removed, which we hope it will, there will be increased usage. We shall possible have even more online classes, like the courses run at CIT with some Indian institute, we could have more of those if there was sufficient bandwidth. The potential for growth and use of e-learning is there.

Another aspect that would bring in more use is awareness and capacity building for students and lecturers. I see support as something which is needed across the board. Even if we provide all the bandwidth that there is, if a lecturer who is supposed to use it is not aware of collaboration with someone elsewhere, still they will not use it, they will use the bandwidth for the basics like surfing and nothing else. But now once they are aware of the potentials, they will put the demand on us and we shall support it.

On our part, there are general things, computing, collaboration, research groups in different universities, so we are pushing to get more bandwidth. But even if we put as much bandwidth as possible, as long as the users don't know what they can use it for, it will lay idle.

Question: You have talked of knowing and awareness, who is in charge of these?

It is exposure, when lectures and students are exposed to other peers elsewhere and they see what is possible; they will come down to us with demands. One of the approaches we use, we do not want to push a function to a user and say there is something called digital computing or there is something called collaboration so go ahead. It is better that these people get to these things by themselves. They should appreciate it that the network is put in place and can support so many things, I think that is the best we can do. To inform them about the capacity of our networks and they can do what they want within those limits. When anything is put in place, we inform users that this is possible on our network, but it comes more from the users demanding for a service. In a situation where people want to be so innovative, you would not wish to be patronizing at all.

Question; Comment about the e-learning infrastructure

Progress has been made on the e-learning platform, courses have been put up and there is possibly some use of these courses, but the use has been at that level of an archive, lecturers posting some document and students accessing them. There is still for creating awareness among lecturers about the potential of how e-learning can be used. Probably they are aware, but it requires a lot of input to make the material interactive, so that we get the full potential.

E-learning in my opinion is still at the technology level, where we set the platform and put materials. There is need for a strategy on how e-learning should be adopted and integrated in the university. Right from the institutional structures, how should it be institutionalized? What structures should we put in place, now there is an e-learning unit?

Question: Please tell me more about the e-learning unit and its functions

The e-learning unit is unfortunately floating; this reminds us of my past view of strategy. The e-learning unit is a small unit of two people which seemingly does not belong anywhere. So what structure should it take? There was a proposal for learning and pedagogy support, now with the changes in the university; I do not know where that is heading, because I have not seen it anywhere being mentioned. Now it has been recommended that the unit should be taken back to DICTS. It was initially here, we sent it to Distance Education, now the committee says put it back there, let it be there for now.

The implications for this action are many. This shows that there is no clear strategy for e-learning, and what style should the strategy take, is it a unit which engages different colleges to have their courses online, should it have facilities like video conferencing labs, which are hired out and scheduled for different activities. Right now the unit has some little infrastructure. There is need for a strategy.

Question: Comment about lecturers and their involvement in e-learning

From what I hear, possibly over the years, e-learning among lecturers has picked up, but I heard that initially, it was a struggle to get anybody involved, and to get a Lecturer put a course online. There is a report that most lectures created accounts for courses on the LMS but those that are active are very few. It takes a lectures interest to post s course online, because it requires you to create time and keep updating it, and if there is no incentive, unless it is a self-driven incentive, most people see it as wasting the effort or not worth any effort.

At some point the university thought of making a policy requirement that you put at least one course up, I am not sure how practical that is. So even if you force people the challenge is, they will put the course up and it will become like the 'yellow notes'. Because the policy requirement was to put one course up, they will upload the PowerPoint and not go back to update them for ten years, or even not inform the students about it. It is actually an individual interest. I still think it is awareness and getting them to appreciate. It is through that appreciation that they will engage their students and refer to these materials. It is mandatory for someone to post a course; they will post and even forget that they posted a course there.

Question: What do you think about paying lecturers to use the e-learning platform?

It is not pay, because I heard that at one faculty they even offered lectures money for putting courses on the LMS, and no one put up a course. I initially called someone and they paid him to create courses for people, even when they offered them a million shillings per course, they were not interested. So it is not about pay, it is about interest. But also the paying approach is not sustainable. Even when it is time, it does not work as people put time in something they like. If I think it is important, I will create time for it. It is about understanding something that will bring people into adoption.

There is need to get people who will support lecturers to put up the courses on the LMS, once they are up and running, and they appreciate how they are, they will probably pick up. If they are to say the e-learning unit has people whose role is to engage the lecturers, and tell them that they need their courses online, give me a softcopy of your notes, I create the course for you, I create the mailing list and you get them running. Possibly once they see the courses running, they may pick up

the interest. But starting from zero and saying we have trained you go and start, will be difficult

Question: What is the strategy for e-learning and ICT for the next five years?

The strategy, one area is access most especially for the students. There is some access but it is still limited. By the end of five years' time, every student should have access to a computing device, and the network including internet and all those services. Until that is achieved, we can't talk much about other things because access by students will determine so many other things. That is why we are thinking about wireless hotspots, now buildings are covered but we need even the outside. Laptop loan schemes for the user will be another strategy so that they can own laptops and have access to the network 24hrs at the same time. For staff, it a bit good so we are not thinking about them now.

We need clear policies and procedures. ICT will not work in our disorganization. We are not automating chaos, to just increase chaos. The basic things can be done by our systems if the policies are clear, take an example of clearing for a student who has finished studying. If I have never registered in the Library or university hospital, why do you want me to clear there, because I have never used that service or I can clear online, but policy does not support clearing online? Or the university hospital, now if policies and procedures are streamlined, things can be done using ICT. Technology is supporting systems that cannot easily be changed, yet technology cannot work alone without those systems. We are also targeting the use of more e-learning.

Question: There are other campuses apart from the main one, what implication has this got on our ICT resources?

There is competition for the bandwidth; the bandwidth demand is bigger now. The university is committed and it is currently getting about 1.5billion of bandwidth per annum. There is commitment from the university. The good thing the internet prices have dropped and so we are going to get more within the same budget.

RESPONDENT THREE (R3)

Question: What is your vision for ICT in this university?

My vision is the vision of the university, contained in the University strategic plan. If you look at the strategic plan, ICT, gender, internationalization, quality assurance are looked at as cross cutting themes. This means that we are supposed to integrate ICT in teaching and learning, administration and even the other areas like outreach like information dissemination or even when it comes to accessing research materials. If we subscribe to a book for example so many people can

access it online at the same time, compared to buying one hard copy and putting it on the library shelves, so we are really emphasizing the use of ICT.

Question: What is the plan for e-learning in this university?

Since 2002, we have had several units and several lecturers attempting to design e-learning courses, but one of the things we have realized is that we need to get more people in ICT education technologies. As a lecturer, you need to have people who will know how to put your content in digital format. These people must have the educational background and also the IT background and we have been trying to build capacity for that area.

But we also feel that we need to have all our programs in the next five years available online, so that there is increased access to our programs to people who are out there and cannot come to Makerere University. We have plans to increased enrolment and we shall come up with a virtual university or what people call an open university so as to extend education, especially on the post graduate level to people who are working up-country and so on.

In order for the above to be possible, we have requested each school to ensure that by the end of this academic year (2011/2012), to have at least one undergraduate and one post graduate program available online as a pilot.

But we also need to provide training to people. People have been trained, but what has been happening is that you train people, they do not use what they have been trained, so we are saying now, people must do that.

There has been a requirement that all lecturers at the rank of lecturer and below should be able and teach a course using a digital learning environment. The issue has been enforcement; we now want to enforce that.

Question: Please tell me a little more about training, why do you think people do not put in practice what they have been trained what courses that at management level?

If anything happen, there has to be commitment. If there is commitment at the top, but when you come to college level, and find a Principal not interested in that, people under there do not take it serious. We are looking at a clear chain of command where everyone is responsible. Like you find that you may say that every week for every course there is an assignment, if you say it from the top, and the Principal believes in it, the Dean and the Head of Department also, they will be able to implement. But if you reach a level like that of a HoD who thinks they should not even do it, then Lecturers, because they report directly to the HoD will not do it, they will have a gap. One person may want to implement but because the HoD is not interested, the staff will take advantage of that.

So you need to make sure that when you need to do things kind of people should feel like they own them. It should not be like a directive coming from above. Actually people down there should be able to initiate and say that we want to do this, how can we be enabled and it comes all the way to the top, the college level then the centre.

To me the issue has been people really owning up what they feel they want to do for the university.

There is a strategic plan, which came out of consultations. , we all want to implement the strategic plan. The strategic plan talks about student centred learning. When you look at student centred learning, there is no way you can eliminate the use of ICT, it is at the centre of it, but do people read the strategic plan, do they know what as the university we want to do? You ask people what is the vision of the university, they do not know and yet you find it hanged everywhere. So people must first of all know where we want to be from where we are.

There is need for teamwork to achieve our mission so each one of us must say look, how am I going to contribute towards this. And to us we feel that ICT is going to be at the centre of this whole thing. If we are looking at student services, providing them manually cannot really cannot take us far, so we have to use ICT.

Question: Do you think the environment allows people do participate in e-learning?

In some units there environment for e-learning is fine, where people try out e-learning with little difficulty, because the infrastructure is in place. But I am aware of the digital divide in this university, but this is due to budgeting, some units do not think ICT is a priority. Units make money and I will give you the example of the school of law. They have students and their students pay a lot of money, but almost no money is put on facilities on their budgets, like computers for students and so on, they think that the centre should do that for the unit

Again when people are writing proposals, what do you write in your proposals? A course like law, you need the students to be conversant with ICT, most of the laws, most of what lawyers need are available online. To know what case was decided how, online, but these students are not exposed so much. So to me, it is an issue of who should do what? Some people say that they should do it, but what I would like to hear is that we should do it. Do your part and the centre will also do its part.

But we are going to continue creating central facilities like access centres, like we have been putting in some faculties, but like we are saying, let each unit look forward to equipping their own facilities.

Question: Share with us your own experience of Deanship at CIT

More than 90% of the equipment was bought from donor funds. We had to write winning proposals to convince people that we need this and we did it and got over 3000 computers from donor funding. We could have done otherwise, we do not need to wait for other people to come and do things for us

Do you share these views with the Principals and Deans?

If you are heading a unit at any level, you want it to grow, how do you want it to grow? If you want to transform the students to a school, you have to know what it takes and are ready for it. So leaders take the initiative to do certain things while looking at the broader future.

Before 2003, CIT students were refugees in other places, there was no teaching space. This was a short term problem, but we were not able to have a building and have students, because we needed money to have a building. So we still existed and admitted students whom we housed in Technology, Vet, all over the place and we used their money to put up the building. Right now students of CIT study 100% in their own facility and they are happy, but those who went through the problem are also happy when they come back and see something on ground. We did not only need a building, we also needed facilities and we had to source for that. We told people we want to put up an ICT centre of excellence in East Africa and they bought the idea and we did it.

Nobody is going to come to you and tell you what to do, it is you to say, this is what I want to do, but for you to say that, believe in what you want to say. If those parameters are not set, then nothing will be done. In management, we set parameters and extend them where necessary

If we are talking about distance education, you are basically talking about tele-education, where lots of ICT must be used, instead of people coming to pick hard copy books, but how are you moving on as a college? Are you thinking of setting up recording studios, production studios, for materials and so on? Are you trying to use some of these social networks like YouTube for videos? It is actually up to how a college wants to be and then you come up with how you want to get there. But we cannot tell everybody to this do that, it can just happen.

Question: Please tell me about ICT policy implementation issues

For policy to be implemented you discuss with people and share experiences. We have had forum where Principals share experiences and so on. But I also think about what legacy we need to leave behind our work place. Commitment is also another issue, like most of the time I come here very early in the morning, at 6.00am and even at times I go home and continue working, but nobody knows and appreciates that.

As a manager, we do not have to really wait for anything. I do not have to wait for what Principals say, I look at institutional level. Do not consider favouritism.

I have operational plans like of 1 year or six months, they work better for me, after that we assess and see what we have attained, what we have not been able to do so that we can continue working.

But in the next five years, Makerere should be regarded among the top three universities in Africa. Mine is not about numbers of 1, 2, 3 etc., mine is about categories, like if we have class A universities and Makerere is there.

RESPONDENTS FOUR AND FIVE (R4&5)

Question: How long have you been working in the e-learning Unit?

We have been in the university here since 2006, averagely now five years of service

Question: Any changes that you can note now since 2006?

There is the change of attitude towards the people who are supposed to use e-learning, the lectures are the ones I am referring to because they are the ones who need to develop the e-learning materials so that the students can use. There is some change that may not be so significant but I have seen it. From the time I got into e-learning unit, the numbers have significantly improved.

Question: Why do you think there is change of attitude towards e-learning?

They are being trained; they are being availed with resources. Some lectures are changing attitude because they have been exposed to institutions that are using e-learning, some have probably gone abroad and have been involved in maybe a short course or probably a very long course and they found that they had in one way or the other used materials that have been developed in that way. When they come back at their own initiative because of exposure, some of them have contacted us at the e-learning desk requiring their course to be created in there and they actually go ahead and develop materials and use them.

But in the five years that I have been here, we have trained a number of people. We have been able to cover the entire university in training people into e-learning, from the College of Health Sciences to College of technology. Sometimes we have been called by colleges, schools and departments at times have their own initiative. At our own initiative we have also arranged some training, targeting the entire university. And so all those factors have helped to change the attitude.

Question: How do you approach student use of e-learning?

As an e-learning unit, in the last two years, we managed to develop fliers for the students, which contain some help tips on how to access the LMS, and we sometimes take them to the AR and they are distributed as part of the admission package. I am sure that has helped a lot.

But sometimes learning materials have been put there and students have been informed to access it. This somehow pushes the students to find a place for access ICT so that they are able to use those courses. But in the Colleges where Lecturers are involved in e-learning, when they feel the need for the students to be taken through how to use the LMS, they have always contacted us to go and give a brief training session for the students so that they can access. For the students it does not take a lot of time like it does for the lecturers.

There is an e-learning help desk that has been very useful to the students who are having problems. If they are just able to send an e-mail and I have always been able to get very many emails from the students saying they can't go about this or the other so we do everything possible to give them a lot of online support.

QUESTION: Are there technology resource centres in colleges or schools?

We are not aware of any technology resource centre in every college within the university. But there are some colleges with resource centres, where the students can go and do some e-learning. The School of women and Gender studies has an e-learning lab for students. College of Education and External Studies has an e-learning lab at the School of Education. The Department of Mathematics in the faculty of Science have an e-learning lab equipped with computers and smart boards that in case one needed to use them, they are available. The labs have support staff that should be able to help students learn smoothly.

QUESTION: Please tell me more about the support staff at the labs

There are support staffs that are not part of the e-learning unit. The e-learning unit has only the two of us. What has been the case is that specific schools have to find someone to manage the lab at the school's cost.

QUESTION: Doesn't that compromise the kind of support the students get?

I Well issues of standard support have come up sometimes, but the students can be able to still contact the help desk. As the e-learning unit, apart from the fact that the schools provided the rooms, the equipment has been provided by the University. Through the e-learning unit, the rest is handled by the unit. For us, once in a while we inspect, not to punish but to ensure efficient and effective use of the labs. The expectation is that people are aware of the value of the ICT and they will use it with that consideration. Sometimes we just have a chat and accept in principle that they should for example ensure that the labs are used and accessed

QUESTION: Please tell me your experiences with the academic staff and e-learning

The academic staffs that use e-learning resource are youngish. It is on rare occasions that there is an elderly professor involved in e-learning. Though, it is interesting that they will attend the training and they would participate, attend fully and are very active. They are very keen with the training sessions, but when it comes to implementation, they go silent.

I believe it is the mind-set, because I am just thinking that they are still stuck in the old school where the lecturer is the source of the information and the master, with all the content and all the right to the content. They have a kind of phobia and they imagine they would lose the monopoly over teaching, by putting up a course on the LMS. They are afraid of students access their content in advance, because they felt that it is problematic.

Some of the lectures have gotten exposed to ICT a little earlier maybe in high school, at university they have had it and they are very comfortable in their IT literacy. They also appreciate a lot more what ICT can do, the benefits that come in using technology in the delivery of instruction.

Question: How many courses are on the LMS and their quality?

Over 100 courses are up and available, and they are active. There is room for a lot of improvement on them because some of them are static files like PowerPoint presentation, which was a good start anyway. We now need to improve our courses, add interactivity, and to move away from uploading files with no added value to teaching and learning. Redesigning the courses to make them more instructionally rich and sound and start building various learning materials in the course online. There should be learning objectives, learning tasks, assignment etc.

Question: Comment about the future of e-learning in Makerere University

The future is very bright if, there is all the support there needs to be especially in terms of what is needed to run e-learning. What is actually needed is equipment,

the software for development quality and usable digital content, building the capacity of the people and refresher trainings so that there is every category of staff ideal in an e-learning unit. The entire university changing their approach that the e-learning is helpful.

When I talk about equipment as well, there is need for also equipping students with sufficient e-learning resources and skills so that when the electronic content has been put up, the student can also easily access.

Bandwidth also go with e-learning, so that if people want podcasts, videos, they can be able to upload or download whatever they intend to do.

Question: What strategies can be employed to bring as many more people as possible into e-learning in this university?

I think we need to give people time, in my own experience; there is nothing you can do if someone is not ready. I have thinking that giving ultimatums may not be very helpful in this environment. But it would be good to keep bringing it up with everybody, talking it out and see incrementally how people come on board.

Question: Please talk about the issue of ICT policy

Policy is good but the issue of emphasising policy without building the capacity of the people does not work too, just interest them in what they are likely to benefit. All thing must work together as a team and it will succeed not emphasize on one against the other.

RESPONDENT SIX: EARLY ADOPTER (R6)

Question: How knowledgeable are you in utilizing e-learning facilities?

The university has prepared a couple of trainings concerning e-learning, mostly on the usage Moodle™ under the auspice of Makerere University e-learning environment (MUELE), I got a chance to attend the training the university has worked so much to make sure that computers are available. The bandwidth for access is good enough in most of the units in the university.

Question: What got you into e-learning?

When I was at undergraduate, I begged my guardian to take me for a computer course, unfortunately at time they thought it was very expensive and therefore it could not be possible, because by that time computers were very few. But that love for computers grew on with time until when I got to third year and we had a small introduction to computer course, that that was training on Windows 98. When I graduated, I had a basic training, but basically for Excel so that I can

organize students' marks. I made sure since that time that I taught myself the remaining packages like Word and Access.

Question: What e-learning technologies do you use?

Muele uses webmail so I use internet, I also use e-mail based technologies to communicate to students. There are also messaging components, where students can receive information in their inboxes when it is sent from the learning platform. Basing on the nature of my course, I do not use discussion boards very frequently. This has also based on the fact that we are currently using e-learning in a blended format in the sense that in physics. I still have to go to class and scribble on the board something. I have a web page and I use videos too. The concept came in mind I viewed videos from MIT. The professor could go to class and some people would film and these videos are accessible to students, later on meaning that if a student misses a lecturer, they can access the videos, watch and pick up from there. I have one video on the website trying to communicate to any of my virtual visitors. I feel fine having videos for students to have a lecture repeated.

Once in a while I use PowerPoint projection. Like when I am introducing to new students to the LMS, I make an effort. When there is something that could not be explained well in class, I also make an effort. The problem is limited time, our teaching labs are not equipped with these facilities, and we have one hour lectures, which is between another two lectures and to set up a projector and all other equipment take time. PowerPoint technology in my view is not suitable for physics; it may be very perfect for humanities.

Question: Please comment about access to the videos, the internet etc. that you use in your teaching.

Availability, to some extent is there, especially in my department. Offices have internet ports; there is access to wireless around the department. But I do not want to comment about whether they use or not, I have availed them. The adage is "you can take the horse to the river, but you cannot force it to drink the water".

Question: What are some of the problems with e-learning?

E-learning has not taken off, so to comment about this would mean we are fully fledged into it. Even the units that have some courses online, they are as someone calls them "notice boards". You find a whole course, and the only thing you find id to look at a week with a PowerPoint or pdf with no activities, no interactivity etc. and they whole course is like that. There is little connection between the student and the lecturer. A student is not comfortable that they missed a course; they will find key points or anything on the LMS to help me.

Students do not rely on the LMS to have a preview of what is to be covered next. Students would be comfortable even if they were late or did not attend any lecture. That robustness is still lacking. There is this fear of people thinking that they are the authors of knowledge and when they put stuff on the internet, it is going to be taken up by someone else.

Students come from a range of other departments and there is it is only my department or I who tries to use e-learning. There is a tendency of students telling you, but we are not told to do this in the other department. You emphasize having a photo, people do not have, you emphasize having a university e-mail account, and some people do not have. There is no straight policy on this aspect and so we are just disorganized, and so anyone on the street can register and access a course.

My take on this is that our sluggish ways of doing things have and shall continue to cost us negatively. For instance, we (DE) are not in the good books of Carnegie Corporation of New York because we failed to pass the ODeI Policy in record time, due institutional bottlenecks. I think our decision making processes are too lengthy and archaic to cope up with the operations of modern times. I was at the Distance Learning Unit in the Catholic University of Mozambique and I was amazed by what I saw and heard. There, decisions and policies are made in such a record short period of time. When one attends a conference and scoops a new idea, it is brought to the University, discussed and immediately implemented if found to be useful. Here at Mak, the a new idea has to be discussed at the Department Level, School Level, College Level, Senate Committee Level, Senate Level, then Council Level. The difficulty of getting an opportunity to 'push' the idea on the Agenda of any of these levels is directly proportional to the depth (height) of the levels. The more you ascend the levels the more difficult it is to get an idea placed on the agenda. You need to be a persistent person not to give up along the way.

Question: What changes would you like the university to make in as far as e-learning is concerned?

Get an e-learning unit which has people who are enthusiastic about e-learning. It may not matter whether these people are academic or non- academic staff. If these people can create courses and replenish them, it is walking the talk, not talking the talk every day. It is very difficult to emphasize something that you may not know the issues that go with it. People who know e-learning are those who have studied through e-learning or those who are thoroughly trained and understand it and these are the people who could benefit the e-learning unit. People with passion for e-learning.

Question: Do you recommend e-learning for your colleagues?

I have tried to recruit many people. I have been a disciple for e-learning. I recommend it because, take an example of our LMS, I no longer have to carry a flash drive. I no longer carry notes, I can access everything whether I am in Europe or US, at a click I will get my materials and revise them and so are my students. The benefits of e-learning are surely enormous.

Question: What should the university do to get more academics into e-learning?

Top management should be the initiator. Administrators can be the one to champion the mass take on of e-learning among the academics, (Policy issues). We are blessed to have a VC who has a passion for technology and any decision towards e-learning are handled very fast, that has quickened the e-learning development over the past two years.

Get people sensitized about the power of technology in instruction. Take examples people enjoy football, movies, why can't we enjoy education through these same technologies. In football, teams study tactics of others through watching them on screens, people learn to dance why can't we learn to get information through these same technologies?

Question: Please tell me your story about e-learning

I began my e-learning in 2004, when I was in Norway for my Masters, the e-learning there was still blended, I learnt on a platform called It's learning. My passion for e-learning comes because of access anywhere for 24hour. I was scribbling on the net and I landed on the videos in instruction. The University I was working in also took me for ODeI training and this widened my interest for e-learning. I was trained in e-learning by Canadians. The modules we made were self-explanatory and I got to love them, having a pre-course assessment and the after course one.

Question: What do the people out there (you are exposed to) do differently from MU?

They have the passion; somebody is at their desk, looks for open source materials and shares them with everybody. People out there are also committed to their interest.

Question: Any general comment about e-learning?

E-learning is challenging, because you have to understand the people you are dealing with, no assumptions. It is challenging to start on e-learning, but it is addictive once you get used to it. Whoever is involved in e-learning can only bring

more people on board by teaching or training the people to the effect that they wish they were you., there is need for role modelling and inspirational.

APPENDIX C: ETHICS FORM

UNIVERSITY OF CAPE TOWN

School of Education

RESEARCH ETHICS: STUDENT/SUPERVISOR JOINT STATEMENT

This form should be completed by the research student and then co-signed by student and supervisor: Tick the YES or NO box, and write in details where appropriate. Please read the UCT Code for Research involving Human Subjects before completing the form. Ask your supervisor for clarification and help if needed.

Student researcher: Name: MICHAEL WALIMBWA

Title of research project: AN INVESTIGATION INTO THE INITIAL ADOPTION OF E-LEARNING INNOVATION IN TEACHING AND LEARNING: THE CASE OF MAKERERE UNIVERSITY

Course detail: MASTER OF EDUCATION, ICTs.

Supervisor: Name: DR. CHERYL BROWN

1. Have you read the UCT Code for Research involving Human Subjects? (available from supervisor or at the UCT web-site - go to Research/ go to Standards and Procedures)	YES ✓	NO
2. Is your research making use of human subjects as sources of data?	YES ✓	NO

Research focus

3. In the space below state what your research question/focus is, and give a brief outline of your plans for data collection.

I am looking at the initial integration of e-learning in teaching and learning at Makerere University.

I will specifically look at the three questions below

- e. What have been the enabling and constraining factors in the initial phase of the e-learning innovation at Makerere University?
- f. What are the roles of innovators and early adopters in influencing the adoption of the e-learning innovation at Makerere University?
- g. How can e-learning innovation move from isolated innovation to mainstream adoption at Makerere University?

I will get data from the Vice Chancellor, the Directorate of Information Technology, the e-learning manager and administrator, two innovators and two early adopters.

Information

4. Will participants (research subjects) in the research have reasonable and sufficient knowledge about you, your background and location, and your research intentions? Describe briefly below how such information will be given to them. If there is any reason for withholding any information from participants about your identity and your research purpose, explain this in detail below.	YES ✓	NO
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I am an academic staff member in this university and therefore the participants are my colleagues. They therefore know me and know what I am doing. I will go ahead and explain every detail about my research to those who are interested. I will request each of them to allow me record the interview. I will access them a copy of my transcribed material for their approval.

Consent

5. Will you secure the informed consent of all participants in the research? Describe how you will do this in the space below. If your answer is NO, give reasons below.	YES ✓	NO
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I am dealing with an innovation, which everybody in the university is excited about. It is mandatory for me to seek informed consent. I am not dealing with anything confidential. This means everyone is willing to be part of the study. I need an introductory letter from CET specifying that I am a student on research and the topic and requesting the participants to participate in the academic research. I will seek their consent to participate in the research.

6. In the case of research involving children, will you have the consent of the children as much as that is possible? If your answer is YES, describe briefly how this consent will be got from the children. If your answer is NO, give reasons below.	YES	NO ✓
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I have no children in my research and therefore, the consent of guardians, parents and care takers may not arise here.

Confidentiality

7. Are you able to offer privacy and confidentiality to participants if they wish to remain anonymous? If you answer YES then give details below as to what steps you will take to ensure participants' confidentiality. If there are any aspects of your research where there might be difficulties or problems with regard to protecting the confidentiality and rights of participants and honouring their trust, explain this in detail below,	YES ✓	NO
In case they need any confidentiality, I will not mention their titles and names in the research report. But for the kind of research I am sure confidentiality is really uncalled for.		

Potential for harm to participants

8. Are there any foreseeable risks of physical, psychological or social harm to participants that might result from or occur in the course of the research? If your answer is YES, outline below what these risks might be and what preventative steps you plan to take to prevent such harm from being suffered.	YES	NO ✓

Potential for harm to UCT or other institutions

<p>9. Are there any foreseeable risks of harm to UCT or to other institutions that might result from or occur in the course of the research? e.g., legal action resulting from the research, the image of the university being affected by association with the research project, or a school being compromised in the eyes of the Education Ministry. If your answer is YES, give details and state below why you think the research is nonetheless worthwhile.</p>	<p>YES</p>	<p>NO ✓</p>

<p>10. Are there any other ethical issues that you think might arise during the course of the research? (e.g., with regard to conflicts of interests amongst participants and/or institutions) If your answer is YES, give details and say what you plan to do about it.</p>	<p>YES</p>	<p>NO ✓</p>

Signed:

Student: 
 Signed by candidate
 Signature Removed

Date: 01/05/2011

Co-signed:

Supervisor:

Date: