

AKNOWLEDGEMENTS

The completion of this thesis is a result of the exceptional support and sacrifice made by a number of organizations and individuals. First, I would like to express my invaluable gratitude to Kenya –Belgium Co-operation Programme (VLIR) for sponsoring my PhD studies. Second, I am indebted to all the people who, in one way or the other, facilitated my research work. I am particularly indebted to my supervisors; Professor Arno Libotton of Free University of Brussels (VUB), Dr. Elijah Omwenga and the late Dr. Robert Ayot both of University of Nairobi who consistently and patiently dedicated their intellectual contributions which greatly shaped this study. I would like to especially express my heartfelt gratitude to Professor Libotton in person for introducing me to other professors in Europe (in particular Professor Despontin with whom we discussed the relevant statistical tools for this research study). In addition to my supervisors, I am indebted to professors Georges Eisendrath, Kenneth Mavuti, Henry Mutoro, Timothy Waema and all other scholars for their support, guidance and cooperation. Third, I am indebted to my fellow PhD students at the University of Nairobi, Dr. Harriet Kidombo, Dr. Omondi Bowa, Mr. Robert Oboko, Patricia Muchiri (also for the editorial work) and Andrew Mungai for their invaluable support, cooperation and help. I am greatly indebted to my father Joseph Gakuu and my brothers Francis Muriuki Gakuu, Charles Maina Gakuu, my sisters Jane Wandia and Esther Gathigia for the support they gave my family when I was in Belgium pursuing my studies. In particular, I am indebted to Joe Watson Gakuu who worked with me as a research assistant. I cannot forget the much moral support I got from the families of James Kamunge Ngoima, Dr. Peter Mucheru Mwaura, John Mbugua and Dr. Moses Muriithi. Last but certainly not least, I acknowledge with deepest gratitude the moral and spiritual support I got from my dear and loving wife Ruth Wanjiru Njora, my daughter Florence Wambui, my sons, Joseph Gakuu and Livingstone Njora who all missed my fatherly love when I was occasionally away for studies in Belgium.

DEDICATION

This work is dedicated to my late mother, Jerioth Wambui, my wife Wanjiru, and children, Wambui, Gakuu and Njora with love.

PREFACE

Distance learning is increasingly being adopted for instructional delivery by institutions of higher learning globally and in particularly Africa. However, these initiatives are being implemented without proper planning. This has hampered the expansion of the use of distance learning as an alternative mode of instructional delivery which could also solve the problem of access to education in Africa.

Part one of this book presents an overview of distance learning in Africa with special attention to Kenya. Part two presents the research findings of a case study of the main factors that influence University lecturers' adoption of distance learning. The aim of this research was to analyze the factors that influence the University of Nairobi lecturers' readiness to adopt distance learning. The case study focused on establishing whether academic discipline influences the lecturers' adoption of distance learning.

The results indicate that the factors that influence lecturers' participation in distance education in other institutions in the world are basically the same and also important to the University of Nairobi lecturers. It is also apparent that lecturers' attitude towards the adoption of distance learning is positive and that there is no significant difference of attitude towards the adoption of distance learning between the various academic disciplines in the University. It was also evident that level of readiness to adopt distance learning varied according to the academic discipline. Finally, the book presents a path analysis model (Readiness to adopt e-learning Model- R-eL) indicating how issues of concern affects the adoption process.

Definition of key terms

1. **Adoption:** A lecturer's/instructor's acceptance or rejection to participate in distance education activities.
2. **Andragogy:** The philosophy of how adults learn
3. **Attitude:** A lecturer's/instructor's feelings or perception towards the adoption of Distance Education in the University of Nairobi.
4. **E-learning (electronic learning):** Learning using any of the computer based methods.
5. **Diffusion:** The process by which an innovation is adopted and gains acceptance by members of a certain community
6. **Distance Education:** A generic, all-inclusive term used to refer to the physical separation of teacher and learner. Other names used interchangeably with distance education terms include, distance learning; distributed learning.
7. **Distance Learning:** A term for the physical separation of teacher and learner, mostly used in United States of America. It is used interchangeably with distance learning when students take greater responsibility as is frequently the case when doing so from a distance. The desired outcome of distance education is distance learning.
8. **Innovation:** An idea, practice, or object that is perceived as new by an individual.

9. **Lecturer/faculty/instructor/ teacher:** An individual who has been hired full-time or on part-time basis to give instruction to registered University of Nairobi students.

10. **Readiness:** The state of having been made ready or prepared for use or action; willingness to do something or act in a given way; being temporarily ready to respond in a particular way

11. **Regular course:** A course that is taught face-to-face. The teacher and the student are at the same place at the same time. It is alternatively called the synchronous teaching.

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ABBREVIATIONS AND ACRONYMS

1. **AERA:** American Educational Research Association.
2. **APA:** American Psychological Association.
3. **ALN:** Asynchronous Learning Networks.
4. **ALNS:** Asynchronous Learning Networks Systems
5. **ANOVA:** Analysis of Variance
6. **CA E :** College of Architecture and Engineering
7. **CAVS:** College of Agriculture and Veterinary Sciences
8. **CBAM:** Concern Based Adoption Mode
9. **CBPS:** College of Biological and Physical Sciences
10. **CEES:** College of Education and External Studies
11. **CHS:** College of Health Sciences
12. **CHSS:** College of Humanities and Social Sciences
13. **CODL:** Center for Open and Distance Learning
14. **C.R.I:** Course Redesign Initiative
15. **DE:** Distance Education
16. **DL:** Distance Learning
17. **DT:** Distance Teaching
18. **ECER:** Exceptional Child Education Resources.
19. **ERIC:** Educational Resources Information Center.
20. **F.S.U:** Florida State University
21. **ICT:** Information Communication Technology.
22. **N.E.A:** National Education Association
23. **ODL:** Open and Distance Learning.
24. **OLE:** On-line Education.
25. **WWW:** World Wide Web.

PART ONE

OVERVIEW OF DISTANCE LEARNING IN KENYA

CHAPTER ONE

RATIONALE FOR DISTANCE LEARNING

Introduction

Major organizational changes and new developments in higher learning are taking place at an accelerated pace guided by the dynamic advances in global digital communication and sophisticated learning technologies. Distance education has not been left behind by the changes which have necessitated the general educational changes particularly in the use of information and communication technology (ICT) in instructional delivery. Distance Education has played a role in this unfolding drama particularly in the use and application of telecommunication technologies.

Education is regarded as one of the main pillars of development and hence accessibility to it is critical in the development agenda of any country. Distance education could be the panacea of access to equal opportunities for all citizens of a country irrespective of gender, location, race or tribe. A report LEONE (2004) titled ***“Weak signals survey on national and international evolution of learning”*** states that by 2020, education will be technology- based, learning and training will become a life-long activity and life-long learning will be possible for everybody. Education and training, it continues to say, will be tailored to individual needs, and students will be more responsible for learning and that the learning process will be more a learner driven activity, which allows fast changes that would not be possible in a teacher driven system.

It is evident that barriers to accessing higher learning opportunities are being reduced globally because of improved learning technologies. Hanna (1999) and Dillon (1989) observes that while learning technologies have continued to change

attitudes often remain the same. Education has become as a social institution (a transnational or “world cultural” phenomenon) where educational developments evolve at the level of a world culture. There is an axis-shift in the transfer of information, from the conventional classroom to distance education. This is driven by advancements in telecommunication technology and the need for continuous skills improvement for workers who cannot get time to go to the conventional classroom.

Access to educational opportunities for all is a major challenge facing many countries. It is noteworthy that many countries are starting to appreciate the role distance education can play in educational development of their economies particularly in alleviating poverty. This is so because education is seen as a means of empowering an individual to effectively and efficiently perform in the society and hence raise his or her standard of living. Distance education, no doubt, should be one of the means to increase and broaden access to education.

The continuing trend by business organizations and national governments to improve and reduce costs of advanced telecommunications technologies will, perhaps, encourage higher education providers to invest more in the use of ICT in distance education. However, from the tremendous research studies findings, particularly from the developed countries, many faculty (lecturers) members possess negative perceptions and attitudes that serve as barriers to the adoption of ICT in DE, its implementation and success, Marshal (2003).

Apparently, there seems to be two schools of thought about the value of distance Learning. One school sees it as good and as effective as the traditional classroom environments while the other school of thought feels that distance learning diminishes the quality of learning. The two schools of thought are opposed to each other and this is the reason why some lecturers resist adopting it.

While there is evidence of research studies on attitude of distance learners, very little research has been done on the attitudes of lecturers on distance education. This is a major gap this book attempts to bridge.

The book focuses on discussing the factors that influence lecturers' readiness to adopt distance learning as an alternative instructional delivery mode. The book also argues that lecturers (faculty) normally have issues of concern about adopting distance learning technologies and if they are not handled carefully the rate of adoption may be hampered.

A Brief historical background of distance education

Distance education is currently a global phenomenon with political, economical, social and technological ramifications. Its history is more than a century old. Institutionalized DE, largely based on correspondence was established in Russia as early as 1850. Later a number of correspondence teaching polytechnic institutes came into existence in the Soviet Union in the 1920s and early 1930s. There are other examples of purpose-built providers of post-secondary distance education courses which include the Toussaint and Langenscheidt Institute in Berlin (established in 1856) and the Swedish Libert Hermonds Institute established in 1898 with over 150,000 students each year at times (Schlosser, 2002). The first tentative step to enroll students in a university programme offered by distance mode was made by the University of London which from 1858 allowed qualified candidates to be admitted for degree studies without the necessity of following a course of instruction at one of its approved colleges.

The first steps to provide correspondence tuition to "external" students was taken up by universities in the USA (for example Illinois State University in 1874; University of Chicago in 1891; University of Queensland in 1911). This was later copied by other institutions for example by the development of correspondence directorates at Indian universities, external studies in Australian and Anglophone African universities, and independent studies at United States universities.

The 1970s decade saw another development in the provision of DE by the establishment of what is currently known as open learning by the British Open University. This was unique in that it brought about what may be referred to as the second generation of distance education for home-based students based on a combination of correspondence tuition, face-to-face tutorials and the use of broadcast media as well as print, within the framework of a publicly funded institution offering its degrees. Today, we have “mega” Open universities some with hundreds of thousands of students enrolled at a given time like the Indhira Gandhi Open University, the Open University of United Kingdom, University of South Africa, and the African Virtual University which offers courses by Internet.

For years, correspondence education had a rather negative reputation because dropout rates were often higher than in traditional forms of education. Distance learning faculties in universities were often greeted with considerable skepticism. Research indicates that amongst the factors determining completion or success rates, it is virtually impossible to isolate those which are specifically related to the form of education (distance or campus based); even when similar curricular and assessment procedures are being compared. Learners characteristics (for example, age, motivation, location, and economic level) may differ as may the level of involvement because campus- based students are often studying full-time, while distance learners generally are part-time students. According to Kay and Rumble (1991), while drop-out and repeater rates can be high in both modes, the factors that influence their level are likely to be associated with assessment policies and the quality and extent of student support than the teaching methods per se. A distance learner getting no help from a tutor or other student is more likely to drop out than a student taking an equivalent course at a well- staffed university campus. At the same time, a distance learner working with good quality self-study materials, with a tutor and other students available over the telephone and at regular study center meetings, may be less likely to drop out than a student whose sole source of education is attendance at over- crowded lectures (Kay and Rumble, 1991).

Though distance education has a long history that goes back to the eighteenth century, it has taken more than a hundred years for it to develop into an academic discipline. This can be explained by the general attitude towards DE (distance education) since its inception. This negative attitude seems to be waning.

Is distance education a discipline?

Distance education has slowly but surely been evolving into a distinct discipline. For a long time, most of its efforts have been practical or mechanical, concentrating much on the logistics of the programmes.

Several distance education authorities have been involved in the discourse of whether it is a distinct discipline or not. Keegan (1986) argues that DE is a distinct field of education parallel to and a complement of conventional education. Peters (1988) asserts that anyone professionally involved in education is compelled to presume the existence of two forms of instruction which are strictly separable: traditional face-to-face teaching based on interpersonal communication and industrial teaching which is based on objectivized, rationalized technologically-produced interaction.

Keegan (1988) classifies the theories of DE into three. The first classification is based on the theory of independence and autonomy championed by Charles Wed Meyer as cited by Keegan (1988) who says that the essence of DE is the independence of the student. The theory of independent study championed by Michael Moore (1994) focuses on the learner's autonomy and the distance between the teacher and the learner. The second category is the theory of industrialization of teaching championed by Otto Peters, who sees DE as an industrialized form of teaching and learning. The third category is the theory of communication and interaction proposed by Borje Holmberg which says that DE calls for guided didactic conversation. Also associated with this category is the theory of andragogy by Malcolm Knowles (1990), who focuses on how adults learn because for a long time,

distance education has been training adults. A more recent theory is the equivalency theory states that the more equivalent the learning experience of distant education is to the local student, the more equivalent will be the outcome of the learning experiences (Simonson, 1999).

According to Holmberg (1986), a sensible approach to determine whether a body of knowledge constitutes a discipline would involve making some sort of classification of its research and listing the subject areas included in the curricula for teaching the discipline. Some of the subject areas in distance education include: philosophy and theory; distance students, their milieu, conditions, and study motivation; subject-matter presentation; communication and interaction between students and their supporting organization; administration and organization; economics; systems (comparative distance education, typologies evaluation etc); history of education and others that are bound to emerge with time.

As the discourse ranges on, it is critical that the main aspects of distance education be in-built in the theories. These aspects are: first, the autonomy of the learner in an environment in learning will be facilitated more and more through electronic means. The second is the aspect of industrialization of learning. Distance learning thrives through division of labor. Various aspects of distance learning are system-based and they are all systematized like in an industrial plant whereby a specific activity must precede another one for the process to be completed.

The globalization of education is forcing institutions of higher learning to look at their core business from an entrepreneurial perspective. This means that the issues of efficiency and the attendant competitiveness will be a driving force. That the institutions of learning will have the same curriculum and syllabus for both distance learners and campus based students, the aspect of equivalency of the learning outcomes need to be addressed. This is because all learners, distance and

conventional, face the same job markets and therefore, the learning outcome of the two instructional delivery systems should produce an equivalent end product.

Definition of distance education

Distance education does not have a clear-cut definition agreed upon by its scholars. Several distance education scholars have attempted to offer their definitions of the term.

Tella (1998) says that although distance education has sometimes been called the poor relations system, at its best it is an applied field, borrowing from a variety of theoretical frameworks. Dillon and Walsh (1992) assert that although there is no single universally accepted definition of distance education, most of its theorists agree that it is distinguished from other forms of education by its dependence on some form of mechanical or digital means of communication. This difference implies changes not only in traditional patterns of communication in the learning process but also in the way in which the function of education is organized.

On their part, Kay and Rumble (1991) distance education can be defined as institution-based formal education where the learning group is separated, and where interactive telecommunication systems are used to connect learners, resources, and the instructor). This definition underscores four main concepts. First, that distance education is institution-based which separates it from self-study. Second, that the teacher and learner are separated by time and space. Third, that there is interactive communication between the learner and the teacher and that the interaction can either be synchronous or asynchronous. Fourth, there is the concept of connecting the learners, resources and instructors, meaning that there are instructors that interact with learners and that resources are available to permit learning to occur.

Distance education is therefore, a planned and systematic activity which comprises the choice, didactic preparation and presentation of teaching materials as well as the

supervision and support of students learning which is achieved by bridging the physical distance between the student and teacher by means of at least one appropriate medium (Schlosser and Simonson ,2002). The two authors continue to argue that in a distance education process there must be a teacher; one or more students; a course or curriculum that the teacher is capable of teaching and the student trying to learn; and a contract, implicit or explicit between the student and the teacher or the institution employing the teacher, which acknowledges their respective teaching roles.

Keegan (1986) composed a comprehensive distance education definition by identifying its five main elements as:

- (a) The quasi-permanent separation of teacher and learner throughout the length of the learning process (which distinguishes it from conventional face-to-face education).
- (b) The influence of an educational organization both in planning and preparation of learning materials and in the provision of student support services.
- (c) The use of technical media (print, audio, video, or computer) to unite the teacher and the learner and carry the content of the course.
- (d) The provision of two-way communication so that the student may benefit from or even initiate dialogue (which distinguishes it from other uses of technology in education).
- (e) The quasi-permanent absence of the learning groups throughout the length of the learning process so that people are usually taught as individuals and not in groups with the possibility of occasional meetings for both didactic and socialization purposes.

Later, Garrison and Shale (1987) after feeling that Keegan's definition was too narrow and did not correspond to the existing reality as well as to future possibilities, offered three criteria that should characterize the distance education process. The criteria are that:

- (a) Distance Education implies that majority of educational communication between the teacher and students occur non-contiguously.
- (b) Distance Education must involve two-way communication between (among) teacher and student(s) for the purpose of facilitating and supporting the educational process.
- (c) Distance education uses technology to mediate the necessary two-way communication.

In response to the evolving tele-communication technologies, Edwards (1995) says that distance education should be seen as a philosophy of education that provides distance learning opportunities using mass-produced courseware to a mass-market. This definition is a response to the changing educational environment which has been influenced by telecommunication and globalization. The definition takes into account the use of ICT in distance education.

The various definitions underscore the main attributes of any distance education programme and its processes: that there is the physical separation between the learner and teacher in space and time; that communication between the teacher and the learner occurs non-contiguously; that there must be a two-way communication between the learner and the student; and that distance education uses technology to mediate between the learner and the teacher.

Use of ICT in distance education

Information communication technologies (ICT) seems to offer exciting and new possibilities for DE delivery that will presumably have a profound impact on educational strategies in both developed and developing countries. A report on a survey conducted by LEONE (2004) in Europe states that university will be near the society and give people skills on how to transform information into practical knowledge. 'The importance of school and university will diminish since more learning can take place at work place with the web-based technology. In the working life training will interface with working periods'.

There is evidence that ICT applications have not fully penetrated universities in the developing world. The level of ICT use, expertise and practice by the academic staff is not yet sufficient to be considered viable. According to Macchiusi and Trinidad (2000), academic staff is using ICT more for personal use and not for teaching and learning.

Several pedagogical forces have driven the push to incorporate information and communication technologies. These factors are:

1. Information access: The Internet has made it possible for all people to access information. Mastery of this tool has become essential in order to gain access to up-to-date knowledge available electronically.
2. New communication skills: Employers are expecting graduates to be familiar with ICT tools.
3. Asynchronous learning: This allows institutions to break the barriers of time and distance in the provision of education.

A variety of other factors that influence the adoption and effective use of ICT at tertiary level by teaching staff include the following:

1. **Leadership:** According to Dolence and Norris (1995), many educational leaders are inexperienced in growth oriented learning opportunities in the information age. This is because institutions fail to match the technology investment with adequate training and appropriate incentives.
2. **Technology infrastructure and cost:** Lack of uniformity in computer hardware and software (Green and Gilbert, 1995).
3. **Innovation and change:** One of the major factors contributing to the lack of adoption of innovation is not just the attitudes of the teaching staff but also the associated reluctance to change (Fullan, 1995; Candiotti and Clarke, 1998).
4. **Resources:** Many institutions lack adequate resources which are already stretched to the limits and teaching staff are not only asked to do more but they are expected to do it differently using modern technology (Gilbert,1996;Northrup and Little,1996).

Intelecom Research Report (2000), it is observed that distance education schemes that have until recently relied mainly on the mailing of written materials, videos, cassette recordings, and radio or TV broadcasting techniques can be augmented, enhanced or replaced by new on-line tools and technologies which have the power to transform the learning environment.

The report argues that current and ongoing technological developments have the capacity to generate the following benefits particularly in the developing world.

- (a) That through Internet and the world-wide web, new and enlarged sources of information and knowledge can offer teachers and students opportunities for self-development as well as benefits when applied to the classroom environment.
- (b) That through e-mail and other Internet based feedback methods; there is greater opportunity to reduce the isolation and time- delay associated with DE.
- (c) That through the extraordinary pace of software developments, enriched teaching and learning with enhanced graphics, there is opportunity for more interactivity between the teachers and the learners.
- (d) That through lowering telecommunications bandwidth costs, and emergence of enhanced cable, wireless and satellite systems, there is greater opportunity for basic access, video-conferencing, on-line interactive learning, and live interaction
- (e) That the benefits of DE should eventually be available to lower income people and rural communities thereby enhancing their capacity to be economically productive.

The use of ICT in DE depends on the following five factors:

- (a) Geographical size and situation. Countries with large and dispersed populations will find the use of ICT to deliver instruction cost-effective.
- (b) There is a general trend to privatize and liberalize the telecommunication sectors by change of policy by majority of countries on both sides of the digital divide. Telecommunication and Internet are improving quality, lowering costs and accelerating innovation around the world. Education policy is normally associated with raising awareness and providing leadership in educational use of ICTs.
- (c) It is noticeable that small markets attract fewer investors and less competition and offer fewer economies of scale which would lead to

price reduction. Regional schemes can overcome this problem, by increasing aggregate market size and hence enable the creation of scale economies. The developing countries must seriously form viable regional groupings that will allow economies of scale and attract investment in telecommunication technologies.

(d) The issues of per capita income are an important factor to the investing community. The markets need to allow the affordability of the ICT products to attract the commercial investors. Market growth opportunities are also required to attract and sustain the potential investments.

(e) The developing countries need to address the issues that relate to educational delivery challenges due to geographic or cultural isolation, or appreciation for more systematic challenges such as adapting to the demands of information economy which can only be seriously addressed by ICT. There is need for the governments and particularly the education ministries to evaluate whether their policies encourage the use of ICT technologies for instructional delivery.

The use of ICT in DE in any country is to a large extent dependent on the reach and quality of a country's existing telecommunication infrastructure (i.e., telephone density, cost of access) which can greatly limit the development of DE. Most of the populations in the developing countries live in the rural areas characterized by underdevelopment. It becomes a challenging task to provide for a small number of residents the same depth and range of educational opportunities as in the cities and towns. It is imperative that DE complements local resources and enhance rural development by making education more accessible in a cost-effective way. Unfortunately, rural areas in the developing world are the most neglected in terms of telecommunication, which makes it difficult to use web-based ICT in DE.

There is a need for the governments to generate favorable laws and policies directly regulating Internet because this has an impact on the potential use of ICT in DE. Equally important is the need to have a clear educational policy towards the use of ICT in education generally.

Research studies in developing countries indicate that the more modest ICT projects are the more successful they are, because they are able to attract and secure funding other than issues of sustainability. It is observable that for a donor sponsored ICT project to be successful, the initiative requires the presence of local participation and serious consideration regarding the self-sustainability of the project.

Generally, Africa has lagged behind in the development of ICT in DE. Apart from South Africa, which is implementing several initiatives, most of the other Sub-Saharan African countries are still at the stage of conceptualizing the ICT projects. Several such projects in Africa have been initiated with the majority of them being in South Africa with the exception of the African Virtual University (AVU) whose activities are in fourteen other African countries (i.e., South Africa, Kenya, Uganda, Tanzania, Zimbabwe, Ethiopia, Ghana, Namibia, Benin, Burkina Faso, Burundi, Mauritania, Niger, Rwanda, and Senegal). AVU's objective is to build human capacity and support economic development by the power of modern telecommunication technology in providing world-class tertiary education and training programmes to students and professionals in Sub-Saharan Africa. AVU uses interactive satellite and computer based technologies to deliver academic, library services and laboratory experiences available simultaneously to a network of sites across Africa. In Kenya, several universities (Egerton University, University of Nairobi,) are such like sites for AVU.

South Africa has two other major ICT initiatives that are operational. The Distance Educational Learning System (DEDLS) and the Technology Enhanced Learning Initiative (TELISA). DELDS focuses on developing DE content which is independent of

the delivery system as long as it is digitally based. The idea is to develop content which is not produced with a specific medium for transmission in mind but which can be transmitted via a range of alternative technologies. TELISA on the other hand, focuses on content and plans a series of internet-based information servers in order to provide appropriate support-material to existing educational institutions. One thing to note about these initiatives is that they aim at broadening the access to specific tertiary education by making ICT access the tool for education delivery and not the main goal.

From a critical analysis of the trends taking place in the world today, there is no doubt that telecommunication will be the principal technology that will drive all industries. In particular, instructional delivery whether the face-to-face or by distance, will increasingly rely on ICT. However, it is unfortunate that the developing countries lag behind in the development of ICT. Their tele-densities are exceedingly and comparatively low. Universities in most of those countries are still using the face-to-face methods of instructional delivery and those with some modest forms of DE are predominantly using the print media. If such universities are to keep pace with international trends and compete favorably with institutions of higher learning that have become global, they must speedily invest time and resources in ICT in education. The national governments of the developing countries must prioritize and invest in the ICT infrastructure and increase tele-density. This will enable educational institutions to increasingly think of going into distance education.

Through the use of ICT in DE, interactivity can be increased in the learning process. According to US Congress, (1988), distance learning allows students' to hear and perhaps see teachers as well as allowing teachers to react to their student's comments and questions. Virtual learning communities can be formed, in which students and researchers throughout the world and who is part of the same class or study group can contact each other any time of the day or night to share observation, information and expertise with one another, (Vander Ven, 1994 and

Wolfe, 1994). Therefore, the use of ICT helps to increase interactivity between students and teachers in broader sense.

Distance education in Kenya

The history of distance education in Kenya can be traced as far back as 1949 when the Asquith Commission Report on new university challenges in the British colonies recommended the creation of “center for Adult Education in keeping with British traditions.” This saw the establishment of the College of Social Studies founded at Kikuyu Campus in 1961 as an independent centre for liberal education.

At the time of independence, a critical issue was the presence of many untrained primary teachers most of whom had only primary level education. By an arrangement with the Ministry of Education, the University of Nairobi through the College of Education and External Studies, about 3000 primary school teachers received two-year high school education by distance learning mode between 1967 and 1980. Between 1967 and 1982 over three thousand adult education untrained teachers were trained by distance mode by the University of Nairobi’s Institute of Adult Studies. The main instructional mode was through the print media and evening radio classes.

From 1986, the University of Nairobi launched degree level distance learning programmes in education (Bachelor of Education-Art degree) which by the year 2003 had 2500 students. In 2003, a Bachelor of Education (science) was launched with an enrolment of 80 students. A Post-Graduate Diploma course in Sexually Transmitted Infections (STI) offered by the Faculty of External Studies and the Faculty of Medicine was launched in 1999 to train medical doctors by distance mode. The Faculty of External Studies also has a Post –Graduate Diploma in Education programme offered by distance mode.

It is also important to appreciate that there have been other DE initiatives in Kenya by other institutions. Several examples are given here below:

- (a) The African Virtual University which is a World Bank sponsored programme offering university courses mainly from USA universities, using electronic means.
- (b) The Ministry of Agriculture has developed distance education programs for farmers and extension workers mainly through booklets supported by radio broadcast. The programmes are going on.
- (c) The African Medical Research Foundation (AMREF) and the Ministry of Health train the health personnel through distance education .
- (d) Kenya Institute of Special Education launched distance learning program to train teachers in special and regular schools in 2002.
- (e) Several public and private universities have started distance learning programmes mainly using the print media.
- (f) Several international universities, for example, University of South Africa (UNISA), have entered into collaborative arrangements with local higher education institutions to offer education by distance.

It is observable that distance education is not well developed in Kenya. Even in the University of Nairobi, where it was pioneered, it is not yet mainstreamed. More critical is that there is no national policy to guide the implementation and practice of distance education in Kenya. Up to the time of compiling this report, the Kenya did not have an operational distance education policy.

CHAPTER TWO

DISTANCE LEARNING ADOPTION THEORIES

Introduction

The adoption of distance education methodologies by university lecturers involves a paradigm shift in their teaching. To shift from the traditional face-to-face teaching to a distance teaching milieu is a process of behavior change on the part of the lecturer. This chapter discusses theories that explain how lecturers adopt distance learning methodologies.

(a) Attitudes theories

Attitude is a major influencing factor in human beings. The attitude a lecturer has towards DE will influence his/her acceptance or rejection of it as a viable mode of instructional delivery. It will also influence their level of preparedness to adopt the use of ICT used in delivering distance learning courses.

Several authors have defined the term attitude. Johannes (2000) says that attitude can be regarded as continuously varying traits, that is, predispositions to display certain behavior with respect to the attitude object. Burrs, as cited in Hogg and Vaughan (1995) says that attitude is a mental state of readiness, organized through experiences, exerting an influence upon an individual's response to an object and the situation with which it is related. On his part Kotler (2001) defines an attitude as a person's favorable or unfavorable evaluations, feelings, and tendencies towards an object or idea. From the above definitions, it is clear that an attitude is usually viewed as an enduring disposition to consistently respond in a given manner to various aspects of the world including persons, events, and objects.

Attitudes put people into a frame of mind of liking or disliking things, of moving towards or away from them. Hence it is difficult to change attitudes. This is because a person's attitude fits into a pattern, and to change one attitude may require difficult adjustments in many others.

There are three components of an attitude: cognitive, affective and behavioral. The cognitive component represents a person's awareness of and knowledge about an object. The affective component reflects an individual's general feelings or emotions towards an attitude object. The behavioral component refers to intentions and behavioral expectations. According to Rosenberg (Cognitive Balance Theory, 1958), attitudes have influence on how people behave. It means that the attitude an individual has determines his behavior towards any stimuli.

Attitudes are complex and difficult to measure. Several researchers have formulated theories of attitude and attitude change. Consistency theories postulate that humans are striving for consistency and that they want to be internally consistent. In order to stay consistent and maintain homeostasis, people change their attitude (Suedfield, 1971). The main proponents of consistency theories are, Osgood and Tannen (congruity Theory, 1960; Festinger (Cognitive Dissonance Theory, 1957), Heider (Balance Theory, 1944); Cartwright and Harary (Structural Balance Theory, 1956. The theories are centred on learning and cognition. They emphasize that attitudes have adaptive significance to the people who hold them (Suedfield, 1971). Proponents of this line of thought are, Doob (Learning Theory, 1947), Hovland (Incentive Theory, 1953), Bem (Self-Persuasion Theory, 1965) and Beer and Coker (Task-Experience Theory, 1965).

Functional theorists feel that attitudes serve a useful purpose and when it is no longer useful, a new one will be adopted (Suedfield, 1971). They feel that a man struggles for goals and will adjust attitude to meet those goals. This serves as an ego-defensive function because it helps protect one's self-respect. This line of inquiry is

championed by Katz (Motivational- Construct Theory, 1954); Kelman (Functional Analysis Theory, 1962), Jans and Man, (Conflict Theory, 1962), Horland, Jans, and Kelly (Reinforcement Theory). Following Suedfield (1971) argument it is then possible for lecturers to change their attitudes towards the adoption of DE and the use of ICT in teaching. This will enable them to maintain homeostasis with the current trends in instructional delivery.

Cognitive and perceptual theories focus on discrepancies between attitudes of communication. Attitude of Behaviorist theories are more focused on the adaptive aspects of attitude. They are based on generalization or analogies. The main proponents are Leonardo Doob (Attitude as implicit response, 1947); Bem (Skinnerian, Radical Behaviorism, 1965).

McGuire (1985) says that attitudes are regarded as theoretical constructs that relate (overt) stimuli to (overt) behavior and thus make the prediction of behavior more parsimonious just like any other personality trait. Anderson (1993) says that attitude is a person's evaluation of the attitude object and if it is assumed to be stable over time it must be stored in memory over time. He postulates that attitudes can be represented by means of semantic networks.

According to Wilson, et al., (1989), there is a difference between cognition-based and affect-based attitudes. Affect-based attitudes are associated with a strong affective reaction to the object and are easily accessible and automatically activated through mere exposure to the attitude object or its name. Edwards (1990), and Edwards and Von Hippel (1995) say that affect-based attitudes can hardly change or established because they are not based on cognitive reasons. In contrast, cognitive-based attitudes are as a result of controlled cognitive processes rather than automatic processes. They consist of a set of evaluative beliefs concerning an attitude object rather than an affective reaction.

For one to understand and measure attitude, it is important to understand how attitudes are represented. Several models have been proposed. Fazio (1986 and 1989), developed the Evaluative Nodes in Semantic Memory Model whose core assumption is that nodes representing attitude objects in a semantic memory are connected to a node representing an evaluation (good versus bad) and this association is termed "attitude".

Since the association between an attitude object and its evaluation is considered to vary in strength, the model transforms Converse (1970), distinction between attitude and non-attitude into a continuum. The stronger the association between attitude object and evaluation in the long-term memory, the more can be spoken of an attitude that influences behavior and can be measured. Attitude activation is conceptualized as an automatic process whereby, for a strong attitude, the mere exposure to the attitude object (or its name) is sufficient to activate the attitude. It is then my conclusion that this model is more suitable for representing affect-based attitudes.

According to Tourangeau's (1987, 1992) model of Attitude as Memory Structures organized by means of topicality, attitudes are regarded as complex memory structures which comprise of beliefs, feelings, personal experiences stored in memory and images related to the attitude issue. Attitude representation is organized according to topical aspects. That is, memory contents belonging to an attitude issue are more strongly associated with each other if they fall into the same or at least into related topical cluster than if they belong to an unrelated cluster.

Pratkanis (1989) also developed the Bipolar versus Unipolar attitude structures which is primarily concerned with the question of how evaluative beliefs related to an attitude issue are organized in memory. The defining feature of the unipolar attitude structure is that a person holds either a negative or positive belief concerning an issue but rarely both of them. Inter-individuality variability in the evaluation of an attitude object normally occurs only between neutrality and either

the positive or the negative extremes of the attitude continuum. In the bipolar attitude structures, knowledge about both sides of an issue is characteristic. An individual can produce arguments supporting their own position as well as opposing arguments. According to Judd and Kulik (1980) a bipolar attitude can play the role of a schema that facilitates processing of attitude-congruent and attitude –incongruent information. They continue to say that with respect to the cognition-based-affect-based distinction, unipolar attitude may be cognition-based attitudes as well as affect-based attitudes whereas attitudes structured in a bipolar manner are mainly cognitive-based.

Tourangeaus model appears to be more applicable to this study. This is because if an attitude can be regarded as cognition-based and as organized according to the topical structures of attitude-relevant knowledge, it is reasonable to take these topical clusters into account by constructing different attitude scales for distinct clusters. Distance learning is currently a major topical issue particularly in the University of Nairobi and hence Tourangeaus model is quite relevant in this study.

Measuring attitudes and their relationships to behavior is a complex and subtle business, (Glick and Fiske, 1996). This study is concerned with lecturers' attitudes towards the adoption of ICT in distance education. The measurement methods and scales are hence critical to the study. The basic assumption of attitude measurements, according to Hogg and Vaughan (1995), are that a person's attitude can be measured by asking questions about thoughts, feelings, and likely actions towards the attitude object. Second, that attitudes can be measured by quantitative techniques (i.e., each person's opinion can be represented by a numerical score). Third, that a particular test item or other behavior indicating an attitude has the same meaning for all respondents so that a given response is scored identically for everyone making it. Fourth, that in a typical questionnaire, respondents are asked to indicate whether they agree or disagree with each of a series of belief statements about an attitude object. Fifth, those attitudes are arranged along an evaluative

continuum ranging from favorable to unfavorable. This study used a six Likert scale to measure the lecturers' attitudes towards distance education.

There are several attitude measurement scales. Thurstone scales involves initially constructing an item pool which has a large amount of statements of opinions about an issue from which a group of judges select a limited number of items to be presented to the respondents. With the Likert scales, instead of judges, the respondents place themselves on an attitude continuum. A person's score can be summed and the resulting total used as an index of that person's attitude. A researcher can tell a good item (i.e. one that measures an underlying attitude) from a bad one (one that does not) by correlating each item with the total.

Semantic Differential scales developed by Osgood et al. al., (1957), focuses on the meaning people give to a word or subject. It assumes that words have two meanings; the semantic or dictionary meaning and the connotative (meaning a word suggests apart from the thing it explicitly denotes or names). Hypothetically, there is semantic space of an unknown number of dimensions in which the meaning of any word or concept can be represented at a particular point. According to Moscovic (1983), our reaction to events or responses to stimuli are related to a given definition common to all the members of the community in which we belong. Augustinus (1991) says that if social representations are cognitive structures shared on a group basis, agreement between members of that group should increase with age.

It is coming out clearly that the attitude the lecturers hold is critical to the successful implementation of DE .Various studies have indicated that attitudes depends on the level of motivation or de-motivation of the lecturers: the level of familiarity with DE; experience with DE; familiarity with the specific DE project at hand or being implemented and its logistics; the level of the lecturers' involvement. There is a positive link between lecturers' attitude towards DE and their adoption of it. Apparently, lecturers concerns and needs about DE or on-line courses are universal,

irrespective of discipline, type of institution or geographical location (Carol, 1998). Therefore, a lecturer can be regarded as supportive (positive), opposed (negative) or having divided support (lukewarm) towards an aspect of distance education, in this case towards the adoption of distance education as a viable instructional mode and also the use of ICT in teaching.

(b) *The diffusion theories*

The theoretical backbone of readiness to adopt an innovation stems from Roger's (1995), Innovation Decision Process Theory, Moore(1999), Model of Adoption of Innovation and Louks-Horsley(1996), Concern-Based Adoption Model (CBAM). The three are the models that explain the dynamics that influence the adoption of an innovation.

Lecturers' readiness to adopt distance learning agrees well with Rogers (1995), Innovation-Diffusion Theory, decision, implementation and confirmation stages. Rogers defined "innovation" as an idea, practice, or object that is perceived as new by an individual or other unit of adoption (Rogers, 1995, P.11). "Diffusion", on the other hand, is the process by which an innovation is communicated through certain channels over time among members of a social system. The "innovation-diffusion" is the process through which an individual (or other decision- making unit) passes from first knowledge of an innovation to forming an attitude towards the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision (Rogers, 1995, p.20).

Rogers (1995) says that a number of factors interact to influence the diffusion of the innovation. The factors are: the innovation itself, how the information about the innovation is communicated, time, the nature of the social systems into which the innovation is being introduced, and prior conditions of the adopters. According to Rogers, (1995), there are five main attributes that affect the rate of adoption:

- (i). **Relative advantage:** the degree to which an innovation is perceived as being better than the idea it supersedes. In many distance learning institutions, the administrators may use incentives to increase the rate of adoption, whose main function is to increase the degree of relative advantage of distance education mode of delivery over the traditional face to face mode.
- (ii). **Compatibility:** the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters.
- (iii). **Complexity:** the degree to which an innovation is perceived as relatively difficult to understand and use. The rate of adoption is slower with more complex innovations.
- (iv). **Trial -ability:** the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on installment plan are generally adopted more rapidly than innovations that are not divisible.
- (v). **Observability:** the degree to which the results of an innovation are visible to others.

According to Rogers (1995), the diffusion of the innovation occurs over time and can be seen as having five distinct stages: knowledge; persuasion; decision; implementation and confirmation. The theory says that the adopters of an innovation must learn about the innovation, be persuaded as to the merits of the innovation, decide to adopt, implement the innovation, and confirm (reaffirm or reject) the decision to adopt the innovation.

It is important to note that the theory has three major components: individual innovativeness; the rate of adoption; the perceived attributes. Individual innovativeness theory states that individuals who are predisposed to being innovative will adopt an innovation earlier than those who are less disposed.

The rate of adoption theory states that innovations are diffused overtime in a pattern that resembles an S-shaped curve. It theorizes that an innovation goes through a period of slow, gradual growth before experiencing a period of relatively dramatic and rapid growth which finally becomes almost stationary. The theory of perceived attributes states that potential adopters judge an innovation based on their perception in regard to five attributes of the innovation: trialability, observability, relative advantage, complexity and compatibility. It holds that an innovation will experience an increased rate of diffusion if potential adopters perceive that the innovation:

- (a) can be tried on limited bases before adoption,
- (b) offer observable results,
- (c) has an advantage relative to other innovations (or the status quo),
- (d) is not overly complex,
- (e) is compatible with existing practices and values.

After its conception, an innovation spreads slowly first, usually through the work of “change agent”, who actively promotes it, then it picks up speed as many more people adopt it and eventually everyone who has the potential of adopting it.

Take-off point is critical to the process. This occurs when the forward-thinking change agents have adopted the innovation and have communicated it to others in the society by whatever means they believe appropriate. Rogers states that when the number of adopters reaches a critical 5%-15%, the process is probably irreversible.

According to Rogers (1995), the individuals within a social system do not adopt an innovation at the same time. Rather they adopt it in an over-time sequence, so that individuals can be classified into adopter categories on the basis on which they first begin using the idea. So that in the diffusion process there is the innovator (2.5%),

early adopters (13.5%), early majority (34%), late majority (34%) and laggards (16%). Therefore, in the process of adopting DL and the use of ICT in teaching an individual lecturer, a college or the university as an institution will be in one category of the adopters at a given time. What is important is to identify the stage and then establish its characteristic and consequently the strategic options for promoting the adoption of the innovation.

Omwenga (2003), in his PhD study on e-learning environments, applied Rogers model to describe the stages for the deployment of e-learning institutions and found the model useful in describing how learners adopt new learning technologies and specifically e-learning. He found that learners follow the same pattern while learning through e-learning. The table below was extracted from his research study.

Table 1: Omwenga’s modification of Rogers’s model [source: Omwenga, E.I. (2003), Modeling and analyzing a computer-mediated learning infrastructure]

Rogers Aspect	How Research Model takes care
Advantage to current practice	Identify the benefits involved
Trailability	Evaluation of current status : establish channels of communication; Training
Observability	Involvement of staff: Avoidance of the “Not invented here” Syndrome: pioneers to train others.
Complexity	Fitting curriculum onto technology and vice-versa; Training staff
Compatibility with current practices	Work plan; implementation options

Deutschman (1961) conducted a research study on whether the diffusion of agricultural innovations is adopted in the same pattern in both developed and developing countries. The findings seemed to display striking similarities in Ohio in the USA and Saucio in South America. The diffusion process seemed to portray the same general pattern of human behavior.

On the other hand, Moore (1999), Model of Adoption of Innovation was a modification of Rogers (1995) Innovation Diffusion Model. Moore introduced a marketing perspective to it. He modified the technology adoption Life cycle to include what he referred to as “cracks in the bell curve”, located between each of the psychographic adopter categories.

In his model, Moore suggests that due to their unique characteristics, each of these groups of potential adopters will need different reasons to make the adoption decision and this will necessitate different marketing strategies for each group. He proposes that there is an opportunity for the adoption of an innovation to lose momentum at each point when a new group of adopters needs to come on board. This happens particularly in the transition between early adopters and the early majority groups. He referred to this as the **“Dividing Chasm”** because of the fundamental differences in the two psychographic groups. He observes that the early adopters are inclined to view innovation as an opportunity for a dramatic change (or even a revolution) in their industry or field. On the other hand, the early majority is not interested in revolutionary approaches and seeks evolutionary ways of improving productivity of their operations.

Moore continues to argue that unlike the early adopters who are prepared to pay the price of being first and gaining competitive advantage, putting up with bugs and glitches, the early majority want innovation to “work properly and to integrate appropriately with their existing technological base”. The early majority are pragmatics who need to see reliable reference base to make the adoption decision. Therefore, unless new marketing strategies are identified to make an innovation attractive to the early majority, it may never complete the adoption cycle. It will level after the first two groups of adopters and forever remain on the fringes of the mainstream practice.

This model has very important insights into how an institution of higher learning can enhance the adoption of DE and use of ICT in teaching.

According to Schiffan (1991), the theory of diffusion is potentially valuable to the field of instructional technology for three reasons. First, most instructional technologists do not understand why their products are not adopted. Second, instructional technology is an inherently innovation-based discipline. Many of the products produced by instructional technologists represent radical innovation in the form, organization, sequence and delivery of instruction. An instructional technologist who understands the innovation process and theories of innovation diffusion would be more fully prepared to work effectively with clients and potential adopters. Third, the study of diffusion theory could lead to the development of a systematic, prescriptive model of adoption and diffusion.

The theories are critical in the understanding the process through which university lecturers would adopt distance learning. The theories explain they clearly explain how an innovation spreads from its source to its adopters. The decision by a lecturer to incorporate distance learning instructional delivery modes involves a change from the conventional (traditional) classroom instruction to asynchronous modes. Of particular importance is to understand the stage the lecturers are at a specific point in time in the adoption process. This would enable the university administrators to design, develop and implement projects that would facilitate and enhance the adoption of distance learning.

(c) Change management theories

The main change management theory is founded on three schools of thought: the individual perspective school; the group dynamic school and the open systems school.

(I) the individual perspective school of thought

The individual perspective school has two camps; the behaviorist and the Gestalt field psychologists. The behaviorist camp sees individual's behavior as resulting from his or her interaction with the environment and hence all behavior is learnt. The individual is seen as a passive recipient of external objective data. The proponents hold that human action is conditioned by their expected consequences. The main proponents of this line of thought are Pavlov (1927) and Skinner (1974) who says that in order to change behavior it is necessary to change conditions of what causes it. Therefore, behavior modification involves the manipulation of reinforcing stimuli so as to reward desired activity. On the other hand Gestalt-field psychologists believe that individual's behavior is the product of environment and reason. They believe that for organizational change to occur individual members must change their understanding of themselves and the situation in question which in turn leads to changes in behavior (Smith et al., 1982). This implies that for an institution to adopt distance learning successfully, the individual lecturers need to change their long held teaching behavior to the new one (distance learning).

The lecturer is a product of the institutional behavior. It means that the institution (university) should create the necessary environment for the lecturers to adopt distance learning. However, the decision to adopt or reject distance learning lies with each individual lecturer and not as a group.

(ii) The group dynamic school

The group dynamic school asserts that people in organizations work in groups' and individual behavior must be seen in the light of groups prevailing practices and norms. The main proponent was Lewin (1947a) who argued that an individual's behavior is a function of the group environment or "field" and that in order to bring change the focus must be at the group level and should concentrate on influencing and changing group norms, roles, and values (Cunning and Husse, 1989; Smith et al., 1982). This implies that for an institution of higher learning to successfully adopt distance learning, and then it should target the lecturers as a group and not as individuals.

(iii) The open system school

The open system school sees organizations as composed of a number of interconnected sub-systems. It follows that any change to one part of the system will have an impact on the other parts and in turn on the overall performance (Scotts, 1987). Accordingly, any change approach will require change in norms, rewards systems, and work structures must be approached from an organizational level rather than individual or group level. However, Beach (1990:138) criticized the theory by saying that it does not comprise a consistent, articulated, coherent theory and much of it is abstraction because it does not offer any concrete and operational usage. However, the proponents of the open theory did not explicitly state how organizations change. Do they change spontaneously or some foreign forces magically come in and make the organization see the need for change? It is my view that in many cases organizational change is initiated by strong-willed individuals who have a vision and they sell it to others most probably the close workmates who then push it through the various layers in an organization.

This book is more persuaded to take the group dynamic line of thought. This is because for the University of Nairobi's lecturers to adopt instructional delivery mode it is important to target the group level for instance faculty levels who in turn will influence other faculties to adopt the new instructional delivery modes for learning. The University of Nairobi like most of Kenya's public universities is governed through the committee system. Every decision must have the blessing of either the operational unit (the department, faculty, college or senate). Academic programmes are discipline-based. In many cases courses cut across several disciplines. Therefore, to increase the rate of adoption of distance learning in a university, faculties should be the point of entry. Most probably when one faculty is successful in offering their courses by distance delivery modes, other faculties will be motivated and borrow a leaf and follow suit. This will enhance the rate of adoption of distance learning in the institution.

CHAPTER THREE

**FACTORS INFLUENCE LECTUERS ADOPTION OF
DISTANCE LEARNING IN UNIVERSITIES**

Introduction

The adoption of distance learning by university lecturers is influenced by various factors. They spread from individual to institutional. This chapter discusses the factors as presented by other researchers across the globe.

Lecturers' attitude towards distance education

The attitude the stakeholders hold towards distance learning is critical to its adoption. In particular, the attitudes of the lecturers, the students, the administrators, the course designers hold towards DE, have a significant impact on the quality of the distance learning programme. However, the dominant theme in distance education research has been the learner and the organization (Jusri and Seppo, 2000). According to Stella and Kynaslatiti (1998), research has focused primarily upon learner attitudes, and on the other hand upon the salient features that depict the organization that is in charge of the DE course.

In general, several studies on teachers' attitudes towards distance learning indicate that lecturers who teach at a distance are positive toward distance teaching (Dillon, 1989; Parer, 1988; Johnson and Silvernail, 1990; Mani, 1988; Taylor and White, 1991). It is evident from other reports that lecturers' attitudes improve as experience with distance education increases, and as instructors become more familiar with technology and logistics of distance teaching (Gilcher and Johnstone, 1989; Kirby and Garrison, 1989). It is also reported that teaching faculty believe that distance students perform as well as or better than traditional students, though the faculty agrees that distance teaching is not appropriate for all content areas (Dillon, 1989; Parer, 1988).

Research studies by Clark, Soliman and Sungaila (1985) indicate that senior faculty and professors find distance teaching both more enjoyable and more demanding than faculty in the lower ranks. On the other hand, Taylor and White (1991) found educators to be positive towards distance learning. However, their study also

indicated that teaching faculty prefers traditional face-to-face instruction citing the quality of interaction and satisfaction gained from the act of teaching in a traditional setting. Scriven (1986), found that majority of instructors believe that distance teaching is as important as traditional teaching but that 25% of the faculty would avoid teaching distance students if they could.

A study by Clay (1999), on faculty attitudes towards DE at the State University of West Georgia found a significant difference between those who had taught in DE courses and those who had not. Forty-five percent of the respondents reported a positive attitude towards DE. It also reported a relationship between the number of years of teaching and attitude towards DE. Fifty-four percent (54%) of those with 5 or less years of teaching experience reported a positive attitude towards DE compared to only 26% of those with 5 or more years of teaching experience. Those with tenure (40%) appeared to be less accepting of DE as those without (51%). One tenured professor with more than 20 years of teaching at the University commented,

“No form of ‘Incentive’... Would motivate me to participate in distance education. I think better serve our students by developing learning by enhancing relationship with them and among them through face-to-face dialogue and interaction”.

A survey conducted by Lee (2002), on the perception between faculty members and administrators, revealed that they differed when it came to instructional support. Without the support, it would be difficult to retain the lecturers. A better understanding of instructional support and the environment in which it occurs creates a more reliable base from which to support distance education lecturers in making a successful teaching experience (Lee, 2002). The attitude the administrators hold towards ICT use in DL will directly affect the attitude of the faculty and filter down to the students. It is critical that the administrators believe in DL in its totality. Also important is to recognize that having the right attitude alone will not assure the

effective implementation of DL programme. It is important that issues of harmonizing the structures, strategy, and culture of the organization be high in the agenda. Such issues are beyond the scope of this study. However, at the end everything must be harmonized together beginning with administrator then the student and the faculty at the middle.

A study by Nazer (2000) to investigate the attitudes of school teachers and directors towards the worth and value of distance education in Lebanon revealed a difference in the attitude of the two groups. School directors were negative about the possibility of distance education meeting the training needs of school teachers and that training needs and the purchase of required technologies would be prohibitive. Teachers on the other hand were positive and reported their willingness to familiarize themselves with the specifics of DL. It came out clearly that there was need to organize workshops and technology seminars so that schools can better understand the structure of curricular and pedagogical practices needed for full blown educational programmes in Lebanon. Lyod and Gressard (1986) and Dupange and Krendal (19992) found that positive attitude towards computer is correlated with the level of its usage even though they do not express such positive attitude.

A study by State University of West Georgia conducted by Parker (2003) indicated a significant difference in attitude among those who had taught and those who had not taught in DE courses leading to the conclusion that experience breeds acceptance. In the open –ended section of the questionnaire, the respondents gave the following reasons regarding their changes in attitude: increased familiarity, positive experience of other faculty, improved training and facilities, increased institutional support, positive feedback from student, positive evaluation by trainers and enjoyment of the flexible hours. The reasons of the negative attitude were: poor performance of technology, negative student feedback, large classes, and negative experiences of other faculty and lack of departmental interest.

The O' Quinn and Carry's (2001) study lists several factors that can result in a negative attitude towards ODL. The study concludes that if the instructor can lessen the distance between student and the instructor, the student satisfaction will be higher. Unfortunately, the study is addressing behavior after the instructor has agreed to teach the particular course suggesting that O'Quinn and Carry's list of factors was not a determinant for the instructor. Both studies do not address the behavior that leads to the list of inhibitors. It is important to consider the original attitudes towards DE.

Resistance to change

It is apparent that lecturers are resistant to adopt new educational technologies. Cravener (1999) says that no instructional design is hardly enough to withstand the detrimental effects of content experts faculty who cannot, and will not, communicate effectively with their geographically dispersed students. She continues to say that even when given a chance for training, in technology, faculty is rarely interested in new technologies to support teaching and learning. The faculty is predominantly focused on psychological factors such as: personal affective issues and requirements for tenure (Cravener, 1998; Rickards, 1999). They conclude that this because the lecturers are already successful teachers and researchers and feel relatively no need to make dramatic changes in their career. The authors also noted that subject-experts have minimal incentives to alter their current practices-to add to their workload-by learning new high-tech skills. It is noted that few institutions of higher learning reward the use of technologies or even distance learning with tenure or promotion awards. In addition, both social status issues and affective responses to technology (anxiety, fear, conflict related to cognitive dissonance) inhibit faculty members from participating in ICT training and from implementing the technologies after training.

Two types of resistance were noted by Cravener's (1999) case study. First, several senior faculty members declined to participate in technology training because of lack of self-confidence. This is what Sherry (1998), cited as common among faculty who lack experience with new technology and would prefer to avoid public learning risks.

For this group, Sherry suggests a longer trail of the training programme, which might permit the development of improved trust levels. The second resistance area indicated was on both systems and affective issues. It was noted among faculty whose roles in the department were most familiar to the training provider. High similarity of social status combined with disparity in technology use skills, probably aroused anxiety and cognitive dissonance related to interpersonal competence comparisons (Cravener, 1999). According to the results of the case study, though approximately 10% of the faculty had similar positions as the trainer, only 5% of logged faculty consultations time for the training was with the persons in high-similarity interpersonal comparison group. It was noted that 95% of logged training consultation hours were utilized by 42% of faculty in low-similarity interpersonal comparison group (tenured faculty whose rank exceeded that of the trainer) or faculty who taught in separate course groups. The study, however, does not examine why the lecturers were not logging in. The study would have shed light on how to deal with such situations in order to enhance adoption.

In a research study by Akihito and Beverly (2000) whose purpose was to investigate faculty perception of distance learning course, their training and type of compensation for participation in distance learning and factors influencing their satisfaction, found that provision of computer equipment was an incentive which significantly correlated with willingness to teach another distance learning course ($r = .169, p < .05$). Personal interest in technology was the only motivator to correlate significantly with willingness to teach another distance learning course ($r = .251, p < .01$). In the same study, there was a significant correlation between the agreement that distance learning courses are more time consuming to develop than traditional courses and willingness to teach another distance learning course ($r = .177, p < .05$). Most of the faculty found the distance learning experience to be positive, would teach another distance learning course, and would recommend it to their colleagues. The study indicates that incentives were not especially effective in influencing their perception of or willingness to engage in distance learning efforts.

Intrinsic motivations were a stronger influence on faculty satisfaction and continuing interest in and support of distance learning initiatives.

Lecturers' level of readiness to adopt distance learning

Lecturers' readiness to adopt new instructional delivery technologies has received some good attention from DE researchers. A study by Hapiza and Yasofd (2003), found that 63% of respondents had a high level of IT usage, but no relationship between age, level of education and length of service. Hapiza and Yasofd (2003) study found out that readiness to adopt DE was closely associated with involvement in DE. The same was concluded in the study by Hall and Loukes (1979) who also found that the understanding of DE by lecturers was high though their knowledge of e-learning was low. Kirby and Garrison (1989) concluded that lecturers' exposure to DE helps them to acquire positive attitude towards it. Clark (1993) says that lecturers are ready to embark on DL provided that they have the knowledge about it. Black (1992 a) concluded that the understanding of DE by lecturers could contribute to their readiness to implement DE programmes.

Hapiza and Yasofd (2003), Clark (1993), Heath (1996), Betts (1998), Rockwell et al. (1998) and Lilard (1985), concluded that there is a relationship between the levels of lecturers' knowledge in DE with their readiness to adopt it. The studies also discovered that lecturers are confident and interested in DE but they are rather skeptical about its effectiveness. In particular, the lecturers indicated that DE is not suitable to all courses, that DE should be combined with face-to-face methods of teaching. The lecturers' main concern was that they had minimum control over the students.

In a study by Pajo and Wallace (2001) the attitudinal barrier factor was the only factor that accounted for a significant portion of the variance in enjoyment ($\beta = -.46$, $p < .000$), perceived usefulness ($\beta = -.21$, $p < .05$), and future intentions to adopt web-based technology ($\beta = -.37$, $p < .000$). The significant negative betas indicate that participants who scored higher on the attitudinal barrier factor were less likely to

find web-based technology enjoyable, useful, or intend to use it in the future. Overall, barriers accounted for 22%, 12%, and 21% of the variance in enjoyment, usefulness, and intentions to use respectively. Interestingly, the organizational barrier factor did not contribute significantly to the prediction of any of the outcome measures.

Another study by Wilson (2001), on higher education faculty members from Kentucky State, revealed that faculty ranked online instruction as the least effective mode of instruction of all modes available. In yet another study by N.E.A. (2000), attitudes towards DE were more favorable among those who had taught in DL courses than those who had not. A total 72% of faculty who had taught DL was positive and 51% negative for those who had not taught. The report also indicated that 53% of distance learning lecturers spent more hours per week preparing and developing DE learning courses than preparing and delivering traditional courses. In the same report, lecturers evaluated distance learning primarily on quality of education considerations and they felt that they did more work for the same amount of pay and that they were not fairly compensated for their intellectual property. They indicated that quality of education declined with distance learning. This is why perhaps Marshal and Marshal (2003), asserted that the continuous learning curve of advancements in the telecommunications software and computer hardware industries continues to baffle even the most technically inclined not to mention the non-tech population of faculty members in higher education today.

Lecturers concerns

Several theories have attempted to explain why it has been difficult for universities to lure lecturers to distance education. O'Quinn and Corry (2002) have listed several factors related to lecturers concerns about teaching in distance education. Some of the factors include, lack of monetary support, increase in work load, lack of salary increase, lack of technological background, lack of administrative support, and concern about the quality of students who enroll in distance courses. The main issues are:

(I) Distance between the learner and teacher

Another theory by Arbaugh (2001) attributed the problem to the distance between the instructor and the student. He studied the immediacy behavior of the instructor to determine student's satisfaction in ODL. This behavior attempts to reduce the social distance between the instructor and the student.

(ii) Attitude towards the medium of learning

The results indicate that attitudes towards the medium and its variables were positively linked to overall satisfaction. Instructors experience was a less factor. Arbaugh and Martkovich (2001) also agree that the main factors influencing satisfaction levels are the delivery modes and the collaborating aspects. However, it is apparent that the two studies did not address the issue of lecturer's attitude towards the quality of the DE programme.

(iii) Instructor's experience in online teaching

Arbaugh (2001) says that the fact that instructors' online experience was not a predictor of learning, it is easy to also suggests that not only are immediacy behavior more directly transferable from traditional classroom proactive to web-based courses than first thought but they may be even critical than technological acumen in predicting success in online courses.

(iii) Interactivity between the lecturer and learner

According to Lori (2003), live interaction that exists in a classroom where non-verbal interactions cannot be measured instantaneously, the capturing of the attention of all students at the same time, the ability to answer students' questions immediately and without delay, are some of the challenges for seasoned traditional faculty members who thrive in a classroom environment. O'Quinn and Carry (2002) agree that there are extreme differences in modality and that faculty has to adapt a new way of teaching and communicating with students, but this does not mean that the new way of teaching and communicating cannot be just as dynamic as a traditional classroom.

Several studies quoted earlier in this thesis indicate that many lecturers have reservations about the loss of interactivity in distance learning programmes. However, Twiggs (2005) says that assessment of both the course redesign initiative (CRI) at Florida State University (FSU) revealed that many students in on-line and redesigned environments experience a greater sense of interaction and support than in courses based on traditional models of delivery. The results in the study indicated that 20 out of the 30 redesigned projects at FSU improved student learning. All of the redesigned projects reduced the cost of interaction by 40% on average with a range of 20% to 84%. Many projects increased course completion rates and also increased student satisfaction with the mode of interaction. Similar efforts produced similar results at Algonquin College and at the University of Wisconsin Milwaukee and the California State University (Twiggs, 2005).

(iv) Types of motivation available to the lecturers

Several studies in various settings generally agree about the motivating and inhibiting factors that influence faculty's attitude towards ICT. Such studies are: Parker (2003); Miller and Husman, (1999); Betts, (1998); Dillon, et al. al.,(1999); Mackenzie,et al., (1999); Rockwell et al., (1999); Crum packer, (2001). According to the studies, motivating factor can be grouped into two categories: the intrinsic and the extrinsic. The intrinsic motivating factors are: self-satisfaction, flexible

scheduling, wider audience and opportunities for research (Betts, 1998, Wolcott and Haderlie, 1998); opportunity for recognition (Betts,1998;Wolcott and Harderlie,1998); opportunity to use support services, for example administrative assistant, uploading or distribution of course materials, creation of on-line quizzes, developments of graphics reduced travel (Betts,1998a); increased course quality (Eisenburg,1998, Moskal, 1998) increased flexibility when using asynchronous media (Dillon and Wash,1996).

The extrinsic factors are: stipends, decreased workload, release times and new technology. On the other hand, the studies also seem to agree on the inhibiting factors which are: decrease in live face –to- face interaction with students; lack of time to plan and deliver an on-line course (Berge, 1998; Clay, 1999; Fritz and Marx, 1999), lack of support and assistance in planning and delivering an on-line course, the great amount of time it took faculty to learn a new medium and update their technology skills, a heavier workload with teaching in DE and slow computer access (Betts,1998; Dillon and Wash,1992; Eisenburg,1998). In the Mackenzie et al., (1999) study, faculty indicated their preference to a combination of face-to face and on-line instruction because the advantages of both formats can be realized when they are used (i.e. on-line learning anytime anywhere, face-to-face personal interaction with the instructor and class). Other factors include the changed role of the instructor to mentor or facilitator (Dooley ,(n.d.); Kaiser,1998), lack of technical and administrative support (Betts,1998; Clark,1993), reduced course quality (Betts,1998;Clark,1993),negative attitudes of colleagues (Moore,1997).

According to Dillon (1989), Dillon and Walsh (1998), and Webster and Hackerly (1997) faculty who are comfortable with technology may lack pedagogical skills that marry the technology to the content. They recommend training for faculty to support the instructional transition from instructor-centered to student-centered. Likewise, they say, training is needed to assure that the technology is secondary to the content .The researchers also say that as faculty gain experience with distance education, their attributes towards distance education becomes more positive.

(v) Training in use of ICT technology

Certainly, the integration of modern ICT technology signifies a paradigm shift pedagogically. While skills or technology competencies are important, they do not ensure that technology will be used effectively to enhance instruction. It is basically true that implementing technology may be a catalyst but its effective use requires a paradigm shift from teaching to learning. This requires adequate training in technology as well as adequate technical support, (Rogers, Donna, 2003). According to Crum Packer, (2001), student performance is also contingent on instructor's skill and level of effort or motivation. Crum packer says that specific instructor training and development is needed to keep with today's rapidly changing distance education milieu. Instructor-identified skills requiring improvements center on the efficient and effective use of technology and the application of a collaborative, problem based asynchronous learning. Collectively, instructor motivation, skills and pedagogical approach are intricate instructor-based issues that form an essential part of a quality distance learning education program.

In a study conducted by Wilson (1998), which quantified the needs and concerns of early-adopters who developed an Internet-based distance education course, and taught it, revealed that faculty concerns about web-based distance education were universal and no significantly different based on the discipline (i.e. humanities, social-sciences, science/technical or business) or as by type of post secondary institutions (large university, regional university, community college, technical school, or correspondence studies).She concluded by saying that the delivery of distance education on the Internet has great potential that cannot be realized until the needs and concerns of the faculty are met. True as the researcher's assertion may sound, there is a need to confirm it through research studies other than by generalizing the universality of a study conducted in a specific environment .It is evident that the study setting and the sampling were all local.

(vi) Lecturers approach to distance teaching

For an instructor to be effective in delivering instruction by DE there is a need to appreciate that pedagogical and andragogical approaches in the current and perhaps foreseeable future, requires a change of design, delivery, and teaching styles in order to meet the needs of the changing profile of the student. In a learner-centered approach, the instructor becomes the coach while the learner is an active participant. It is then clear that both the instructor and the learner face a challenge and opportunity, which again requires the acquisition of new skills, training and development. According to Anson (1999) and quoted by Rogers, (2000), students are learning differently today and classrooms need to become learner-centered. This infusion of information technology into the teaching and learning domain creates shifts in the skills requirements of lecturers from instructional delivery to instructional design.

The most important step from “teaching” to “learning” is moving from a teaching culture that ignores what is known about human learning to one that applies relevant knowledge to improve practice (Angelo, 1996). Turroff, (1999), says that institutions need to realize that it is not only technology that is important but also the learning methodologies utilized to employ the technology. The instructor is required to shift from being a teaching franchise to being an enterprise that emphasizes “learning”, (Rogers and Donna, 2003).

Using the constructionist theory, the student should learn by taking information from experience. It is logical to conclude that the instructor should allow the student’s responses to be the main method of driving the lesson. This requires a shift in instructional strategies and change in content (Turrof, 1999). No doubt then that there is need for behavior modification which requires time, patience and guidance. The distance education teacher then requires undergoing some paradigm shift in terms of instructional delivery modes.

It is important to appreciate the fact that a new initiative normally faces resistance and a paradigm paralysis. Fear of venturing into DE and to utilize ICT technology for instruction can be attributed to an absence of knowledge of the capabilities of today's advanced technology. The innovative changes in teaching and learning via DL modes are accompanied by trials and tribulations associated with any transformation that challenges engraved beliefs, philosophies and practice, (Marshall et al., 2003).

Most articles and studies, herein, put a lot of emphasis on the training of pedagogical skill to the faculty teaching distance courses. However, the demographic studies on distance learners indicate that they are basically adults and hence the emphasis should be on andragogical skills (the study of how to teach adults). Adult learners are different from children and the skills a teacher uses in teaching them should be the same for adults. Otherwise, the adults will feel like they are seen as kids who have little to contribute in the learning process yet they come in with a lot of experience. As earlier mentioned, distance learning uses the constructivism approach to teaching distance learners and hence distance education faculty should explore ways of engaging the learners at the same time allowing for more independence. Teaching pedagogical skills will only create communication problems with the adult learner.

Prior knowledge in distance education

Readiness to adopt distance education is also influenced by the prior knowledge a lecturer has in it. O' Malley (1999) says that the prior knowledge or the level of familiarity lecturers have in distance education enhances its adoption. Lecturers may have in some way participated or heard about distance education. Their experience in the process of getting the prior knowledge influenced the attitude they hold towards it. If the experience was in some way unpleasant it is presumed that they would hold a negative attitude. If the experience was pleasant in some way, then it is presumed that it would lead to a positive attitude towards distance education. If the

experience was neither pleasant nor unpleasant, perhaps because of lack of enough information then the lecturer would presumably hold a neutral attitude.

Access to ICT facilities

The gap between the teacher and the learner is bridged by some form of ICT. The instructional materials are transmitted to the learner through the various forms of media i.e. print, electronic, and e-learning. Therefore, a lecturer's knowledge of ICT and particularly its use in DE can facilitate their readiness to adopt distance education.

This chapter has discussed the various factors that generally influence lecturers to adopt distance learning as an instructional delivery mode. The factors range from attitudinal, issues of change management, access to facilities, training in distance learning methodologies, basic knowledge about distance education as a philosophy lecturers' level of readiness to adopt DL, approach to teaching to issues of concern the lecturers may hold towards the viability of the mode to deliver instruction. The combination and multiplicity of the effects of the interplay of the factors would greatly influence the rate at which distance learning is adopted in an institution.

CHAPTER FOUR

MANAGING CHANGE IN DISTANCE LEARNING

Introduction

The move from the traditional mode of instructional delivery to ICT based DE mode involves a change, which can be referred to as educational change. Any translation or transformation of an object or a way of performing an activity involves change. People normally react to new experiences in the context of some familiar, reliable construction of reality, in which people must be able to attach personal meaning to the experiences regardless of how meaningful they might be to others (Marris, 1975).

Dynamics of educational change in distance learning

According to Marris (1975), people seek to consolidate skills and attachments, whose secure possession provides the assurance to master something new. Change occurs in two forms: through natural events or deliberate reforms; through voluntary participation or initiated change brought about by dissatisfaction, inconsistency or even intolerance with the status quo. In either case, the meaning of change will rarely be clear at the outset and ambivalence will pervade the translation (Marris, 1975). According to Schon (1971), all change involves passing through the zones of uncertainty and the situation of being at sea or being lost, of confronting more information than you can handle.

According to Fullan (2001), the crux of change is how individuals come to grips with change and that we vastly underestimate both what change is and the factors and processes that account for it. It is true that all change involves loss, anxiety and struggle and failure to recognize this phenomenon as a natural and inevitable means we tend to ignore important aspects of change and therefore misinterpret others (Marris, 1975).

Real change whether desired or not, represents a serious personal and collective experience characterized by ambivalence and uncertainty and if the change works out, it can result in a sense of mastery, accomplishment, and professional growth (Fullan, 2001). It is important for managers of the change process and in particular, educational change, to realize that the anxieties of uncertainty and the joys of mastery of the new situation, are pivotal to the subjective meaning of educational change and to the attendant success or failure thereof, that is the facts that have not been appreciated or recognized by most educational reformists (Fullan, 2001). The shift from the conventional teaching to distance learning is a major change in teaching to the individual lecturers and the institution.

The introduction of ICT technologies into distance learning instructional modes requires a major paradigm shift by the instructors and a major educational change in terms of the educational institution administrators. It is critical that the individuals and institutions involved in the change initiative, particularly the introduction of ICT in instructional delivery, understand the dynamics of the process of change. Otherwise neglect of the phenomenology of change-that and how people actually experience change as distinct from how it might have been intended-might lead to failure of the initiative. According to Fullan (2001), in the process of examining the individual and collective settings, it is necessary to contend with both the “how” and the “what” of change. He continues to advise that there is need to keep in mind the values and goals and the consequences associated with specific educational changes and the need to comprehend the dynamics of educational change as a social political process involving all kinds of individuals at all levels in the institution.

A major issue to contend with is whether everybody involved understands really what it is that should change and how it can be best accomplished, (Fullan, 2001). Equally important is the realization that the “how” and “what” of change constantly interact and reshape each other in the process of change. Change takes place in a social setting and solutions must come out through the development of shared meaning and that the interface between individual and collective meaning and

action in everyday situations is where changing stands to fall. An innovation cannot be assimilated unless its meaning is shared. Dynamic conservatism is not simply an individual but a social phenomenon because individuals are members of social systems that have shared sense of meaning (Marris, 1975). According to Lindgust (1998), the role of ownership and values in an innovation is crucial to its adoption because for an innovation to be successful, it must fit the local scene and be perceived as belonging to those whom it affects. For this reason, it is important that the teaching staff be involved in an active way in the implementation and administration of a distance education program (Schuffloffel, 1994).

Change is and will always be initiated from a variety of different sources and combination of sources. At the initiation stage, the main leadership dilemma is whether to seek majority agreement before proceeding or to be assertive at the beginning. This is an issue of the leadership style and the environment in which the initiative is being introduced. Leadership is also contingent to the prevailing situation on the ground.

A major issue to bear in mind when initiating change is that there is inertia in social systems and this requires effort to overcome. It is also important to ensure that those affected by the change fully own the new initiative and the implementation process. Ownership of the change process takes time and sometimes it can create meaning or confusion, commitment or alienation or simply ignorance on the part of the participants and those others affected by change. The lecturers should be fully involved at each stage of the implementation. It is them who are expected to deliver the teaching materials to the learner. Democratization of the implementation will play a major role in the success of the distance learning project.

Implementation of distance learning project

Implementation of any change project is normally not an easy process for the people in charge of the project. Educational change or any other programme is technically simple and socially complex. As Fullan (1995) says, a large part of the problem of educational change may be less a question of dogmatic resistance and bad

intentions (although there are certainly some of both) and more a question of the difficulties related to planning and coordinating a multi-level social process involving thousands of people. Adoption is an intricate process involving people and real change-quite distinct from “planning (on-paper)”.

In most cases universities are more concerned on the development of the distance learning materials while giving little attention to the needs and concern of the lecturers who will be participating in the project. Fullan (2001) states that many attempts at policy and programme change have concentrated on product development in a way that ignores the fact that what people do and do not do is also a crucial variable worth consideration. People are much more unpredictable and difficult to deal with than things. People are essential for the success of the proposed change. Implementation is critical because it is the *means of accomplishing desired objectives*. According to Charters and Jones, (1973) there should be concerns about the risk of appraising, “on -events”, because implementation may turn out to be nonexistent (for example no real change in the desired direction), superficial and partial. Implementation of the distance learning project should be seen as a variable in the change process. There is need for the management to know in advance the concerns and issues that the lecturers have towards the implementation of the distance learning project.

The implementation process of the distance learning project poses intrinsic dilemmas, which coupled with the intractability of some factors and the uniqueness of individual settings making it a highly complex and subtle social process. This is emphasized by Fullan (1995), who says that effective approaches to managing change call for combining and balancing factors that do not apparently go together-simultaneously for instance, simplicity-complexity, looseness-tightness, strong leadership participation, fidelity-adaptivity, and evaluation-non-evaluation. Effective change implementation requires an understanding of the process as a way of thinking.

Educational change is a dynamic process involving interacting variables over time, regardless of whether the mode of analysis is factors or themes. Fullan (2001) categorizes into three the critical factors that affect the implementation of change.

- (a) **Factors concerned with change (need; clarity; complexity; quality or practicality).** There are needed to clarify to all concerned what is expected to be done. This is an issue of effective communication. The participants to be involved in the distance learning project should be properly briefed through meetings, memos or electronically. The communication should be clear on what is expected, the quality of work required, the time frame which should be practical. Experience has shown that some institutions imagine that writing distance learning instructional materials only involve typing the work. They do not realize that the lecture must go through a change process. The institutions give impractical deadline say a week for the lecturer to translate the material into distance learning mode. In some cases the lecturer is not trained on distance learning methodologies. This is a recipe for failure.

- (b) **Local characteristics (the local settings i.e., faculty or department).** The working environment is also critical. Provision of the necessary facilities and motivation to participate is important for successful implementation. The institution should endeavor to provide the support required in whichever form. If there certain challenges the institution is facing in the implementation process, it should communicate clearly to the participants.

- (c) **External factors (i.e., government agencies and donor community).** In some institutions the distance learning project involves external forces. There is need to have very clear memorandums of understanding on the role of each partner in the project.

Huberman and Miles (1984) say that people involved in the educational change process must perceive that needs being addressed are significant and that they are making at least some progress towards meeting them. Change management research indicates that early rewards and some tangible success are critical incentives during implementation. Unclear and unspecified changes can cause great anxiety and frustration to those sincerely trying to implement them. The institution need to enlighten the participants the value distance learning and why the need to adopt it. Clarity of the benefits at individual lecturer level, faculty level, institutional level and social level will facilitate speedy adoption of the project.

Change implementation is a complex process. McLaughlin (1977) found that ambitious projects were less successful in absolute terms of the percent of the project goals achieved, but they typically stimulated more teacher change than projects with low ambitions. Fullan (2001) indicates that simple changes may be easier to carry out but may not make much of a difference and that complex changes promise to accomplish more. This is good news given the kind of changes in progress these days.

Change implementers must also remember that the quality of the changes matters to the adoption process. According to Fullan (2001) when adoption is more important than implementation, decisions are frequently made without the follow – up or preparation time required generating adequate materials. Worse still is that projects are nearly always politically driven and as a result the time-line between the initiation decision and start-ups is often too short to attend to matters of quality. Deeper meaning and solid change must be born over time and the goal should be to persistently work on reforms on a multi-level meaning across the system over time.

It is critical to appreciate that an organization operates within the larger external environment whose factors can impede the change implementation process. Cowden and Cohen (1979) say that to the extent that each side (external and internal practitioners) is ignorant of the subjective world of the other, reforms will

fail. The quality of relationships across the gulf is crucial to supporting change effort when there is agreement and to reconciling problems when there is conflict among these groups. Fullan (2001), imputes that the difficulties in the relationships between the external and internal groups are central to the problem and process of meaning of the proposed change and that not only is meaning hard to come by when two different worlds have limited interaction but also misinterpretation, attribution of motives, feelings of being misunderstood, and disillusionment on both sides are almost guaranteed.

Sustainability of the distance learning project

After going through the handles of implementation, the project is expected to have some continuity. This normally represents yet another decision which may be negative and even if it is positive, it may not get implemented. Huberman and Miles (1984) argue that continuation or institutionalization of innovations depends on whether or not the changes get imbedded or built into the structure (through policy, budget, and timetable). Second, by the time of the institutionalization the change initiative should have created the critical mass committed to the change.

Procedures should also be in place to ensure continued assistance to the project. In their longitudinal set of studies and as cited by Fullan (2001), Datnow and Stringfeld (2000) talk about the problem of “longevity of reform” and say that in many instances reform projects fail to move towards institutionalization. Change managers must appreciate that change implementation is not a linear process and that all phases must be thought about from the beginning and continually thereafter. Moreover, for the process to have effective continuity, it is important to manage staff turnover which might affect an already fragile process. The retention of staff at this point can help the change initiative establish the critical mass to support future or new changes. Certainly, this is a challenge the universities in Africa have particularly due to brain drain. Universities can train their staff on the distance mode only to be poached by other universities who give better terms of service.

Summary

As institutions of higher learning adopt distance education as a mode of delivery, they need to appreciate that this transformation involves change. Understandably, change is normally resisted because it involves uncertainty and ambivalence. Change itself is a social-political process that should involve all people at all levels. In the process, people's needs and concerns must be addressed if change implementation is to be successful. Leadership particularly at the initial stages in adopting DL is critical. The local environmental factors should not be ignored while implementing change. The continuity of the change process is as critical as the implementation of the new initiative. Many studies have been conducted in the developed world on distance education, little, if there is any, and research has been conducted in the Sub-Saharan Africa. Yet the research finding done elsewhere cannot just be duplicated or adopted wholesomely. Therefore, universities in Sub-Saharan countries need to conduct research in distance learning in their local environments so that they come out with homegrown solutions to integrating distance learning in their teaching.

Educational institutions should expect that changes in the educational sector and in particular in distance learning are going to increase in depth and scope as a result of changes in other facets of the society. Education is the engine of social change and social transformation. Any institution that must continue being relevant in its social set-up must be fast to respond to new demands of the society and in particular be a leader in advocating and putting into practice the needed changes in performing its core activities. More importantly is that an institution must be ready to face the challenges of formulating and implementing change. It is a delicate process that requires good and effective leadership.

CHAPTER FIVE

ADOPTION OF ICT IN DISTANCE LEARNING

Introduction

Information communication technologies (ICTs) are increasingly being used in distance learning programmes. ICTs are proving to be more versatile in delivering education in a more effective manner than the traditional method. This chapter discusses the main issues that need to be considered in the use of ICTs in distance learning.

Factors influencing ICT adoption in distance learning

The foregoing so far indicates that lecturers need to adapt to new instructional delivery modes. It is critical for the change agent (University administrator) to realize that adoption of new technology is a tedious process. It is an issue about how the change process is managed. Inherent in any new initiative is the resistance by the stakeholders. According to Rogers (2001), there are two main barriers to technology adoption: lack of technology in the institutions and the set of established institutional norms relating to teaching methods, faculty autonomy and notions relating to productivity (i.e., teaching load, student-teacher ratio and class size). Passmore (2000) says that adoption of instructional technology merely does not lag but it often drags.

Research studies by Daugherty and Funke (1998) and Passmore (2000), report that information science faculty lacks funding, equipment, and administrative and faculty support, as some of the impending factors towards the adoption of technology.

Adoption of the new technology calls for behavior modification particularly on the part of the lecturer. According to Rogers (2001), there are three ingredients for

instructors behavior modification: access to resources which promote the desired behavior [i.e. computers, release time, training, mentoring and consultancy]; convenience in adapting the desired behavior (i.e. standardizing presentation technology across the institution, providing on-site technicians, technical support); reward and recognition for behavior change (i.e. monetary compensation, credit towards promotion and tenure). Many faculty members are not enthusiastic to adopt new technology because they are not convinced that using it will improve their students' learning (Neal, 1998; Reid, 1996).

(a) Level of ICT adoption

Massy and Zemsky (1995) identified three levels of technology adoption. The first level is the personal productivity aids, which involves application which allows teachers and learners to perform familiar tasks faster and more effectively. The second level is the enrichment add-ins which involve injecting into the "old" teaching and learning without changing the basic mode of instruction i.e. e-mail, web page searches, use videos, multi-media, simulation to enhance classroom presentation and homework assignment. The third level is the paradigm shift, which involves the faculty and the institution reconfiguring teaching and learning activities to take full advantage of new technology. However, we need to note that merely adding technology to current instructional methods or attempting to impose a traditional format on a technology-supported learning environment is likely to produce inferior learning outcomes. There is need to engage both the lecturer and the student into active learning where the student takes more responsibility of the learning process while the lecturer takes the role of the facilitator.

(b) Motivation of staff

While there are several strategies that administrators can use to attract and retain qualified staff, they must first establish the motivations behind the enthusiasm or lack of it towards ICT in DE. The university administrators must market the use of ICT in DE to the staff. Ross and Kling (1999) advise that, local promotion efforts are likely to be more effective in getting faculty to become actively involved in DE- including speaking and voting favorably about distance education courses and programme

proposals and teaching distance education courses-if they are successful in convincing faculty that distance education is appropriate, particularly at their own institutions and in their own academic areas. According to Lori (2003), while this is true, the difficulty often lies on the retention process. The role of the university administrators as change agents becomes critical in the adoption of ICT by staff and students. The university has a responsibility of ensuring high retention rates of the staff and students. Higher educational administrators will be responsible for identification of factors that motivate, inhibit and promote faculty involvement in the waves of change in the delivery of educational services to the customer (Marshal and Marshal, 2003).

(c) ICT adoption process

This research study was theoretically based on the Diffusion Theory and specifically on Rogers' (1995) Innovation Decision Process Theory. The theory states that diffusion is a process that occurs over time and can be seen as having five distinct stages: knowledge; persuasion; decision; implementation and confirmation. According to the theory, potential adopters of an innovation must learn about the innovation, be persuaded on the merits of the innovation, decide to adopt, implement the innovation, and confirm (reaffirm or reject) the decision to adopt the innovation.

Rogers (1995) argues that the rate of adoption is also influenced by three other things; the type of innovation decision; communication channels and the extent of change agent's promotion effort.

Studies by Wyner (1994) and Holloway (1977) indicated relative advantage and compatibility to be more significant perceptions among potential adopters of instructional technology in high schools. Eads (1984) study found compatibility to be more important attributes among students and schools' administrators. Surry's (1993) study of the perceptions of weather forecasters in regard to computer based technologies found relative advantage complexity and compatibility as important

adoption consideration. It seems that the attributes significance is related to the nature and context of application.

Diffusion theory appears valuable in the attempt to explain how individuals adopt an innovation. It is apparent that organizations introduce technology without considering how individuals will adopt and relate to the technology. Surry, (1997), says, "In a very real sense, the underlying causes of instructional technology's diffusion problems remain a mystery to the field." According to Schneberger and Jost (1994) some technologists rush to blame the teachers and the intrinsic tendency to resist change as the primary cause of instructional technology diffusion problem while other people cite the bureaucracies and the inadequacy of resources within institutions.

A close scrutiny of the diffusion theory literature reveals that there are a large number of theories from a wide variety of disciplines each focusing on different elements of the innovation process. However, the Innovation Decision Process theory (Rogers, 1995), appears to be more acceptable to the adopter based, instrumentalist, school of thought. This line of thinking focuses on the human and interpersonal aspects of the innovation process. It focuses on the end user of the innovation who will ultimately implement the innovation in a practical setting, as the engine for change.

The theory seeks to look at the social context in which the innovation will be used. The theory is both contextual and processual in nature. Tenner (1996) sees it from "the concept of revenge which occurs when new structures, devices, and organisms react with real people in real situations in ways we could not foresee". Tessmer (1990) argues that when an innovation is introduced to individuals, a variety of factors, mostly unrelated to the technical superiority influence the decision to adopt or reject it. The focus of the Innovation Decision Process theory is on the individual and not the organization. The unit of study in this research study is the individual and therefore the theory is seen to be more relevant and applicable. This study took an

instrumentalist line of thought because it focused on the use of the innovation (ICT technology in DE) by individual instructors. This is as opposed to the deterministic school of innovation diffusion philosophy, which focuses on the innovation as an object and not how individuals or organizations will use it. This line of thinking assumes that a superior technology will automatically be adopted. It ignores the social context of the innovation. However, Linda (1991) criticizes Rogers (1995) model by saying that the model lacks content explanation and complexity explanation of the process of organizational innovation.

In their study called *The Thwarted Innovation Report*, Zamsky and Massy (2004) identified four distinct e-learning adoption cycles, each of which requires a different level of change in instructional culture. The first one, was the “enhancement to traditional course/programme configuration”, which requires the least change in terms of institutional teaching and learning processes. The second involves the introduction of the new course management system. The third involves the use of imported course objects, for instance, multimedia applications and interactive simulations. The fourth is the most challenging e-learning adoption cycle characterized by new course and /or programme configurations where lecturers and their institutions re-engineer teaching and learning activities to take full and optimal advantage of the new technology. Zamsky et al., (2004) say that active learning and new roles for teachers and students are the necessary components of this adoption cycle.

The findings of the report suggest that although both the first and second cycles in the e-learning adoption are in the early majority stages, the third and fourth cycles remain in the innovation stage. The study concludes that the problem comes from the fact that e-learning took off before people really knew how to use it. The researchers point out that even when using e-learning technologies, most lecturers continue to teach in the way they taught, and that e-learning will fail to realize its full potential until lecturers change how they teach. The researchers go further to say

that the rapid introduction of learning management systems “reduced the e-learning impact on the way most faculties teach” (ibid.p.53).

It is apparent that e-learning is being given a “surface” approach. Kember (1997) says that the reason for the way e-learning is adopted in tertiary education lies most likely in the adopter’s approaches to teaching in general, which are often the result of their conceptions about teaching and learning.

In another study by Marshall (2005) and based on the data collected from six of the eight NZ universities and three polytechnics, which evaluated the institutional capability to sustain and deliver e-learning, it was revealed that the main weakness in the adoption of e-learning was directly related to the teaching and learning aspects of the e-learning system. It was observed that learning objectives were used poorly in e-learning papers in most institutions and even when stated the learning objectives were often “dominated by recall and comprehension rather than by analysis and evaluation (ibid p.9). The report also indicates that there was lack of clear relationship between e-learning technologies and the desired educational outcomes.

According to Rogers (1995, p.221), the provision of incentives may change the pattern of adoption. However, individual lecturers may be led to adopt the e-learning because of the incentives provided and not because they really want to adopt the technology. Such a situation may affect the sustainability of adoption. It may increase the rate of adoption but lead to a reduction in quality.

Elgort (2006) suggests that the solution should be to approach e-learning innovation as a multidimensional process located in two planes: the plane of technology and the plane of pedagogy. He observes that at any given point in time, both individuals and institutional adoption of e-learning can be undergoing different adoption cycles. He continues to state that currently the adoption of e-learning technologies especially the LMS is located at a more advanced adoption stage compared to the teaching and

learning innovation. According to Elgort (2006), the e-learning chasm is not located within a linear adoption process but between the two interrelated but distinct components of e-learning: adoption of e-learning technology innovation and adoption of the e-learning pedagogy innovation. This chasm needs to be overcome because if the lecturers believe in the information transmission approach to teaching, they will use e-learning to facilitate this mode of learning and any tools that do not align with this approach will either be ignored or misused. Prebble et al., (2005 p.60) say that effective e-learning viewed as an educational innovation requires reconceptualization of traditional teaching and learning paradigms especially in relation to the roles of teacher and learner. He continues to say that staff development programmes can be effective in transforming beliefs about teaching and learning and teaching practice.

Rogers (1995) says that whether or not the innovation meets a perceived need it will influence the rate of its adoption. Therefore, academic development programmes can build awareness in the lecturers about a wider range of strengths, weaknesses, potentials and strategies of e-learning and this can enable them to construct better e-learning environment.

Each of the innovation diffusion models discussed above have some valuable contribution in how people adopt an innovation. They have mainly built upon Rogers' (1962) innovation diffusion model. Rogers (1995) model was a more general explanation of how individuals adopt an innovation. The CBAM (1999) was related to how teachers adopt innovations in education. The Moore's (1999) model was focused on the psychographic characteristics influence on the individual's adoption of an innovation. The model took a marketing perspective and therefore, it was relevant for this study. This is because the universities need to effectively market the idea of distance education to its lecturers if they have to adopt it. The university through the Center of Open and Distance Learning has to understand the psychographic and the general environmental characteristics of each of the six colleges in order to sell the concept of distance education to them.

(d) E-readiness

Yet another critical area of ICT that needs to be addressed is e-Readiness. According to Arce and Hopman (2002), E-readiness originated by the intent to provide a unified framework to evaluate the breadth and depth of the digital divide between the less developed and the developed countries. E-readiness can be defined as the degree to which a community or a country is prepared to participate in the networked world (Sach, 2000; D.I.T, 2003). E-readiness measures the capacity of nations to participate in the digital economy by judging the relative advance of the most important areas for the adoption of the ICTs and their most important applications (McConnel Intl., 2001). It acknowledges the ongoing efforts relating to overall economic competitiveness and to the more specific examination of the role of ICTs in national economic developments process (Kirkman et al., 2000). It is evident that there is a very wide gap between the developed and the developing world in terms of e-readiness. This situation might even aggravate the already bad situation in terms of global distribution of wealth.

It is observable that the global information society is a result of technological revolution that allows greater closeness between people by facilitating transmission of information (texts, image, video, etc.) and producing a revolutionary transformation in economic, technological cultural occupational, spatial and cultural arenas (Webster, 1995). It is generally accepted that advantages in technological competencies leads to better performance in innovation, international competitiveness and trade (Archbugi and Michie 1998). This has brought about the emergence of the “New Economy” and its effects, in terms of growth, trade and investment across all the sectors making use of the new ICTs.

Information is viewed as a basic raw material that is being consumed at an enormous scale in the socio- economic processes and thus having important competitive value. Unfortunately, neither competitive value accrues evenly across countries nor technological diffusion limits the difference in national political, economic, social and cultural structures. As Carlsson (2004) argues, it is very likely that digitization of

information will only benefit a few countries which have the capacity to harness the required resources.

The education sector and particularly the higher institutions of learning (universities) need to consider their state of e-readiness. Blustain et al., (1999: 5) says that, “colleges and universities are being assaulted from several directions with new competitors, new technologies and new approaches to education. Many have chosen to ignore the warning signs, hoping it will just go away. Others have rolled out a few online courses or have encouraged their staff to develop new programmes. Few institutions have developed a coherent strategy for ensuring success in the new environment. It is also observable that many institutions tend to hold that technology is the most important determinant of success of teaching and training. However, the most critical problem facing universities is the resistance to innovate and experiment with new methods of instructions to improve access and the quality of education

There has been a tendency for universities to focus more on the e-learning technology per se instead of how the technology can improve the learning process. This is perhaps why Garrison and Anderson (2003:3) says,

“The essential features of e-learning extend beyond its access to information and builds on its communicative and interactive features. The goal...is to blend diversity and cohesiveness into a dynamic and intellectually challenging ‘learning ecology’. This interactivity goes far beyond the one-way transmission of content and extends our thinking regarding communication among human being engaged in the educational process”

Several experiences in the developing countries attest to the fact that Internet, insufficient resources, outdated hardware and incompatible software are not a justification for not using modern technology. For example, Universidad Estatal a distancia de Costa Rica has used very low budgets to produce multimedia courses

and materials for use on the internet, and have also designed virtual laboratories that can be run on cheap computers (in Monge- Najera et al., 2001). Also, ENLACES, a Chilean initiative uses CDs to supply educational content to schools without necessarily using the Internet. It comes out clearly that the main determinant of success is the quality of learning process and not technology. This is more the reason why the understanding of the state of readiness to adopt DE and use of ICT by the lecturers is important.

It is important to strike a good balance between the use of technology and the need to uphold the national interest of achieving good quality education. There is need to maintain a correlation between education and quality of learning. The achievement of the goal depends on the readiness of the lecturers to shift from the lecturer-centered teacher to student-centered learning. In addition, there should be a focus towards moving to life-long asynchronous, interactive and collaborative learning which should be hedged on a “culture of learning”.

There are many studies whose results show that the use of technology for instructional purposes enhances reasoning, provokes critical thinking, and deepens understanding. For instance a study by the Netherlands (cf. Lohner et al., 2005) shows how students collaborate together in building runnable computer models in a discovery learning environment. Hiltz (1995) also reported that students in collaborative learning conditions had more constructive learning processes and attained higher grades than students in other conditions. According to Voogt et al., (2005), the use of collaborative learning environment can help to overcome physical barriers in distance education between student and teacher, and help to improve learning. However, the process of realizing the potential of technology to create “communities of practice” remains difficult because for most teachers, the use of technology is yet not congruent with their daily routines (Voogt et al., 2005).

A critical look at the available literature shows that there are two levels of e-readiness. There are studies that have focused on the global e-readiness while the

others focus on the local e-readiness. What is observable is that the global studies focus on various aspects of e-readiness mostly related to e- connectivity, business environment and the new economy while they grossly neglect e-readiness in education. Such studies are The Network Readiness Index (NRI) report 2001-2001 which used the Economist Intelligence Unit to convey the level of education and literacy and level of Internet literacy as indicators within the 15% weight given to social and cultural infrastructure of a country. The McConnells Intl. (2000) model also gave little attention to education. It considered only one element regarding education, that is, the quality of and participation levels in the education system. The Bulgarian e-readiness report (in ARC Fund, 2002) assessed the ICT infrastructure in Schools and Universities in Bulgaria, availability of Internet access, and the presence of ICT in the school curricular. However, the reports do not provide a clear framework on how to assess the state of e-readiness for the education institutions particularly the universities. This is an area that requires some study so that an instrument can be developed to measure the various variables of e-readiness in universities.

Summary

This chapter has discussed the issues of related to the adoption of ICT in distance learning. It apparent that ICT will play a major role in instructional delivery in the 21st Century and therefore attention need to be given to the process of its adoption in learning. There are various factors that influence lecturer's adoption of ICT in distance learning. They are: the level at which the lecturers are in the adoption of ICT; the motivation of the lecturers to adopt ICT; the adoption process and how it is managed and the state of e-readiness in the country and in the specific local institutions.

PART TWO

A CASE STUDY OF THE UNIVERSITY OF NAIROBI

CHAPTER SIX

THE CONCEPTUAL FRAMEWORK OF THE STUDY

Introduction

The conceptual model for this study is diagrammatically shown in Figure 1.1 below. It borrows heavily from Rogers (1995) Diffusion of Innovation Model and O'Malley et al., (1996), Concern Based Adoption Model (CBAM) and Moore's (1999), Adoption of Innovation Model. It premises readiness to adopt distance learning depends on several variables: Lecturers attitude towards distance learning; other moderating factors; prior knowledge and participation in distance education activities; the role of the change agent (the University administration) the university should first establish the factors that would influence their participation; second, that it is critical to establish the current attitudes the lecturers hold toward distance learning.

The lecturers' attitudes will be influenced by: the prior knowledge the lecturers have in DL; the training they have in DL; the actual characteristics of the DL project; the perceived characteristics of DL; the role of change agent (University administrators). It is also important to establish the concerns and needs of the lecturers in the DL adoption process. The adoption of DL is a linear process and that readiness to adopt DL is related to the factors influencing attitudes and the actual attitude the lecturers hold towards DL. The coefficients relating the dependent variable and the independent variables should indicate the type of relationships that currently exist between them and the strength of the relationships. Inverse (negative relationship) of the variables indicates that the current situation needs to be addressed.

The strength of the inverse indicates the variance in the relationships between the variables. A positive relationship indicates congruence between readiness to adopt

DL and the variable and that the relationship should be enhanced. However, the strength should also indicate the degree of congruence. The analysis of these relationships between the variables will be the inputs of the intervention strategy. Out of the analysis of the variables, the university will be able to develop an intervention strategy that will facilitate the speedy adoption of DL.

The conceptual frame work of this case study is indicated in Figure 1.1. The main independent variables are; the lecturers attitudes, the lecturers' issues of concerns, the contextual (environmental) factors and the agency role (university administration). This dependent variable is the lectures' level of readiness to adopt distance learning.

The conceptual framework premises that the level of readiness to adopt distance learning is a function of attitudes, the lecturers' issues of concern, the role played by the university administration as agents of change and the contextual factors within the organization.

(a) Lecturers attitudes towards distanc elearning

Literature has shown that the lecturers attitude towards distance learning has a significant influence on its adoption. If the attitude is positive the level of adoption is normally high. If the attitude is low then the level of adoption would be low. It is evident from the literature that several factors determine lecturers attitude toward distance learning. They include; age of the lecturer, the status of tenure of the lecturer, their prior knowledge and participation in distance education activities

(b) Lecturers' issues of concern

Level of readiness to adopt distance learning is equally related to the issues of concern the lectures have towards its adoption. In particularly the concern about loss of interactivity with students due to distance, the viability of the instructional mode of delivery relative to the conventional one. Some lecturer are reluctant to adopt

distance learning because they do not believe the learners equivalent learning outcomes to the conventional face-to-face mode of delivery.

(c) The agency role of the university administrators

The university administrators play an agency role in the distance learning adoption process. It is the administrators who act as the change agents in the process. If the administrators are not seen to believe and committed to distance learning then the lecturers will not adopt it. The administrators leadership role in the actions they take concern the implementation of distance learning, the resources they devote to the project, how they speak about it will send signals to the lecturers whether or not they are committed. If the lecturers sense that the administrators are committed to distance learning most likely they will also get geared to its adoption and vice versa.

(d) The contextual factors within the institution

The contextual or environmental factors cannot be ignored. Such factors are the facilities provided to distance learning activities, the policy statements put in place to guide the operations relating to distance learning, the motivating or demotivating atmosphere surrounding the mode of delivery and the feeling of the other colleagues about it. If the contextual factors are conducive then the level of adoption will be high and vice versa.

(e) Level of readiness to adopt distance learning (e-learning)

The level of readiness to adopt distance learning will be influenced by a combination of all the independent variables: the lecturers attitude towards the mode of delivery, the lecturers issue of concerns, the agency role of the university administrators and the contextual framework in the organization.

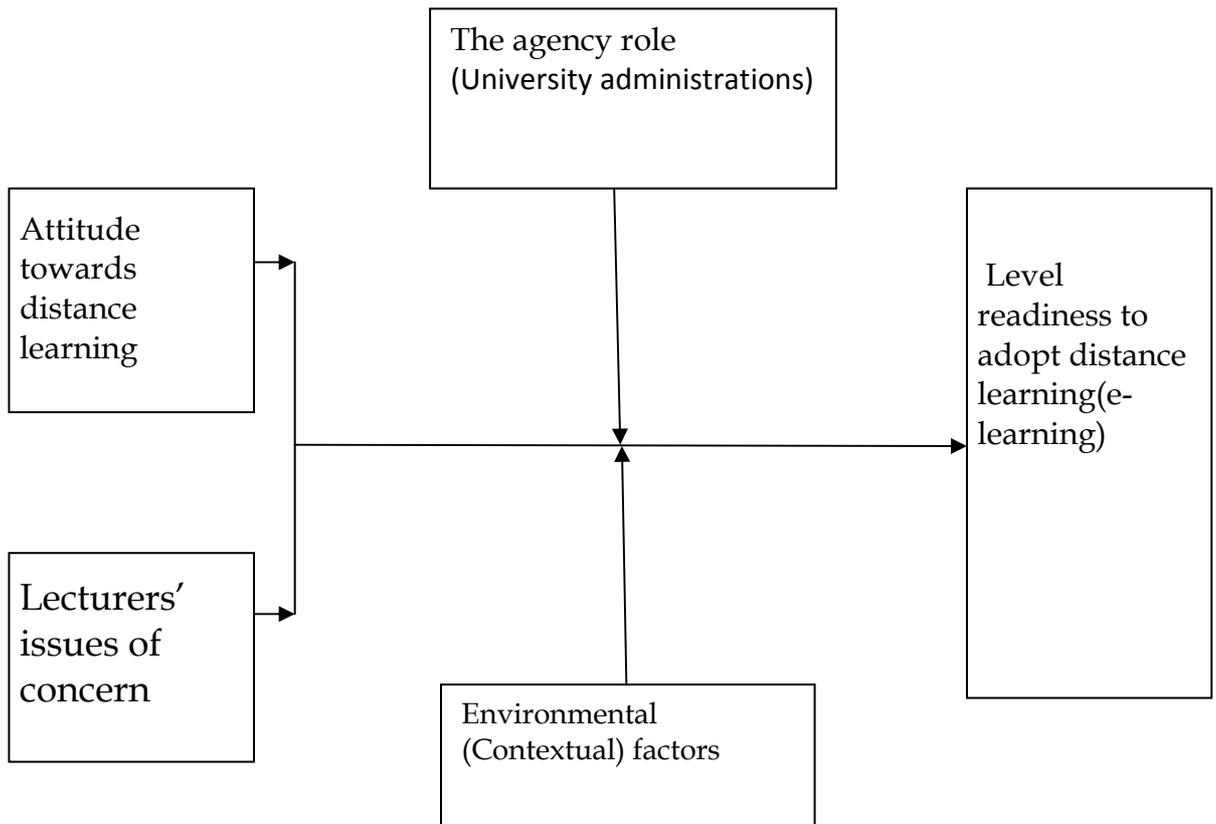


Figure 1: Conceptual framework of factors that influence lecturers' readiness to adopt distance learning (e-learning)

Operational definition of variables

The following is the operational definition of the variables in the case study.

1. **Agency role of the university administrator** is the covert or overt behavior of the university managers, for example chairmen of departments, deans or directors of schools, institutes or faculties.

2. **Attitude** : An individual's disposition to consistently respond in a given manner to various aspects of the world including people, events and objects. An attitude is a complex mental state involving beliefs and feelings and values and dispositions to act in certain ways. Attitudes are positive or negative views of an "attitude object".

Research has shown that people can also be “ambivalent” towards a target; meaning that they simultaneously possess a positive and a negative attitude towards it. In this study lecturers’ attitude is measured as the negative, positive or lukewarm feeling they hold towards distance learning mode of instructional delivery.

3. **Contextual(environmental) framework** is general atmosphere within the university which motivates or demotivates lecturers participation in distance learning
4. **Level of readiness to adopt distance learning:** A lecturer’s/instructor’s state of mental readiness to participate in distance education activities the act of accepting with approval; favorable reception of an idea, or item; the acceptance of an idea or an object. A consistent decision by the lecturer to use distance learning as an instructional mode of delivery.
5. **Lecturers’ issues of concern** are any fears the lectures have about adopting distance learning and their perception of how they are handled by the university administrators or promoters of distance learning.
6. **Asynchronous learning Networks:** A form of distance education that uses complete networking technology, especially the Internet, for instructional activities.

CHAPTER SEVEN

STUDY METHODOLOGY

Introduction

This chapter report the research methodology used to conduct a study on the adoption of distance learning at the University of Nairobi, Kenya. The University is the oldest was the first to use distance learning in Eastern and Central Africa. The University has over 40 years of distance learning experience. This is why this study chose the University for this Study.

Research Design

This research was a cross-sectional case study and used a survey design. The six colleges of the University of Nairobi were the units of analysis. Questionnaires were prepared and sent to the sampled respondents through the University mail system.

The main constructs focused on the worth of DL, readiness to adopt DL, training in DL, effort required by the lecturer to prepare DL materials, DL policy, and support from the University administration in the provision of DL facilities, policy on intellectual property rights, lecturers' time commitment and acceptance of distance education. Items that were judged as attributive to construct ratings were summed and divided by the number of items to obtain the mean rating of a specific construct. To overcome the within and between confoundment, the mean rating was obtained for specific items reflecting certain constructs. A neutral point was incorporated in which a t-test was used to determine whether the ratings departed significantly from the neutral point. A high mean rating would mean a higher agreement with the construct or item. On the bases of the survey, respondents were grouped into three categories: supportive (positive); divided support (lukewarm); opposed (negative).

Although Likert scales are normally regarded as ordinal scales the study treated them as interval scales. Several researchers have supported the use of Likert scales as interval scales based on purpose and the research instruments used. Likert scales may sometimes lead to interesting results, justifying an approximate equal-interval assumption" (Dave Krantz, 1996). Likert scales have been used in marketing research as interval scales for attitude measurement because they enable researchers to calculate mean scores which can then be compared. Jamieson (2004) observes that Likert scales can be treated as either ordinal or interval scales and many psychometricians would agree that they are interval scales because, when well constructed, there is equal distance between each value in the scale.

Target population

The population of this study comprised of all the 1327 full-time and part-time lecturers of the University of Nairobi in all disciplines spread across the six colleges. The colleges are: College of Education and External Studies (CEES), College of Architecture and Engineering (CAE), College of Humanities and Social Sciences (CHSS), College of Agriculture and Veterinary Sciences (CAVS), College of Physical and Biological Sciences (CPBS) and College of Health Sciences (CHS).

All the six Colleges in the University were included in the survey. From the total population of 1327 lecturers, a sample of 297 was selected for study based on percentage representation of a Faculty to the total population. A stratified sampling technique was used to ensure that all Faculties/Schools/Institutes were captured. This also helped to ensure that salient issues of gender were taken care of. Table 2 indicates how the samples were selected from the various colleges in the University.

Table 2: Sampling Matrix

COLLEGE	FACULTIES	SAMPLE SIZE (n)	%
College of Education and External Studies (CEES)	School of Education; School of Continuing and Distance Education	72	24
College of Humanities and Social Sciences (CHSS)	School of Business; School of Law; Faculty of Arts; School of Journalism; IDS; IAS; PSRI; IDIS; CIPL	71	23.9
College of Biological and Physical Sciences (CBPS)	School of Physical Sciences; School of Computing and Informatics; Institute of Tropical Diseases	49	16.4
College of Health Sciences (CHS)	School of Pharmacy; School of Medicine; School of Dentistry	29	9.76
College of Agriculture and Veterinary Sciences (CAVS)	Faculty of Agriculture; Faculty of Veterinary science	42	14.14
College of Architecture and Engineering (CAE)	Faculty of Architecture & Design; Faculty of Engineering	37	11.44
Total	22	297	100

Data Collection Methods

The respondents were given items that are considered critical for lecturers' participation in DE. The respondents were asked to state whether they considered each of the factors either "extremely important", "very important", "important", "not very important" or "not important at all". The survey indicates that 89.7% of the respondents considered the 14 factors as either "very important" or "extremely important". Only 10.3% indicated the factors to be "not important", "not very important", or "not sure of its importance". The main objective was to establish whether the factors influencing lecturers' participation in distance education in other institutions of higher learning in the world are also important to the University of Nairobi lecturers. The value of each of the six Likert scales used for each item was

as follows: Extremely important = 5; Very important = 4; Important =3; Not very important = 2; Not important at all = 1; Not applicable = 0.

The study used both quantitative and qualitative methods to collect data. However quantitative method was the main method used. A survey mail questionnaire was sent to a sample of lecturers and administrators of the distance learning programmes in the various Faculties (Deans, Directors and Chairmen). For the part-time lecturers who teach distance-learning programmes, the questionnaire was administered to them during the holiday tuition sessions. Part-time lecturers teaching at the Extra-Mural Centers got their questionnaires at the centers in which they teach. These are located in Nairobi, Kisumu, Kakamega, Nyeri, Nakuru and Mombasa.

Data Analysis

Descriptive statistics, for instance, measures of central tendencies (mean and mode) and dispersion (variance) were used to describe the data, while factor analysis was used to rank the factors in terms of their importance to adopt DE. The hypotheses were tested using a t-test so as to establish the difference between means. SPSS was used to analyze the quantitative data while responses from open ended questions were analyzed qualitatively using narrative descriptions. The data collected was coded appropriately using relevant and practical data coding methods. The data analysis results are presented in tables.

The questionnaire was subjected to Cronbach's Alpha test of numerical coefficient of reliability. The covariance matrix of the fourteen items in the questionnaire yielded an alpha value of 0.9912 with standardized item alpha value of 0.9924. The inter-class correlation two-way mixed effect model of absolute agreement and the inter-class correlation coefficient (two-way random effect model- consistency definition and the space-saver method yielded the same values (0.9912 and 0.9924 respectively).

CHAPTER EIGHT

DESCRIPTIVE DATA ANALYSIS AND INTERPRETATION

Introduction

This chapter discusses the results of the instrument reliability tests and the respondents' profiles.

Instruments reliability and consistency tests

Each of the three sections of the questionnaire was subjected to Cronbach's Alpha tests of numerical coefficient of reliability. The computation of alpha is based on the reliability of a test relative to the other tests with the same number of items and measuring the same construct of interest (Hatcher, 1994). It measures how well a set of items (or variables) measures a single undimensional latent construct. It is a function of the number of items and the average inter-correlations among the items (Santos, 1999). Please see Appendix 11.6.0 for the calculations.

Three methods were used to determine the reliability of each of the sections. In section 1, the covariance matrix of the seven items yielded an alpha value of 0.9012 with standardized item alpha value of 0.8998. The inter-class correlation two-way mixed effect model of absolute agreement yielded an alpha value of 0.9012 and a standardized item alpha value of 0.8984 while the inter-class correlation coefficient (two-way random effect model- consistency definition yielded an alpha value of 0.912 with a standardized alpha value of 0.8984).

In section 2, the covariance matrix of the 14 items yielded an alpha value of 0.97777 with standardized item alpha value of 0.9825. Both the inter-class correlation two-way mixed effect model of absolute agreement and the inter-class correlation coefficient (two-way random effect model- consistency definition yielded an alpha value of 0.9825 with a standardized alpha value of 0.8984.

In section 3, the covariance matrix of the 25 items yielded an alpha value of 0.9912 with standardized item alpha value of 0.9924. The inter-class correlation two-way mixed effect model of absolute agreement and the inter-class correlation coefficient (two-way random effect model-consistency definition and the space-saver method yielded the same values (0.9912 and 0.9924 respectively).

Questionnaire return rate

The survey instrument was administered to a sample of 300 lecturers out of a population of 1297 University of Nairobi lecturers. A stratified sampling technique was employed to ensure that all the University of Nairobi colleges representing the broad university disciplines were proportionately involved. A total of 189, representing 63% of the sampled lecturers completely filled and returned the questionnaires. Table 3 below indicates the return rate per college.

Table 3: Questionnaire return rate

College	Sample size	Returned questionnaires	% return rate
CEES	72	53	73.61
CAVS	42	16	3.10.
CHS	29	15	51.72
CHSS	71	39	54.93
CAE	34	28	82.35
CBPS	49	38	77.55
Total	297	189	63.64

Response in terms of gender

Out of the 186 respondents male lecturers were 140 (74.07%) while the females were 49 (25.93%). Table 4 shows the responses in terms of gender as per the University Colleges. This indicates that the ratio of male to women lecturers in the university is 3:1.

Table 4: Questionnaire response rate in terms of gender

College	Male	Female	(n)
CEES	41	12	53
CAVS	10	6	16
CHS	7	8	15
CHSS	28	11	39
CAE	20	8	28
CBPS	34	4	38
Total	140	49	189
%	74.07	25.93	

Response rate in terms of category of lecturer

The University of Nairobi has two categories of lecturers, the full-time and part-time. Full-time lecturers are employed to teach on full-time basis while part-time lecturers only teach for specific hours and are hired on short-term need basis. A total of 152 (80.42%) of the respondents were full-time lecturers while 37(19.58%) were part-time. Table 5 indicates the category of the lecturers per college.

Table 5: Questionnaire response rate in terms of category of the lecturer.

COLLEGE	FULL-TIME	PART-TIME	(n)
<i>CEES</i>	22	31	53
CAVS	16	0	16
CHS	15	0	15
CHSS	38	1	39
CAE	25	3	28
CBPS	36	2	38
Total	152	37	189
%	80.42	19.58	

Response rate in terms of lecturers' tenure status

The lecturers have different status of tenure. Some are on permanent basis while others are on contractual terms. Those on permanent terms are normally at the lecturer position and above and retire at the age of 70. In most cases the lecturers on contract are already retired and are hired on a two-year contract agreement. Among the sample, 139 (73.5%) were permanent while 50 (26.54%) were hired on contractual basis. Table 6 shows the respondents in terms of status of tenure.

Table 6: Lecturers' response rate in terms of status of tenure

COLLEGE	PERMANENT	CONTRACT	(n)
<i>CEES</i>	36	17	53
CAVS	16	0	16
CHS	11	4	15
CHSS	29	10	39
CAE	22	6	28
CBPS	25	13	38
Total	139	50	189
%	73.54	26.46	

Teaching experience of the lecturers

Lecturers' age was an important variable in this study. Apparently 22.75% of the lecturers have teaching experience of over sixteen years. Over sixty-five percent 65.05% of the lecturers have over 5years of teaching experience and 34.95% have teaching experience of between 1 and 5years. The lecturers' teaching experience is indicated in Table 7 below.

Table 7: Teaching experience of the lecturers

COLLEGE	0-2 YEARS	3-5 YEARS	6-10 YEARS	11-15 YEARS	16AND ABOVE	(n)
<i>CEES</i>	18	12	9	6	8	53
CAVS	1	1	2	4	8	16
CHS	2	2	4	3	4	15
CHSS	5	7	9	15	3	39
CAE	4	1	4	6	13	28
CBPS	5	8	14	4	7	38
Total	35	31	42	38	43	189
%	18.52	16.40	22.22	20.11	22.75	100

Lecturers level of computer literacy

Distance education relies heavily on information communication technology (ICT) for transmitting its educational materials to the learners. With the current developments in telecommunication, a lecturer needs to have some basic computer literacy knowledge if they have to offer their courses in any electronic form. Therefore, computer literacy was a variable considered in this study. Over 79.89 % (151respondents out of 189) of the lecturers indicated that they have some computer literacy skills while 20.11 %(38 respondents out of 189) indicated that they do not have. Table 8 below indicates whether the respondents have computer literacy skills or not.

Table 8: Lecturers' level of Computer Literacy

COLLEGE	YES	NO	n
CEES	36	17	53
CAVS	9	7	16
CHS	12	3	15
CHSS	34	5	39
CAE	25	3	28
CBPS	35	3	38
Total	151	38	189
%	79.89	20.11	189

Availability of a computer in the lecturers offices

For lecturers to translate their teaching materials into distance learning format, availability of a computer in their offices is a facilitating factor to the adoption of DL . The survey results indicated that 59.26 % (112 respondents) have a computer in their offices while 40.74% (77 respondents) do not have a computer in the offices. This high percentage of individuals without a computer in the office would slow the process of translating materials into distance learning formats hence also slowing the rate of adopting distance learning. Table 9 indicates the number of lecturers with or without a computer in their office.

Table 9: Availability of a computer to the Lecturers in the office

COLLEGE	YES	NO	n
CEES	24	29	53
CAVS	10	6	16
CHS	9	6	15
CHSS	29	10	39
CAE	17	11	28
CPBS	23	15	38
Total	112	77	189

Availability of a computer to lecturer at home

In most cases, lecturers prepare their teaching materials both at home and in office. Therefore, availability of a computer at home is also critical in distance learning adoption process. The survey indicated that 76.72% (145 respondents) had a computer in their homes while 23.28 % (44 respondents) do not have. Table 10 indicates the respondents' state of computer availability at their homes.

Table 10: Availability of a computer to the Lecturers at home

COLLEGE	YES	NO	n
<i>CEES</i>	32	16	53
CAVS	10	6	16
CHS	11	4	15
CHSS	33	6	39
CAE	23	5	28
CPBS	36	2	38
Total	145	44	189
%	76.72%	23.3	

Lecturers' readiness to be trained in e-learning

E-learning is becoming a major electronic delivery mode of distance education. It is already a major form of distance learning in the developed countries and it is slowly gathering momentum in the developing countries. The survey indicated that 87.3 % (165 respondents) indicated that they are ready to be trained in E-learning. Only 12.7 % (24 respondents) indicated that they do not want to be trained. The respondents' response on whether or not they would like to be trained in e-learning is indicated in Table 11.

Table 11: Lecturers' readiness to be trained in E-Learning

COLLEGE	YES	NO	n
CEES	50	3	53
CAVS	16	0	16
CHS	11	4	15
CHSS	33	6	39
CAE	20	8	28
CPBS	35	3	38
<i>Total</i>	<i>165</i>	<i>24</i>	<i>189</i>
<i>%</i>	<i>87.30</i>	<i>12.70</i>	

Lecturers' prior participation in distance education activities

The prior knowledge lecturers have in distance education is assumed to be important in the distance education adoption process. The survey indicated that only 44.25 % had prior participation in distance education. Over half (55.75%) had no prior participation in any distance learning activity. Table 12 shows the frequencies of respondents' prior participation in distance learning.

Table 12: Lecturers' prior participation in distance learning

COLLEGE	YES	NO	n
CEES	93	63	53
CAVS	4	28	16
CHS	13	20	15
CHSS	30	85	39
CAE	9	66	28
CPBH	82	29	38
<i>Total</i>	<i>231</i>	<i>291</i>	<i>189</i>
<i>%</i>	<i>44.25</i>	<i>55.75</i>	

Lecturers' experience in writing distance learning course materials

The preparation of distance learning course material is a tedious and demanding activity. The University of Nairobi has been in the distance education activities since 1967. A number of lecturers have participated in distance learning and have written learning materials. The survey indicates that only 47.09 % (89 respondents) had ever written any distance learning material. Over half of the respondents 52.91 % (97 respondents) have not. Table 13 below indicates the respondents who had or had not written any distance learning materials in the University of Nairobi.

Table 13: Experience in writing distance learning materials.

COLLEGE	YES	NO	n
CEES	38	15	53
CAVS	1	15	16
CHS	3	12	15
CHSS	4	35	39
CAE	15	13	28
CPBS	28	10	38
Total	89	97	189

It is clear coming out clearly from the descriptive analysis how each of the variables in the study influences the University lecturers level of preparedness and readiness to use distance learning in their teaching. Access to ICT facilities for example computers in the offices or at home plays a major factor in the adoption process. Most importantly is the fact that many lecturers have not participated in any form of distance learning activities. This would definitely affect their level of adoption of the teaching mode.

CHAPTER NINE

CONTEXTUAL FACTORS INFLUENCING LECTURERS’ PARTICIPATION IN DISTANCE LEARNING

Introduction

Adoption of distance learning in the universities depends on the environmental factors facing the lectures. However, many universities introduce distance learning initiatives without first establishing the critical factors in the working environment which would enhance adoption of distance learning. In most cases, it is even assumed that distance learning is nothing much other than converting conventional teaching materials into any print or electronic formats.

The role of lecturers is generally ignored in distance education research (Devries and Seppo, 2000). Distance Education (DE) as well as Distance Learning (DL) and Distance Teaching (DT); require new skills and attitudes different from those needed in a “traditional” classroom. Since many educators are unfamiliar with these innovative educational settings, training in both the technical aspects of the system and the strategies for teaching students at a distance would benefit both teachers and students. It is evident that most research in distance education has tended to focus on the learner and relatively less on aspects concerning teachers. This article focuses on the environmental factors that influence University lecturers’ adoption of distance education.

Readiness of lecturers, which is the most important element in any kind of education system, should not be taken for granted since the success or the failure of any education approach depends on them. Rowe (1985:2), in support observes that, ‘every education system must deal with three fundamental elements: the people, the methods and the plans. At the very top of this list are the teachers because they

are the key to all methods of education'. Unfortunately, few studies have been conducted on lecturers' attitudes towards their adoption of DE particularly in the sub-Saharan Africa.

Although the University of Nairobi has more than thirty years experience in offering distance education programmes, the factors that may influence its lecturers to adopt distance education have not been studied. In this regard, this article sought to achieve three objectives: to establish the factors that influence University of Nairobi lecturers' adoption of distance education; to determine if there is a difference between the factors that influence lecturers' participation in DE in other institutions and the University of Nairobi and to determine whether there is any significant difference in the factors that influence adoption of distance education among various disciplines of the University of Nairobi. To operationalize these objectives, the following research questions were formulated:

1. Are the factors, which influence lecturers' participation in distance learning activities in other institutions, also affecting University of Nairobi lecturers?
2. How do the University of Nairobi lecturers rate the importance of each of the factors that would influence their participation in distance education activities?
3. Is there any significant difference among the lecturers in different colleges in respect to the factors that influence their participation in distance education activities?

Theoretical framework

Research studies conducted in different settings, at different time periods generally agree on the main factors that influence instructors' attitude towards the adoption of DE. For example, Almeda, (2000); American Federation of Teachers, (2002); Betts, (1998); Dooley and Murphy, (2001); Haywood, (2000); Jones *et al.*,(2000); Kotz and Dreyer, (2001); Lee, (2001); Mackenzie, (2000); Mackenzie, et al,(2000); Pajo and Wallace, (2001); Plewes, (2002); Rockwell *et al.*, (1999); Jones, (2002); Schiffer, (2002) all agree that the main inhibiting factors include: increased time

commitments (workload) for academic staff, lack of extrinsic incentives or rewards, lack of strategic planning and vision, lack of support (in training in technological development and pedagogical aspects of development) and philosophical, epistemological and social objections, decreased face-to face interactions with students, lack of support from the administrators, time spent in learning new technologies, lack of equipments, lack of technical support in DE, reduced course quality, negative attitudes towards DE by colleagues, issues of intellectual property rights and lack of time to plan and deliver a course by distance methods.

The studies also show that lecturers can be motivated to adopt DE by providing certain rewards, facilities or a conducive environment that may include: stipends; decreased workload; release time; use of new technology; increased course quality; improved teaching skills after DE training; self-satisfaction; training in DE and administrative assistance. The critical issue here is whether those factors are also important to the University of Nairobi lecturers and if there are other factors, which are contingent only to the University. It is also apparent that in most of the studies cited, the focus was on the whole body of the teaching staff without establishing whether these factors have the same significance between various disciplines.

University administrators also need to change their views towards distance education. Dillon and Walsh (1992) commented that the view of distance education as an innovation provides an important means for understanding the phenomena of distance education, particularly from the perspectives of those upon whom its acceptance depends: the Faculty. According to a study by Edooley (2000), how people perceive and react to new technologies is far more important than the technical obstacles in influencing its implementation and use. Unfortunately, Edooley does not explicitly state how he measured Faculty perception and hence fails to clearly substantiate his statement. This position is emphasized by Moore, (1994) and Keast, (1997), who say that the major obstacles associated with the acceptance or adoption of distance education technologies are: organizational change, change in the teachers' roles and change in administrative structures. While

I concur with the author, his study fell short of looking at how lecturers' attitude would affect their rate of adoption of distance education. The study focuses more on the structural issues of an organization while ignoring the human part of it.

Dillon and Walsh (1992) noted that Faculty attitudes concerning participation in DE are usually neglected in research. Edooley (2000) agrees by stating that fewer studies consider the perceptions of administrators and support staff. Hence, as programmes are implemented, it is important to determine a broader array of perceptions, concerns and interests regarding distance education technologies. This understanding, according to Edooley, can facilitate the diffusion and adoption of DE technologies throughout the institution to enhance student learning while maintaining employees' (administrators, faculty and support staff) engagement and satisfaction.

In his case study of selected Oklahoma colleges and universities, the perceptions of administrators, faculty and support units influence the rate of DE adoption, Edooley (2000), concluded that the three groups indicated a general consensus on factors that either motivate or inhibit the groups from adopting DE. The study used qualitative approach and snowball sampling technique. The results indicated three major areas that required consideration if adoption of DE is to be enhanced. First, is the administrative support, which should include providing a seamless infrastructure and virtual presence for distance learners (student/technical support)? Secondly, is the training of Faculty not only on technology exposure but also on instructional design? Thirdly, is to provide incentives to staff such as release time, mini-grants, continuing education, stipends and recognition in the promotion and tenure process. The study did not go further to establish whether the factors were equally significant in different disciplines, ages and tenure status of the Faculty.

Another study by Schiffer (2002) on lecturers' adoption of distance education found out that the percentage of lecturers within each age range participating and not participating in distance education did not deviate significantly from the group

percentages (participator = 14.1%, non-participators = 85.9%). No relationship was found between age and level of lecturer participation in distance education. At the same time, there was no relationship found between lecturer position and level of their participation in distance education. The percentage of tenured and non-tenured participating and not participating in DL did not deviate significantly from the group percentages (participators = 14.2%, non-participators = 85.8%). There was no relationship found between tenure status and level of Faculty participation in DL. Responses from females were significantly different from those from males, specifically on issues related to intrinsic motives. The study did not give the possible reasons as to why there was a difference between female and male lecturers regarding intrinsic motives.

A critical look at those studies reveals that they focused on developed country institutions that have very different environments from developing countries. Developing countries have very low levels of tele-density and their resource base is relatively less endowed. The applicability of their studies hence needs to be validated in developing countries. This is an area this current study aimed to achieve. It is also apparent that the studies have predominantly focused on e-learning mode of distance education. Perhaps one would wonder whether the same factors would hold in other modes of distance learning, particularly the print which is still and might be more effective in the developing world since telecommunication infrastructure is still underdeveloped. Another area that the studies have not addressed is the process of adoption and in particular how the factors affect the lecturers' attitude and consequently how attitudes affect the adoption rate. The magnitude of the cause – effect relationships of attitudes and rate of adoption was not measured. Previous studies have also not clearly indicated how readiness to adopt DL is related to the specific areas of concern to the lecturers.

The literature reviewed has indicated that there are relatively few studies that have focused their attention on the adoption of DL by lecturers in Africa. Where such studies have been conducted, they conclude that lecturers' attitude towards the

adoption of DL is influenced by both intrinsic (personal factors within the individual lecturer) and extrinsic factors (environmental factors). While the lecturers' rate of adopting DE is influenced by both their own personal perceptions and those of University administrators and support systems, age, level of participation in DL activities and tenure status, do not have a significant influence. Finally, the literature strongly suggests that University administrators need to change their attitude toward distance education and that they should view it as equivalent to traditional face-to-face form of learning. The administrator's change of attitude would have an impact on the lecturers' rate of adopting distance learning modes.

The literature reviewed above led to two hypotheses that were tested in this study:

1. There is no difference in importance between factors that influence lecturers' participation in DL elsewhere and in the University of Nairobi.
2. There is no mean difference in the importance attached to the factors that influence lecturer's participation in distance education among the six colleges of the University of Nairobi.

Descriptive analysis of the study factors

The mean score of the 14 factors was 4.37, which is at the "very important" scale. Therefore, the results indicated that the respondents considered the 14 factors to be very important in influencing them to participate in distance education activities. Any factor that had a mean score of 3 and above was considered an important factor. The scale ranged between 1 and 6, hence, 3 was the mean of all the scales. Table 14 below indicates the frequencies for the 14 factors measured on a six point Likert scale.

Table 14: Frequencies of level of importance attached to factors that influence lecturers' participation in DE

SCALE	FREQUENCY	VALID %
Not important at all	14	0.6
Not very important	125	5.2
Important	108	4.5
Very important	874	36.4
Extremely important	1281	53.3
Not applicable	0	0
Total	2,402	100

The descriptive statistics indicated in Table 9.1 above, show that the mean score for the fourteen factors was 4.37. This shows that the factors were generally very important to the respondents. The variance of the scores and the standard deviation was 0.705 and 0.839 respectively.

Table 15 below indicates the importance the respondents from each of the six University of Nairobi Colleges attached to the fourteen factors.

Table 15: Results of descriptive analysis of the factors

COLLEG E	MEAN	MEDIAN	MODE	STANDARD DEVIATION	VARIANCE
CEES	4.39	5.00	5	.773	.598
CAVS	4.01	4.00	4	.983	.967
CHS	4.41	5.00	5	.753	.753
CHSS	4.44	5.00	5	.851	.753
CAE	4.26	4.00	5	.916	.840
CPBS	4.39	5.00	5	.795	.632
<i>UoN</i>	<i>4.37</i>	<i>5.00</i>	<i>5</i>	<i>.839</i>	<i>.732</i>

The mean score of the respondents from each of the six colleges on the fourteen (14) factors is above the threshold of 3.5. This indicates that the factors were important in influencing the respondents' participation in distance education activities. This shows that the fourteen factors were very important in influencing the respondents' participation in distance education activities.

Analysis of individual factors

To determine the specific level of importance of each of the fourteen factors in influencing the University of Nairobi lecturers' participation and adoption of distance education, an item analysis for each of the factors was conducted. Table 4 in appendix 1 shows the mean score of each of the fourteen factors.

The mean score indicated at what point in the Likert scale the factor falls and the level of importance the respondents attached to the specific factor. The mean score of each factor fell in one of the following scales: "extremely important"=5; "very important"=4; "important"=3; "not very important"=2; "not important at all"=1; "not applicable"=0. Any factor with a mean score of above 3.0 was an indicator that it was important to the respondent. Any factor that scored less than 3.0 indicated that it was not of great significance to the respondent.

The mean score for each of the factors is indicated in the first column of Table 4. The mean score for each factor was above 4.0 ("Very important" category), which indicated that the respondents' considered all the factors to be very important in influencing their participation in DE activities.

Ranking of the factors

After conducting an item analysis of each of the fourteen factors, it was necessary to determine the order of importance attached to each factor. The objective was to see where in the continuum each of the factors would fall. To achieve this objective, a factor analysis using the Principal Axis Factoring (PAF) was used to rank the fourteen

factors. Varimax with Kaiser Normalization Rotational method was employed and factors were scored using Anderson-Rubin method.

Table 16: Results of factor analysis

FACTOR (ITEM)	BEFORE ROTATION	AFTER ROTATION	MEAN SCORE	(n)
1. The maintenance of student-teacher interactivity in a distance-learning course at the same level as of a regular course.	0.705	0.679	4.03	189
2. The provision of adequate time to plan, prepare and deliver distance learning course materials.	0.885	-0.079	4.46	189
3. The provision of adequate support from the University administration during the preparation of distance-learning	0.813	-0.444	4.59	189
4. Training on how to use distance-learning (ICT) technology to deliver courses by distance learning modes.	0.908	-0.003	4.30	189
5. The reduction of departmental workload to enable the lecturer to prepare distance learning course materials	0.883	0.357	4.07	189
6. Training in distance teaching methods	0.896	-0.065	4.25	189
7. Training in what distance education is all about	0.861	0.339	4.14	189

8. The provision of adequate equipment i.e. computers and other materials while preparing distance learning course materials	0.890	-0.310	4.56	189
9. The provision of distance learning technical support to enable a lecturer to use ICT to deliver a course by distance learning.	0.812	-0.476	4.38	189
10. A clear policy on the level of Support in form of Stipends, to lecturers participating in Distance learning activities	0.761	-0.159	4.09	189
11. A clear policy on promotion opportunities for lecturers participating in Distance learning activities	0.865	0.060	4.25	189
12. A clear policy on issues of intellectual property rights for distance learning course materials	0.837	-0.437	4.24	189
14. Encouragement from colleagues while participating in distance learning activities.	0.645	0.715	3.95	189

Results of factor analysis

A component coefficient score of between 0 and 1 was considered as an indication that the factor was “very important” or “extremely important”. A component score of between 0 and -1 indicated that the factor was either “not very important” or “not important at all”. A score of 0 is an indicator that the factor is neutral.

From this analysis, all the fourteen factors had positive coefficient scores, meaning they were rated either extremely important or very important. The Kaiser Meyer-Olkin measure of sampling adequacy test score was 0.906 indicating that the sampling was adequate for factor analysis. Bartlett's Test of Phericity was approximately (chi-square=4255.973; df.91; significance was 0.000). The specific ranking of each of the factors in presented in Table 17 below.

Table 17: Ranking of factors

FACTOR (ITEM):	MEAN SCORE	COEFFICIENT SCORE	RANK
3*	4.59	0.071	1
8*	4.56	0.134	2
2*	4.46	0.068	3
9*	4.38	0.090	4
4*	4.30	0.091	5
11*	4.25	0.087	6
6*	4.25	0.77	7
12*	4.24	0.080	8
7*	4.14	0.099	9
10*	4.09	0.079	10
5*	4.07	0.096	11
1*	4.03	0.128	12
13*	4.00	0.0658	13
14*	3.95	0.076	14

** These are the same fourteen factors as used with full description in Tables 9.3 and 9.4 above.*

The results from the factor analysis show that: support from the university administration; provision of adequate computers; adequate time to plan and prepare DE course materials; need for technical support to use ICT in course delivery and training in the use of ICT in DE were some of the most important factors in adoption of DE. The factors considered least important were encouragement from colleagues; maintenance of student teacher interactivity just as in traditional programmes and reduction of departmental workload to give more time to DE activities.

It is worth noting that other than the fourteen universal factors, other factors emerged from the study. These factors were established qualitatively in the open – ended section of the instrument. They included the negative attitude towards DE by the lecturers' colleagues, poor entry grades of the students and heavier workloads. The main motivating factors mentioned in the open ended section included: DE would help access education to more people and that the lecturers who participated in the DE training programmes were able to improve their teaching skills. The conclusion drawn from this finding is that majority of the University of Nairobi lecturers are not trained in pedagogy and as they participate in distance training, they benefit from some pedagogical training, which they confessed has improved their teaching skills.

Hypothesis Testing

In addition to the descriptive statistics, two hypotheses were tested to establish if indeed the differences in the factors that influence lecturer's participation in DE in other institutions and among University of Nairobi colleges are significant.

Hypothesis One

The first objective of this study was to determine if the factors that influence lecturer's participation in DE in other institutions are also important to University of Nairobi lecturers. To find out if indeed there are any differences in importance, the following hypothesis was developed and tested:

- (a) The factors that influence lecturers' participation in DE elsewhere are also important to the University of Nairobi lecturers.

A t-test was used to compute the significance of the difference between the mean scores at 95% confidence level. The results obtained indicated the following scores: $t = 3.0, p < 0.05$. Hence, the 14 factors are all important in influencing the University of Nairobi lecturer's participation in DE and therefore, hypothesis one is fully substantiated.

Hypothesis Two

The second objective was to establish whether there is any significant difference in the mean score in the importance attached to the factors that influence lecturers' participation in DE among the colleges of the University of Nairobi. To achieve this objective, the following hypothesis was formulated and tested:

- (b) There is no significant difference between the mean score of the importance attached to the fourteen factors that influence lecturer's participation in distance education among the six colleges of the University of Nairobi.

The mean scores ranged between 4.33 and 4.40. At 95% confidence level, the result was $t = > 4.33 < 4.40, p < 0.05$. Table 18 below presents the results of hypotheses two.

Table 18: Results of hypothesis two

COLLEGE	T	DF	SIG (2- TAILED)	MEAN DIFFERENCES	LOWER	UPPER
CEES	48.58	725	0.000	1.34	1.34	1.45
	1					
CAVS	12.58	150	0.000	1.01	0.85	1.16
	1					
CHS	20.44	157	0.000	1.41	1.28	1.55
	1					
CHSS	39.34	541	0.000	1.44	1.37	1.51
	1					
CAE	25.58	348	0.000	1.26	1.16	1.35
	2					
CPBH	38.81	489	0.000	1.39	1.32	1.46
	6					
<i>UoN</i>	<i>79.79</i>	<i>240</i>	<i>0.000</i>	<i>1.32</i>	<i>1.33</i>	<i>1.40</i>
	<i>9</i>	<i>1</i>				

The results indicate that there is no significant difference in the factor means score between the six colleges. Therefore, hypothesis two is confirmed. From these result, we conclude that there was no difference in terms of the importance attached to the factors that influence lectures' participation in DE activities among the six colleges of the University of Nairobi.

Discussions

From the descriptive analysis, the results indicate that 87.7% of the respondents considered the 14 factors presented to them as, "extremely important", "very important" or "important". Only 10.3% of the respondents considered the factors as either, "not important", "not very important", or "not sure of the importance". The mean score for the 14 factors was 4.37 that lie within "extremely important" scale. Therefore the respondents considered the factors to be of great importance to them

in influencing their participation in distance learning activities and eventual adoption.

Other factors inhibiting lecturers' readiness to adopt DL mentioned in the open – ended section of the questionnaire included: the negative attitude towards DL by the lecturers' colleagues; poor entry grades of the students and heavier workloads. The respondents also said that they are motivated to engage in DL because this mode of learning helps more people to access education and that lecturers who participated in the DL training programmes were able to improve their teaching skills.

Most of the respondents pointed out that training in DL methodology should be for all lecturers in the university, as this will enhance both the level of awareness and readiness to adopt DL. This finding is supported by Gilcher and Johnstone (1989); Kirby and Garrison (1989); N.E.A. (2000); Pasmore(2003), who reported that as instructors get more familiar with DL, and as their level of experience increases, the rate of adoption is bound to increase. Though there are basically two dominant schools of thought regarding the theory of learning: the objectivist approach and the constructionist approach, at the end of the day, instructional quality remains the responsibility of the lecturer. Emphasis, therefore, needs to be placed on identifying effective teacher competencies along with the training needed to support lecturers' development.

On the provision of adequate equipment while preparing DL material, the respondents indicated that the provision of adequate DL facilities is of great concern to them. In particular the provision of Internet connectivity, its accessibility and reliability, availability of computers and study materials to the students were explicitly mentioned.

On the maintenance of student-teacher interactivity in DL, the respondents seemed to be concerned about the loss of interaction between them and the students. This was particularly observed in the "hard" sciences. The responses to the open-ended

questions revealed that several lecturers from the Faculty of Engineering and the Faculty of Science were concerned about how the teacher-student relationship could be maintained especially in practical subjects, which require the presence of the teacher and student in time and space. Lori (2003) had the same observation that the “old” and tenured lecturers feel that DL separates them from the learners and this is not something that they feel comfortable about. This is a major challenge facing distance education, particularly the print –based mode of instructional delivery. The E-Learning mode might help to militate against it because it is possible for the teacher and the student to interact in time through the bulletin boards, e-mail, audio conferencing or video conferencing.

Regarding reduction of departmental workload for lecturers to prepare DL materials, one respondent from the Faculty of Education and who has participated in writing a course unit in DL, said that it takes five times more to design and prepare distance material as compared to a regular course. Many other respondents made the same comment in the open-ended section of the questionnaire. Other studies (Betts, 1998; Dillon and Wash, 1992; Eisenburg, 1998) have pointed out that the time the lecturers take to translate their teaching materials into DL format hinders them from participating in DE especially when the extra work is not rewarded by promotion or remuneration.

The use of ICT in teaching and its attendant technical support was a major concern. Majority of the respondents indicated that they are concerned by the lack of training and provision of facilities to enable them engages in e- learning. This issue was mentioned virtually in every faculty in the open-ended section. Many respondents proposed that qualified ICT personnel be posted to their faculties to assist in either the development of E-learning material or in general academic activities. This concurs with the results from Edooley (2000), which found that ICT technical support was a major factor influencing lecturers’ participation in DL in Oklahoma colleges and universities.

The need for a clear policy on promotion opportunities for lecturers participating in DL was repeatedly mentioned in the open-ended section of the questionnaire. It was the view of many respondents. Over 90% of the respondents felt that the University does not recognize the extra load work that lecturers perform in DL. This is because the level of commitment required to translate, design and produce DL materials is enormous and should be factored in the university promotion criteria, otherwise lecturers would not have the motivation to engage in DL activities. To underscore this fact, one respondent said that he would rather write papers for conferences because they earn promotion credits instead of translating teaching notes into the DL format.

A clear policy on the level of support in form of remuneration and recognition for lecturers participating in DL was pointed out in the open-ended section of the questionnaire by all respondents from all faculties. Currently there is no clear policy on how much money a lecturer should be paid for writing a course unit. It is not clear to the lecturers if there is a specific policy on remuneration. It is critical that there is a clear policy and that lecturers are consulted in the formulation of the policy. Writing a DL course unit is an opportunity cost that the lecturer will incur for not participating in other academic activities particularly the teaching of evening students in which extra income is earned. To motivate the lecturers, it is important that the remuneration is set at a level that will make them feel encouraged to participate. Perhaps it would be better to include in the promotion criteria the preparation of DL course materials. This should not just be implied but should be included in policy statements.

The issue of intellectual property rights for DL materials prepared by lecturers was pointed out as a major factor that would inhibit them from participation in DL. Though there is a general intellectual property rights in the University, it appears that most lecturers are not aware of it and what it contains are. To encourage them to prepare study course units, lecturers need to be briefed about their rights in the

material they prepare. It might be important to have a clause in the policy that clearly touches on the various materials produced by DL.

Most lecturers in the university do not have any training in teaching methodologies. This affects both the regular and distance learning courses. In the open-ended section the respondents overwhelmingly stated that there is need for the University to train them in DL teaching methodologies. It is equally important to note that distance students in the university are adults. Therefore, andragogy (teaching of adults) should be taught to all the lecturers participating in DL. Adults learn differently from children and therefore it is proposed that all lectures be exposed to both pedagogical skills and andragogical skills.

With respect to the provision of adequate support from the University administration while preparing DL material, respondents indicated that the top management does not seem to give the required support to DL. One respondent said, "The top management is the major hindrance in the implementation of new initiatives in the university and unless they come down from their ivory tower, ODL will remain but a big dream". University administrators, at all levels, are the chief change agents in the University. If the lecturers feel that the administrators are not supportive enough morally, financially and materially, they will not also be enthusiastic to get engaged in DL activities. The Chairmen of Departments all the way up to the Vice-Chancellor should be seen to be committed to DL activities. A study conducted by Edooley (2000) concluded that administrative support which includes providing seamless infrastructure and virtual presence for distance learners; training of lecturers on technology, instructional design and pedagogy and providing incentives to staff in the form of release time, mini-grants, stipends, continuing education, recognition in the promotion and tenure processes, greatly enhanced the adoption rate. However, a study by Lee (2002) found that the perception between lecturers and administrators differed when it came to administrative support in instructional activities. This is also one of the outcomes of this study. An associated issue that needs to be addressed by the university administrators is the

administrative structures that would facilitate the adoption of DL. Some respondents suggested that there should be an independent college or unit that is responsible for ODL in the University and should be directly answerable to the top management.

It also came out clearly that lecturers feel they need adequate time to plan, prepare and deliver DL course materials. This was mentioned by the respondents who have already participated in writing DL materials in the School of Continuing and Distance Education, the Schools of Physical and Biological Sciences, Education and Commerce. This feeling is also pointed out in studies conducted by Berge, (1998); Clay, (1999) and Fritz and Marx, (1999).

Encouragement and moral support from colleagues, while participating in DL, was also cited as important though ranked last. This is because peers act as role models and can share their experiences with them. In a study by Wilson (2001), 63% of the respondents indicated that they would like more lecture showcases in instructional technology that demonstrated real-world application in the classroom. Parisot (1997) also concluded that role modeling was a primary motivational factor in the adoption and diffusion of technology.

As far as maintaining interactivity between the teacher and the student is concerned, the attitude's mean score was 3.30 indicating a negative attitude towards the issue. This implies that the respondents had some misgivings on the level of interactivity between the lecturer and the student in DL courses. Apparently the respondents indicate a negative attitude towards the maintenance of interactivity between the learners and the teacher. This is yet another challenge that needs to be tackled if the University of Nairobi lecturers are to be comfortable with DL delivery mode. The findings suggest the need for a DL mode that offers more opportunity for interactivity between the teacher and the learner. E-learning modes that are currently being implemented in the University seem to open more avenues for interactivity. This might come into reality as more distance education learning centres are opened and are connected to the Internet. It is also possible to enhance

teacher-student interactivity in the print mode by having more face-to –face sessions, using teleconferencing system that is already installed at the extra-mural centers, more intensive and frequent regional visits to students by lecturers and by any other available method.

Conclusions

The findings of the study suggest that the factors that influence lecturers' participation in DE in other institutions of higher learning are also important to the University of Nairobi lecturers. We can, therefore, conclude that the fourteen factors were found to be generally universal because they apply in both the developing and developed countries. The scores were all positive indicating that they are important to the lecturers in the University of Nairobi. There was no significant difference in the mean score of the factors among the University of Nairobi colleges. This again underscores the universality of the factors in the adoption of distance education irrespective of environment and discipline.

Majority of the lecturers (89%), are computer literate and eighty seven percent (87%) have access to a computer, hence, only a small fraction lack ICT skills. This implies that what they need is perhaps training on how to make effective use of ICT (computer) in teaching. In addition, the University should address the other critical factors that may influence the adoption process if indeed it desires to enhance the adoption of DL and implementation of its ODL initiative.

From the rankings of the factors that influence participation in DL, support by University administration, provision of adequate equipment and adequate time to plan, prepare and deliver DL course materials were ranked highly. The ranking indicates generally, the order of importance of the fourteen factors to all lecturers irrespective of their discipline.

This study provides a launching pad for further work. Such work should focus on the cause–effect relationships of attitudes and rate of adoption, how readiness to adopt

DL is related to the specific areas of concerns to the lecturers and why participation in DL is minimal although the level of ICT literacy appears high.

CHAPTER TEN

LECTURERS' ATTITUDE TOWARDS DISTANCE LEARNING

Introduction

This chapter is a descriptive analysis of the data from section 3 of the survey. One objective of the study was to establish the attitude the University of Nairobi lecturers have towards the adoption of DL. The study hypothesized that the University of Nairobi lecturers have a negative attitude towards the adoption of DL. To test this hypothesis, the respondents were given 25 issues in which they were supposed to indicate whether they "strongly agree", "agree", are "uncertain", "disagree", "strongly disagree", or "not applicable" to each of the 25 statements. The following was the score of the scales: "strongly agree"=5; "agree"= 4; "uncertain"=3; "disagree"=2; "strongly disagree"=1 and "not applicable"=0. A score above 3.5(the mean score of "uncertain"=3 and "agree"=4) was considered as positive or supportive, while a score below 3.5 was considered negative or not supportive.

Theoretical Framework

Several studies on teachers' attitudes towards distance learning indicate that lecturers who teach at a distance are positive toward distance teaching (Dillon, 1989; Parer, 1988; Johnson and Silvernail, 1990; Mani, 1988; Taylor and White, 1991). It is evident from other reports that lecturers' attitudes improve as experience with distance education increases, and as instructors become more familiar with technology and logistics of distance teaching (Gilcher and Johnstone, 1989; Kirby and Garrison, 1989). It is also reported that teaching faculty believe that distance students perform as well as or better than traditional students, though the faculty

agrees that distance teaching is not appropriate for all content areas (Dillon, 1989; Parer, 1988).

Research studies by Clark, Soliman and Sungaila (1985) indicate that senior faculty and professors find distance teaching both more enjoyable and more demanding than faculty in the lower ranks. On the other hand, Taylor and White (1991) found educators to be positive towards distance learning. However, their study also indicated that teaching faculty prefers traditional face-to-face instruction citing the quality of interaction and satisfaction gained from the act of teaching in a traditional setting. Scriven (1986), found that majority of instructors believe that distance teaching is as important as traditional teaching but that 25% of the faculty would avoid teaching distance students if they could.

A study by Clay (1999), on faculty attitudes towards DE at the State University of West Georgia found a significant difference between those who had taught in DE courses and those who had not. Forty-five percent of the respondents reported a positive attitude towards DE. It also reported a relationship between the number of years of teaching and attitude towards DE. Fifty-four percent (54%) of those with 5 or less years of teaching experience reported a positive attitude towards DE compared to only 26% of those with 5 or more years of teaching experience. Those with tenure (40%) appeared to be less accepting of DE as those without (51%). One tenured professor with more than 20 years of teaching at the University commented,

“No form of ‘Incentive’... Would motivate me to participate in distance education. I think better serve our students by developing learning by enhancing relationship with them and among them through face-to-face dialogue and interaction”.

A survey conducted by Lee (2002), on the perception between faculty members and administrators, revealed that they differed when it came to instructional support.

Without the support, it would be difficult to retain the lecturers. A better understanding of instructional support and the environment in which it occurs creates a more reliable base from which to support distance education lecturers in making a successful teaching experience (Lee, 2002). The attitude the administrators hold towards ICT use in DL will directly affect the attitude of the faculty and filter down to the students. It is critical that the administrators believe in DL in its totality. Also important is to recognize that having the right attitude alone will not assure the effective implementation of DL programme.

A study by Nazer (2000) to investigate the attitudes of school teachers and directors towards the worth and value of distance education in Lebanon revealed a difference in the attitude of the two groups. School directors were negative about the possibility of distance education meeting the training needs of school teachers and that training needs and the purchase of required technologies would be prohibitive. Teachers on the other hand were positive and reported their willingness to familiarize themselves with the specifics of DL. It came out clearly that there was need to organize workshops and technology seminars so that schools can better understand the structure of curricular and pedagogical practices needed for full blown educational programmes in Lebanon. Lyod and Gressard (1986) and Dupange and Krendal (19992) found that positive attitude towards computer is correlated with the level of its usage even though they do not express such positive attitude.

A study by State University of West Georgia conducted by Parker (2003) indicated a significant difference in attitude among those who had taught and those who had not taught in DE courses leading to the conclusion that experience breeds acceptance. In the open –ended section of the questionnaire, the respondents gave the following reasons regarding their changes in attitude: increased familiarity, positive experience of other faculty, improved training and facilities, increased institutional support, positive feedback from student, positive evaluation by trainers and enjoyment of the flexible hours. The reasons of the negative attitude were: poor

performance of technology, negative student feedback, large classes, and negative experiences of other faculty and lack of departmental interest.

The O' Quinn and Carry's (2001) study lists several factors that can result in a negative attitude towards ODL. The study concludes that if the instructor can lessen the distance between student and the instructor, the student satisfaction will be higher. Unfortunately, the study is addressing behavior after the instructor has agreed to teach the particular course suggesting that O'Quinn and Carry's list of factors was not a determinant for the instructor. Both studies do not address the behavior that leads to the list of inhibitors. It is important to consider the original attitudes towards DE.

Analysis of the relationship between academic discipline and attitude towards distance learning

The mean, the variance and standard deviation were selected for descriptive statistics. The mean scores of the 25 items for the university was 3.63 (the standard deviation was 1.244 and the variance 1.547), indicating that the respondents were supportive (positive) towards DL. Table 6.2 shows the descriptive statistics of the respondents' attitude towards DL .The results indicated that 60.7% of the respondents either "agreed" or "strongly agreed" with the statements. Over twenty one percent (21.2%) indicated that they either" disagreed" or "strongly disagreed" with the statements. Eighteen percent (18.1%) were "uncertain" about the statements. The frequencies are shown in Table 19.

Table 19: Frequencies of the lecturers' attitude towards distance learning per scale

SCALE	FREQUENCY	%	VALID %	CUMULATIVE %
Strongly disagree	301	6.9	6.9	6.9
Disagree	619	14.3	14.3	21.2
		3		
Uncertain	785	18.1	18.1	39.3
		1		
Agree	1304	30.1	30.1	69.4
		1		
Strongly agree	1325	30.6	30.6	100
		6		
Total	4334	100	100	

Analysis of lecturers' attitude towards DL according to University Colleges academic discipline

Table 20 indicates the mean score of the respondents' attitude towards the adoption of DE per the colleges. The results indicate that only the College of Agriculture and Veterinary Sciences (CAVS), which had an attitude, mean score of 3.40, less than 3.5 of the University. This implies that respondents from CAVS had a negative attitude towards the adoption of DL. The rest of the colleges had attitude mean score of above 3.5 meaning that they have a positive attitude towards the adoption of DL.

Table 20: Descriptive statistics of the respondents' attitude towards distance learning

COLLEGE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	VARIANCE	n
<i>CEES</i>	3.81	4.00	5	1.203	1.448	53
CAVS	3.40	3.50	4	1.242	1.543	16
CHS	3.64	4.00	5	1.263	1.596	15
CHSS	4.00	4.00	5	1.258	1.582	39
CAE	4.00	4.00	4	1.318	1.738	28
CPBH	4.00	4.00	4	1.179	1.390	38
UoN	<i>3.63</i>	<i>4.00</i>	<i>5</i>	<i>1.244</i>	<i>1.547</i>	<i>189</i>

Testing of hypothesis on lecturers' attitude towards the adoption of distance learning

As stated earlier, one of the objectives of the study was to establish the attitude the University of Nairobi lecturers have towards the adoption of DL. The study hypothesized that the University of Nairobi lecturers have a negative attitude towards the adoption of DL. Another related objective was to establish whether there is any significant difference in attitude towards the adoption of DL between the University Colleges. It also hypothesized that there are no mean differences between the University of Nairobi Colleges in the attitude towards the adoption of DL.

Hypothesis One

This hypothesis tested whether the University of Nairobi lecturers' attitude towards the adoption of DL is negative:

To test this hypothesis, the attitude mean scores for the six Colleges were compared. A t-test was computed at 95% confidence level. A test value was placed at $t=3.5$, $P<0.05$. The mean attitudes score towards DL for the University was 3.63. Therefore, the null hypothesis was rejected and the alternative accepted. The study therefore,

concludes that the University of Nairobi lecturers' attitude towards DL is positive (supportive).

Hypothesis Two

This hypothesis tested whether there is any significant difference in the attitude towards the adoption of DL between the University Colleges.

The confidence level was set at 95%. The Universities attitude mean towards DL was 3.63. The following were the mean differences between the University Colleges: CEES- 3.81; CAVS- 3.40; CHS- 3.64; CHSS- 3.63; CAE- 3.43; CBPS-3.67. A t-test was conducted and the results are as indicated in Table 21. The results indicated that there was significant difference in the attitude mean scores between the colleges. Therefore, we do not reject the null hypothesis but accept the alternative. We then conclude that lecturers' attitude towards DL does differ significantly according to University of Nairobi Colleges.

Table 21: Test results of the mean score differences of attitude towards the adoption of distance learning in the six University of Nairobi colleges

COLLEGE	T	DF	SIG	MEAN	LOWER	UPPER
			(2-TAILED)	DIFFERENCES		
<i>CEES</i>	5.363	125	0.000	0.018	0.12	0.25
		5				
CAVS	-	255	0.004	0.23	-0.38	-1.07
	2.932					
CHS	0.175	249	0.861	0.01	-0.14	0.17
CHSS	-	948	0.962	0.00	-0.08	0.08
	0.048					
CAE	-	619	0.000	-0.20	-0.31	-0.10
	3.826					
CBPS	1.000	940	0.318	0.04	-0.04	0.11

Discussions and Conclusions

The results from the data analysis on attitude indicated that the respondents had a positive attitude towards DL. The results also indicated that there was no significant difference in the lecturers' attitude towards DL between the University of Nairobi Colleges. All respondents irrespective of their age or tenure indicated they were willing to be trained in distance learning methods.

It is observable that since April 2003, the University initiated a programme to create awareness on distance education particularly to the lecturers. Awareness seminars were organized for all faculties. This situation has helped the lecturers to develop positive attitude towards distance learning. It is noticeable that over 80 lecturers from the Faculty of Science, 33 from the Faculty of Commerce, 54 from the Faculty of Arts have already gone through a distance learning development course since August 2004. This is parallel to the findings by N.E.A. (2000) which concluded that attitude towards distance education was more favorable among those who had taught in DL courses.

The University of Nairobi Colleges that has DL courses had relatively higher attitude mean score than those without. The overall attitude score for the University was 3.63. The lecturers in the following colleges had participated in DL activities particularly in writing the course ware and indicated a high attitude mean score; CEES =3.81; CHSS=4.0; CBPS=4.0). On the other hand the following three colleges had relatively low attitude mean score and their lecturers had not participate in distance learning activities; CAVS=3.40; CHS=3.64 with the exception of CAE which had a high attitude score of 4.0. The respondents from CAE indicated that they would support DL so that they can attract more students to their programmes. Currently, CAE has very low enrolments in their parallel (evening or Module II courses, as they are referred to in the University). This explains the reason why their attitude score towards the adoption of DL was higher than the other colleges without distance learning courses. CAE sees distance learning as a mode that would

enhance student enrollment. The respondents from CAE indicated this fact in the open ended section of the questionnaire.

The results of this study indicated that 79.89% of the respondents were computer literate and that 87.3% would like to be trained in e-learning. This suggests that the respondents had a positive attitude towards the adoption of DL. The positive attitude might have influenced the respondents' readiness to adopt DE particularly the e-learning method. These results seem to agree with Hapiza et al. (2003) study which concluded that there is a relationship between the level of ICT knowledge and readiness to adopt e- learning.

The lecturers' attitude score towards the use of e-learning was 4.24. This is a clear indication that majority of the lecturers' feel that e-learning is a method is viable. This agrees with findings by Lyod & Gressarol (1986) and Dupange & Krendal (1992) that concluded that attitude towards the use of computer in DL were positively correlated to availability and usage. The findings do not agree with Cravener's (1999) conclusions that indicated that senior faculty members declined to participate in technology training because of lack of confidence.

On the issue of maintaining interactivity between the teacher and the student, the attitudes mean score was 3.30 indicating a negative attitude towards the issue. This implies that the respondents had some misgivings on the level of interactivity between the lecturers and the students in DL courses. Apparently, the respondents indicate a negative attitude towards the maintenance of interactivity between the learners and the teacher. This is yet another challenge that needs to be tackled if the University of Nairobi lecturers are to be comfortable with DL delivery mode. The findings suggest that the university should use a DL mode that offers more opportunity for interactivity between the teacher and the learner. This might come into reality as more distance education learning centers are opened and are connected to the Internet. It is also possible to enhance teacher-student interactivity in the print mode by having more face-to-face sessions, using teleconferencing

system that is already installed at the extra-mural centers, more intensive and frequent regional visits to students by lecturers and by any other available method.



CHAPTER TWELVE

THE RELATIONSHIP OF LECTURERS ISSUES OF CONCERN AND READINESS TO ADOPT e-LEARNING

Introduction

The uses of e-learning mode of instructional delivery in teaching involve a paradigm shift in teaching and learning. Distance learning programmes are increasingly using e-learning to reach widely sparsed students locally or globally because it promises to be more effective and efficient in the long run. In the process of adopting new technologies in teaching, most university lecturers find themselves confronted with new and unfamiliar challenges. On one hand many of them do not have pedagogical or andragogical skills and on the other they are expected to keep abreast with the new instructional delivery technologies.

There are several reasons for using e-learning. They are related to the cost of teaching, travel costs and downtime for lecturers. Advantages such as asynchronous teaching, just-in time teaching paced individualized teaching and cost- effectiveness lure organizations to e-learning (Powel, 2000).

In the e-learning adoption process, lecturers have issues of concern they would want addressed as they prepare to adopt the new technology for instructional purposes. The rate of adoption of that technology will depend on how those issues of concern are addressed by the University administration.

The purpose of this study was to analyze how such main issues of concerns would influence the lecturers' readiness to use e-learning mode of teaching. The study

aimed at investigating how lecturers' issues of concern influence their level of readiness to adopt e-learning mode of instructional delivery.

Objectives of the study

The following were the study objectives:

1. To establish the main issues of concern lecturers have as they prepare to adopt e-learning mode of instructional delivery.
2. To establish how the university lecturers' main issues of concern influence their level of readiness to adopt e-learning mode of instructional delivery.
3. To determine whether there is any significant difference on the level of readiness to adopt e-learning between the six University of Nairobi Colleges.

Research questions

The study was guided by the following research questions:

1. What are the main issues of concern influence lecturers' level of readiness to adopt e-learning as an instructional delivery mode?
2. How does the university lecturers' issue of concern that influence their level of readiness to adopt e-learning mode of instructional delivery?
3. Is there any significant difference in the level of readiness to adopt e-learning between the six University of Nairobi Colleges?

Theoretical Framework

Institutions of higher learning have to be ready to adopt e-learning in order to benefit from it. Such e-learning readiness can be defined as "how ready the lecturers are on the use of e-learning in teaching". Readiness includes the lecturers' ability to adopt new technology for teaching, adapt to new technological challenges, collaborative teaching and both synchronous and asynchronous teaching. The use of e-learning in teaching not only requires readiness from the lecturer but also from the learner and the institution to successfully engage (Bowels, 2004).

The integration of modern ICT technology signifies a paradigm shift pedagogically. While skills or technology competencies are important, they do not insure that technology will be used effectively to enhance instruction. This requires adequate training in technology as well as adequate technical support (Donna, 2003). According to Crumpacker (2001), student performance is also contingent on instructor's skill and level of effort or motivation. Instructor-identified skills requiring improvements centered on the efficient and effective use of technology and the application of a collaborative, problem based asynchronous learning. Collectively, instructor motivation, skills and pedagogical approach are intricate instructor-based issues that form an essential part of a quality of the e-Learning mode.

The adoption of e-learning as an instructional delivery mode depends heavily on the lecturers' state of readiness. The assumption is that the higher the level of readiness the higher the rate of adoption. At the same time, we know that people do not adopt a new thing or idea at the same rate. Rogers (1995) theory of Innovation Diffusion says that there are four types of adopters: the innovators (2.5%); early adopters (13.5%); the early majority (34%); the late majority (34%) and the laggards (16%). The individuals within a social system do not adopt an innovation at the same time. Rather they adopt it in an over-time sequence, so that individuals can be classified into adopter categories on the basis on which they first begin using the idea .University of Nairobi has six colleges organized in broad disciplines. It was important to test whether there is any difference in the state of readiness to adopt e-learning between the various colleges.

Several researchers have identified the main factors that may influence lecturers' readiness to adopt e-learning. According to Hapiza and Yasofd (2003) adoption of e-learning is closely associated with involvement in distance learning (DL).The same was concluded in the study by Hall and Loukes (1979) who also found that the understanding of DL by lecturers was high though their knowledge of e- learning was low. Kirby and Garrison (1989) concluded that lecturers' exposure to DE helps them to acquire positive attitude towards it. Clark (1993) says that lecturers' are ready to

embark on DL provided that they have the knowledge about it. Black (1992) concluded that the understanding of DL by lecturers could contribute to their readiness to implement DL programmes. It is imperative to conclude that participation in distance education activities plays a significant role in influencing lecturers to adopt e-learning. This is because distance learning is increasingly being delivered by use of ICTs.

Training in pedagogical skills and particularly in the use of e-learning is another major factor. According to Dillon (1989), lecturers who are comfortable with technology may lack pedagogical skills that marry the technology to the content. They recommend training for faculty to support the instructional transition from instructor-centered to student-centered. Likewise, they say, that training is needed to assure that the technology is secondary to the content. Research studies by Betts (1998); Clark (1993); Hapiza and Yasofd (2003); Heath (1996); Lilard (1985) Rockwell, et al. (1998), concluded that there is a relationship between the level of lecturers' knowledge in DE with their readiness to adopt it. Hapiza and Yasofd (2003) found that 63% of respondents had a high level of IT (Information Technology) usage, but no relationship between age, level of education and length of service.

Interactivity between teacher and learners comes out as a factor that influences lecturers' participation in e-learning. According to Lori (2003), live interaction that exist in a classroom where non-verbal interactions cannot be measured instantaneously, the capturing of the attention of all students at the same time, the ability to answer students questions immediately and without delay, are some of the challenges for seasoned traditional faculty(lecturers) members who thrive in a classroom environment. A study by O'Quinn and Carry (2002) agree that there are extreme differences in modality and that a lecturer has to adapt to a new way of teaching and communicating with students, but this does not mean that the new way of teaching and communicating cannot be just as dynamic as a traditional classroom.

However, according to Twiggs' (2005) study on the assessment of both the Course Redesign Initiative (CRI) at Florida State University (FSU) that revealed that many students in online and redesigned environments experience a greater sense of interaction and support than in courses based on traditional models of delivery. The results in the study indicated that 20 out of the 30 redesigned projects at FSU improved student learning. All of the redesigned projects reduced the cost of interaction by 40% on average with a range of 20% to 84%. Many projects increased course completion rates and also increased student satisfaction with the mode of interaction. Similar efforts produced similar results at Algonquin College and at the University of Wisconsin Milwaukee and the California State University (Twiggs, 2005).

Lecturers concerns and needs have attracted little attention, yet it is of significant influence on the adoption process. A study by Wilson (1998) which quantified the needs and concerns of early-adopters lectures who developed on-line distance education course, and taught it, revealed that lectures concerns about web-based distance education were universal and no significantly different based on the discipline (i.e. humanities, social-sciences, science/technical or business) or as by type of post secondary institutions (large university, regional university, community college, technical school, or correspondence studies).She concluded that the delivery of distance education on the web has great potential that cannot be realized until the needs and concerns of the faculty are met.

It is apparent from the literature that the studies cited did no focus on the state of readiness to adopt e-learning. More so, the studies did not investigate the underlying conditions that would influence the lecturers' level of readiness to adopt e-learning. One such condition is the question of "issues of concern" the lecturers may need addressed as they engage in e-learning activities.

Literatures suggest that e-readiness can be assessed by evaluating an individual's technical experience and competence to interact with ICT facilities. This competence

should be supported by the individual's capability to direct his or her own training through appropriate knowledge, skills attitude and habits. Several researchers have developed models to measure e-readiness. Ayadin (2005) suggests an instrument with 7(seven) categories: human resources, learning management systems, learners, content, IT (information technologies), finance, and the vendor. Chipanic (2005) suggests such broad areas such as psychological, sociological, environmental, human resources, financial readiness, technological skill (aptitude), equipment and content readiness. Psycharis (2005) came up with three categories: resources, education (knowledge) and environment.

It is clear from the literature that there are several types of readiness on needs to measure. First, the human readiness which refers to the lecturers' knowledge and the skills. Second, the technological readiness which focus on the available technological systems that are provided and the way they are used. Third, the economic readiness, which examines the willingness of the institution to invest in e-learning.

The operating environment is equally a measure that should be taken into account. This refers to the entrepreneurial readiness and the readiness of the organizational culture. In this case one needs to measure the issues of concern the lecturers face in the process of adopting the new technology (e-learning).

Study methodology

This was a cross sectional study which employed quantitative research approach and used the survey design for data collection. The main constructs focused on the worth of e-learning ; readiness to adopt e-learning; training in distance learning(DL); effort required by the lecturer to prepare e-learning materials; e-learning policy; support from the University administration in the provision of e-learning facilities; policy on intellectual property rights; lecturers' time commitment on e-learning activities and acceptance of distance education. Items that were judged as attributive to construct ratings were summed and divided by the number of items to

obtain the mean rating of a specific construct. To overcome the within and between confoundment, the mean rating was obtained for specific items reflecting certain constructs. A neutral point was incorporated in which a t-test was used to determine whether the ratings departed significantly from the neutral point. A high mean rating meant that the respondents had a higher agreement with the construct.

The study was conducted in two phases. **Phase One** involved the lecturers listing the main issues they felt would influence their adoption of e-learning. In the questionnaire, the lectures were asked to list the issues they considered required to be addressed as they prepared to adopt e-learning. Out of a host of many issues that were listed by the lecturers, eight came out as the most critical.

Phase Two involved the correlation of the issues of concern to the lecturers' level readiness to adopt e-learning. A questionnaire which had had two sections was mailed to the respondents.

Section A of the questionnaire required the respondent to indicate in a five-point Likert scale the importance they attached on each of the issues of concern. The value of each of the six Likert scales were; extremely important = 5; very important = 4; important =3; not very important = 2; not important at all = 1; not applicable = 0. Each of the lecturers' eight issues of concern was correlated to their level of readiness to adopt e-learning.

Section B of the questionnaire involved establishing the lecturers' level of readiness to adopt e-learning. The main constructs were the lecturers' knowledge of e-learning as a mode of instructional delivery; the availability of ICT facilities in the lecturers' offices or at home; the ICTs skills the lecturers possessed; the level of training the lecturers had on use of e-learning.

Data Analysis

For *Phase One* data (issues of concern) factor analysis using Principal Axis Factoring (PAF) was used to analyze the data. Varimax with Kaiser Normalization Rotational method was used and factors were scored using Anderson-Rubin. Out of the analysis, it was observed that all the eight issues of concern had positive coefficient scores, meaning they were rated either extremely important or very important. The Kaiser Meyer- Oklin measure of sampling adequacy test score was 0.906 indicating that the sampling was adequate for factor analysis. Bartlett's Test of Sphericity was approximately (chi-square=4255.973; df.91; significance was 0.000). The data was also analyzed using the mean as a descriptive data analysis tool.

For Phase Two data, a regression analysis was conducted to generate a path analysis model relating the eight issues of concern and the lecturers' level of readiness to adopt e-learning. This involved establishing the lecturers' level of readiness to adopt e-learning. The main constructs were the lecturers' knowledge of e-learning as a mode of instructional delivery; the availability of ICT facilities in the lecturers' offices or at home; the ICTs skills the lecturers possessed; the level of training the lecturers had on use of e-learning. An overall score of over 3.5 indicated a high level of readiness. A score of less than 3.49 indicated a low level of readiness. The mean score was calculated from the mean of the three constructs used to measure the level of readiness. The constructs were: access to ICT facilities (4.37); acceptance of DE as an instructional delivery mode (4.0); worthiness of e-learning as an instructional mode of delivery (3.34). The respondents' overall mean score of the level of readiness was 3.50. This was a high level of readiness.

It was apparent that the level of readiness was high. However, the adoption rate was low. What then was the matter? To answer this question the study related the eight issues of concern to the level of readiness. This generated the regression model indicating how each of the issues would affect the level of readiness to adopt e-learning in the University of Nairobi.

Results of the analysis

The results of the data analysis are presented according to the objectives of the study.

(a) The main issues of concerns facing the lecturers as they prepare to adopt e-learning for teaching purposes

The following were the main issues of concern that came out from the factor analysis. They are presented in terms of their ranking order as per their level of importance. Access to ICT facilities

- (a) Training in distance learning(TDL) methodologies
- (b) Provision of open and distance learning policy(PODL)
- (c) Support from the university administration(SDL)
- (d) Availability of an intellectual property rights policy for e-learning materials(AICT)
- (e) Effort required to prepare e-learning material(EDL)
- (f) Time commitment while participating in distance learning activities(TDL)
- (g) Incentives provided while participating in e-learning activities(IPDL)

(b) The degree of importance of the issues of concern to the lecturers

The lectures were asked to indicate the importance of each issue of concern in influencing their adoption of e-learning. Table 22 shows the mean score of each concern for the University.

The mean score of the importance of the 8(eight) issues was 3.57 which is within the “very important” scale. Therefore, the results indicated that the respondents considered the eight issues to be very important in influencing their adopting e-learning in teaching.

Table 22: University of Nairobi Mean score of the lecturers' issues of concern

Issue of concern	Mean score	Ranking
Access to ICT facilities	4.48	1
Importance of training in DE	4.11	3
Need for an ODL policy	4.37	2
Support from the university administrators	3.74	4
Intellectual property rights	2.96	6
Efforts while preparing DE materials	2.82	7
Time commitment in DE activities	2.81	8
Incentives to participate in DE	3.33	5

The test value was set at 3.34. The results ($t=3.34$, $P<0.05$), indicated that there is significance difference in the mean score of the level of readiness to adopt e-learning between the colleges. The findings are presented in Table 24 and 25. It is observable that College of education and External Studies (CEES, 4.610) has the highest level of readiness, followed by the College of Biological and Physical Science (CBPS, 3.967) and College of Humanities and Social Sciences (CHSS, 3.0673). The three Colleges have some exposure to distance learning activities. The lecturers in the Colleges have been trained in distance learning methodologies and written e-learning course

materials. On the other hand, the College of Architecture and Engineering (CAE, -3.089), the College of Health Science (CHS, -3.959) and the College of Agriculture and Veterinary Sciences (CAVS) had a low level of readiness. The three Colleges have very little exposure to distance learning activities. The study then concludes that there is a strong relationship between level of readiness to adopt e-learning and exposure to distance learning activities.

(c) Hypothesis testing whether there was any difference in the level of readiness to adopt e-learning between the University of Nairobi broad disciplines (Colleges).

Hypothesis one

It was important to establish whether there is any significant difference in the level of readiness to adopt e-learning between the six colleges.

Table 23: Results of hypothesis testing on whether there is a difference in the mean score on level of readiness to adopt e-learning between the University of Nairobi colleges

COLLEGE	T	DF	SIGNIFICANCE (2-TAILED)	MEAN DIFFERENCE
<i>CEES</i>	4.610	256	.000	.34
<i>CAVS</i>	-3.545	59	.001	-.49
<i>CHS</i>	-3.959	147	.000	-.39
<i>CHSS</i>	-0.673	65	.503	-.10
<i>CAE</i>	-3.089	236	.002	-.23
<i>CBPS</i>	3.967	227	.000	.25
<i>UoN</i>	-0.126	995	.900	.00

Table 24: Test results of mean differences of readiness to adopt e-learning between the colleges

COLLEGE	T	DF	SIGNIFICANCE (2-TAILED)	MEAN DIFFERENCE
<i>CEES</i>	1.679	93	0.096	0.14
CAVS	- 0.177	19	0.862	-0.03
CAE	- 2.157	49	0.036	-0.30
CHS	- 0.200	21	0.843	-0.03
CHSS	0.074	75	0.941	0.01
CPBS	0.243	73	0.808	0.02
<i>UoN</i>	- 0.087	33 5	0.931	0.00

The results of the hypothesis testing indicate that there is significant difference between the six University Colleges on their level of readiness to adopt e-learning. The study concludes that the significant differences between the University Colleges were due to the difference level of distance learning exposure.

(d) A path analysis model on effect of the issues of concern on the level of readiness to adopt e-learning

A regression analysis was conducted to develop a path model indicating how readiness to adopt e-learning (the dependent variable) was related to each of the eight issues of concern (the independent variables). The model assumed that the dependent variable is linearly related to the independent variables. This is shown in Table 26.

Table 25: A regression analysis of the results of the main issues that concern lecturers in the adoption of e-learning

Independent Variables	B	Std. Error	Standardized coefficients (Beta)	T Value	Sig.	Partial Correlations	Part Correlations
Constants	0.105	.400		-0.22	0.794		
Access to ICT	0.869	0.49	0.751	17.59	0.00	0.826	0.393
Importance of DE training.	0.136	.095	0.082	1.439	0.12	0.119	0.032
ODL policy	0.024	.121	0.013	0.196	0.85	0.016	0.004
Support from the administration	0,081	.077	0.035	1.057	0.292	0.088	0.024
Existence of a Intellectual property rights	-0.012	.057	-0.015	-0.210	0.834	0.018	-0.005
Efforts in preparing e-learning materials	-0.144	.058	-0.154	-2.507	0.013	-0.205	-0.056
Lecturers' time commitment	-0.154	.061	-0.191	-2.537	0.012	-0.207	-0.057
Incentives to participate in DE	0.069	.114	0.038	0.609	0.543	0.051	0.014

The results of the regression analysis are represented in the formula below and diagrammatically in Figure.....

$$Re-L = 0.105 + 0.082(TDL) + 0.751(AICT) + 0.013(PODL) + 0.035(SDL) - 0.015(IPDL) - 0.154(EDL) - 0.191(TCDL) + 0.038(IDL).$$

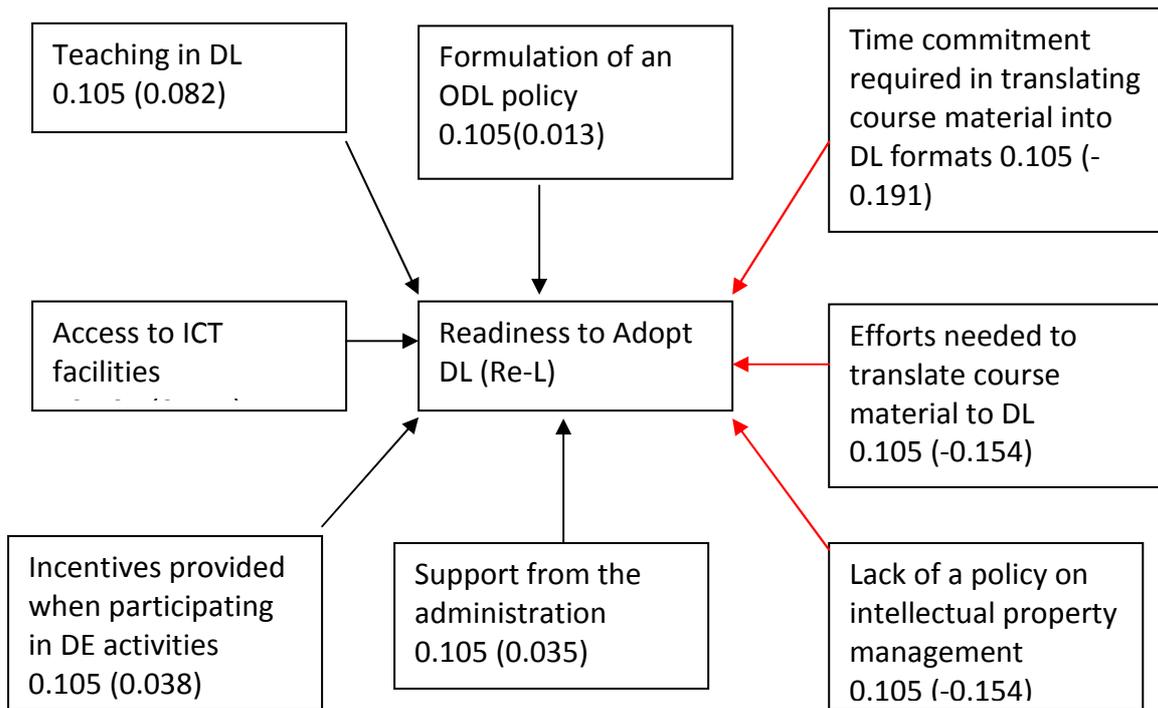


Figure 2: Readiness to adopt e-learning (R-eL) model

Table 26, shows the summary of the regression model (Readiness to adopt e-Learning Model,Re-L).The standard error of the estimate was 0.240 indicating that the model was robust in predicting how the level of readiness to adopt distance learning forecasted using the various independent variables(issues of concern). The adjusted coefficient of determination (R bar squared) had a value of 0.924. This

means that 92.4% of the change in readiness to adopt e-learning can be explained by the independent variables (issues of concern). The other unknown variables contributed a paltry 7.6% to the model. The fact that significant F is 0.000 indicates that the model is significant in predicating readiness to adopt distance learning given the independent variables (issues of concern).

Table 26: Model Summary of the regression model

Model	R	R square	Adjusted R square	Std. Error of the estimate	R square change	F-change	Df 1	Df 2	Sig. f. Change
1	0.963	0.928	0.924	0.240	0.928	231.997	8	14	0.000

Table 27 shows the ANOVA results testing whether any of the independent variables(issues of concern) had a relationship with the dependent variable(readiness to adopt e-learning).The results of the analysis indicated that the dependent variable that is Readiness to Adopt e- Learning (R-eL) was, linearly related to the independent variables(issues of concern): training in DL (TDL); knowledge of the use of ICT in DL (AICT); existence of a policy on Open and Distance Learning (PODL); support from administrators (SDL); efforts to translate course material into e-learning (Re-L); time commitment required in DL (TCDL); incentives provided by the university administrators (IDL).

Table 27: ANOVA results for the Readiness to adopt e-learning (Re-L) model

MODEL	SUM SQUARES	DF.	MEAN SQUARE	F	SIG.
Regression	107.211	8	13.401	231.99	0.000
Residual	8.318	144	0.058	7	
<i>Total</i>	<i>115.529</i>	<i>152</i>			

Discussions and conclusions

The results indicate that there are eight issues of concern that would influence the University lecturers' adoption of e-learning. Each of the eight concerns is discussed here below.

Availability of ICT facilities came out as the most critical concern for the lecturers (with a coefficient of $r=0.751$). Training in distance education method also came out strongly with a coefficient of $r= 0.082$. The implication is that lecturers place a premium value on the availability of ICT facilities a critical factor in influencing them to adopt e-learning. Therefore, issues of access to ICT facilities, training in the use of ICT and the reliability of the connectivity should be a major focus if the University was to enhance the adoption of e-learning for teaching purposes. This is also supported by the findings by N.E.A (2001); Lilard (1985), and Passmore (2000) which indicated that as lecturers get familiar with DE, and as their level of experience increases, the rate of adoption is bound to increase.

The time commitment required to translate course materials into e-learning formats as an inhibitor to the adoption of e-learning($r=-0.191$), while efforts to translate the material into e-learning format influenced readiness to adopt e-learning by $r= -0.154$.

It was reported that it took five times as much time to write a course unit in e-learning as it took to prepare teaching materials in a face-to-face course. The finding concurs with those of (Betts, 1998; Dillon and Wash, 1992; Eisenburg, 1998) who found that time commitment inhibited lecturers from participating in DE activities. They also found that the efforts the lecturers are expected to spend in translating course materials into the various DE formats demotivated them from participating. It is arguable then that institutions intending to enhance the use of e-learning and particularly the translation of teaching into e-learning formats, need to create time-off for the lecturers participating. This will provide the lecturers with adequate time to concentrate in learning the technical and pedagogical skills that goes with the e-learning initiative.

Lack of a clear intellectual property right policy, generally on DE and specifically on e-learning would contribute negatively ($r=-0.015$) to readiness to adopt e-learning. The issue of intellectual property rights for DE courses is a subject of much debate among the lecturers and university administrators. Uncertainty about the direction and practice of intellectual property rights policy can be an impediment to the adoption of e-learning. The ownership and controls of the e-learning course materials will dictate the nature of partnership between the lecturers and the University. Guernsey and Young (1997) says that there is need to define carefully the conditions of ownership of course materials and in light of new technologies. Not to have no policy will likely cause major dysfunction in the adoption of the new teaching technologies.

In the various e-learning and distance learning training workshops held by the University of Nairobi, the debate on the intellectual ownership of the material has not only been a major issue of debate but a critical concern. Some lecturers have outrightly declined to participate until they are assured of the protection of their intellectual rights. However, the study found out that readiness to adopt e-learning was positively ($r=0.013$) influenced by the fact that the University has a general policy on Open and Distance Learning. The policy has helped to guide the

implementation of distance learning and e-learning which are guided by the same policy.

The incentive provided by the university to lecturers participating in DE and e-learning (IDE) and other support given by the University administration (SDE) contributes positively ($r=0.038$) and ($r=0.035$) respectively, to readiness to adopt e-learning. Eighty one percent (81%) of the respondents indicated that the level of incentives provided by the university is dismally low. A 1997 survey conducted by the National Survey of Information Technology in Higher Education Institutions(NSITHE) found that only one fifth of the institutions recognized application of information technology on the career path of their lecturers (Houseman, 1997).In the same report, Houseman says,

“Acknowledgement of teaching in academic advancement remains a poor cousin to research... simply said, there is no incentives for faculty members to change the way they teach. When a faculty member has adequate, or better than adequate teaching evaluations and is faced with stiff competition for ever dwindling grants for research, staple of academic advancement, it is clear where time is better spent (p.17)”.

Lee (2001) indicates that when lecturers feel institutional support, their level of motivation and dedication are increased. This is supported by Bonk (1998) and, who argued that lecturers indicated that support can be demonstrated with credit towards tenure and promotion. However, the problem would occur if the university administrators determining tenure and promotion may never have taught distance education courses and therefore, are ill-equipped to properly assign merit and worth to efforts of a lecturer who has redesigned a course to be delivered by e-learning.

Other subsidiary but critical issues that need to be addressed on this matter includes whether the university can disintegrate the course material and resell it; whether the lecturers should share the materials with colleagues; whether the lecturers can

update the course materials that they even do not own; whether another colleague should use or manage the course material once the authoring lecturer has developed it. Passmore (2000) says that failure to develop intellectual property rights policies and practices emphasizing “Lecturer friendliness” is a mistake universities cannot afford to make. These issues are documented in the various distance learning and e-learning training workshops conducted at in the University of Nairobi.

The University needs to develop a clear policy that recognizes the work done by lecturers in DE and e-learning, particularly in preparing course materials. It is a known fact that a lot of research (whether desk or field) is also conducted when a lecturer develops e-learning courseware materials. This builds a case for such work to be recognized as publication. It will also enable the participating lecturers to have a chance for promotion and perhaps secure their tenure status in the University. This will go a long way in motivating other lecturers to participate in future.

The time commitment required to translate course materials into distance e-learning has the highest negative effect (a coefficient of $r = -0.191$). This is another area that a clear intervention strategy should focus on. The university should look into how it can motivate lecturers to translate the teaching materials into distance modes particularly by offering release time to those who are in the process of writing distance learning course materials. The respondents indicated that it took a lot of time to translate the teaching materials into distance modes. This also meant that a lecturer would have less time to devote to research that would give them credit for promotion. This was also the finding of Rockwell et al., (1999).

However, what is more critical and significant is the direction (either positive or negative) of influence each variable has in the model. Also important is the actual values of each of the coefficients of the independent variables. The independent variables with the negative coefficients imply that the variables actually inhibit readiness to adopt distance learning if the university does not develop and implement intervention strategies to deal with the concerns. On the other hand, the

independent variables with positive coefficients imply that the universities need to also come up with intervention strategies that should enhance the adoption rate.

There was significant differences level of readiness to adopt e-learning between the six University of Nairobi Colleges. This implies that the colleges are at different levels of readiness to adopt distance learning. The study concludes that the difference occurs because the colleges do not have the same level of exposure to distance learning. It can be concluded that their levels of awareness towards distance learning vary according to the exposure they currently have towards it.

The results agree with the Concern Based Adoption Model (CBAM) developed by Barry Sweeny (2003), a model of people development process, which indicates that there are seven stages through which teachers go through in adopting an innovation. Apparently, some colleges have gone through the seven stages (College of Education and External Studies (CEES) and College of Physical and Biological Sciences (CBPS) while the rest four are at the awareness, informational or the personal stages (orientation level) and that is why readiness to adopt distance learning in these colleges is still relatively low. Until the lecturers in those Colleges can see the benefits that will accrue from participating in e-learning their rate of adoption will remain low. This is in congruence with Omwenga's (2003) findings that states that for adoption of an innovation to be accepted, it needs to have some benefits to the individual adopting it.

The observations and conclusions derived from this analysis give credence to Moore's (1999) model, which took a marketing perspective on adoption of innovation. Moore modified the technology adoption of life-cycle and included what he referred to "cracks in the bell curve" located between each of the psychographic adopter categories. He suggested that there exists an opportunity for adoption to lose momentum at each point when a new group of adopters come on board, but particularly in the transition between early adopters and early majority. The

different colleges in the university represent different psychographic groups in the adoption of distance learning.

The implication is that the university administration needs to urgently address those eight issues if the rate of adoption is to be enhanced. This signifies the importance the lecturers attach to DE training that is expected to enable them to participate and contribute in DE activities.

Implication to policy and practice

The significant difference on the main issues of concerns between the colleges is an indication that the colleges can be seen as representing different psychographic groups. If we were to look at the e-learning adoption process from a marketing perspective, then it is imperative that a differentiated marketing approach should be adopted for each college. Hence the needs to first look at the psychographic characteristic of each college as distinct entities and develop a different e- learning adoption strategy for each of the colleges. This is what Kotler (2004), the marketing philosopher, refers to as a differentiated marketing strategy for segmenting markets. The purpose of segmenting markets is to treat each segment as unique because it is composed of individuals with generally the same characteristics.

The fact that each of the six University of Nairobi Colleges focuses on a broad discipline line, it can be argued that each of them has its own psychographic characteristics. Therefore, if the adoption of e- learning is to be enhanced, the University should develop different e-learning adoption strategies for the different colleges.

The Distance Learning and e-learning outfits should be under one administrative structure in any university. Philosophically, e-learning is one of the distance learning modes among others, which fall under the distance education discipline. Many institutions of higher learning are tempted to separate the two. This action leads to duplication of efforts and loss of synergy. There is also the resulting loss of the

benefits of economies of scale and an increase on inefficiency. The practice in the University of Nairobi is to train the lecturers on distance education methods first, then follow up with a specific training the technical aspects of translating the course material into e-learning. The general tendency that has worked in the University is to write the course materials in print version then convert into e-learning format. It has proved to be a more effective approach. The traditional distance learning (print and radio) modes use the same didactic methods like the e-learning.

At the moment it is not therefore, advisable to separate the traditional distance learning and e-learning structurally. They both use the same pedagogical and adragogical skills. In any case, distance learning and e-learning practitioners are fundamentally education professionals. This would enhance efficiency and effectiveness of the development of distance education as a discipline and function.

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APPENDICES

APPENDIX 1: LETTER ACCOMPANYING THE QUESTION

DATE...

Dear Prof/ Dr./Mr./Mrs./Miss

College

Faculty/School/Institute

Department.....

Dear Colleague,

As you are aware, the University of Nairobi would like to enhance its Student Enrollment in various Academic Programmes. To this end, the University intends to adopt Open, Distance and E-learning as an Instructional Delivery Mode. This is explicitly stated in the current University of Nairobi Strategic Plan (2005-2010).

In the attached questionnaire, I intend to investigate the attitudes Lecturers have towards the adoption of ICT in Distance Learning and the processes they will undergo as they adopt ODL and E-Learning.

The understanding of the lecturer's opinions and attitude is an essential component for the successful implementation of ODL and E-Learning in the University.

Therefore, I invite you to fill this questionnaire, which will take you less than ten minutes.

Any information given in this questionnaire will not be used for any other purpose other than for this study. The data collected from you will be treated anonymously and its privacy is guaranteed.

Please return the filled questionnaire to the Faculty / Institute / School Administrator by _____

I thank you for sparing time to fill the questionnaire.

Yours Sincerely,

CHRISTOPHER MWANGI GAKUU.

APPENDIX 2: A SAMPLE OF DEFINITIONS AND CONCEPTS ACCOMPANYING THE QUESTIONNAIRE

1. Definition of important concepts in the questionnaire.

The following important concepts, in the questionnaire, have been defined here below.

- ***ICT (information communication technologies)***: Distance learning relies heavily on ICT for course instruction delivery. The main ICT modes currently used in the University of Nairobi are: Print media (study units) and E-learning (using electronic means i.e., through the internet, CDs etc) ordinarily called computer mediated media
- ***Distance Education***: Distance education, sometimes referred to as distance learning, and is learning that occurs when the learner and the teacher are separated in time and space from each other. The teacher and learner are physically apart. The learning takes place at a time the learner wants and at a different place from the teacher.
- ***E-Learning (Electronic learning)***: A mode of distance learning through which learning is delivered by electronic means i.e., by Internet, CD-ROMS and student support systems.
- ***Regular course***- A course taught by face-to-face method in a university campus. The teacher and student are not separated in space and time. This is the traditional classroom teaching.

APPENDIX 3: THE QUESTIONNAIRE

Section I: Background Data

1. Please write, in the spaces provided the college, faculty and department you belong to.

College.....

Faculty.....

Department.....

- (2) Please indicate your gender. *(Tick one)*

Male

Female

- (3) For how long have you been teaching at the University of Nairobi?
(Tick one).

0-2 years

3-5 years

6-10 years

11-15 years

16 and above

4. Please indicate which category of Lecturer you are *(Tick one)*

Part-time

Full-time

5. Please indicate whether you are on permanent or contract terms of employment *(Tick one)*

Permanent

contract

6. Have you ever participated in any distance education activity?

(Tick one)

Yes No

7. Have you ever participated in any distance education training? (Tick one)

No

8. Have you written any distance education course material in any form, either print or E-learning? (Tick one)

Yes No

9. Would you like to be trained, by the University, on how to offer the course(s) you teach by electronic learning? (Tick one)

Yes No

10. Would you consider yourself computer literate? (Tick one)

Yes No

11. Do you have a computer in your house or home? (Tick one)

Yes

12. Do you have access to a personal computer in the office? (Tick one)

Yes No

13. Please indicate any other issue which you consider to be important as background data in the space provided.

.....
.....

SECTION 2:

<i>Statement</i>	Extremely important	Very important	Important	Not very important	Not important at all	Not applicable
------------------	----------------------------	-----------------------	------------------	---------------------------	-----------------------------	-----------------------

*Please tick the degree of importance the following elements are for you to participate in distance learning activities. **Tick only once** .*

1) The maintenance of student-teacher interactivity in a distance learning course at the same level as of a regular course.						
2) The provision of adequate time to plan, prepare and deliver distance learning course materials.						
3) The provision of adequate support from the University administration during the preparation of distance-learning materials.						
4) Training on how to use distance learning (ICT) technology to deliver courses by distance learning modes.						
5) The reduction of departmental workload to enable the lecturer to prepare distance learning course materials						
6) Training in distance teaching methods						
7) Training in what distance education is all about.						
8)The provision of adequate equipment i.e. computers and other materials while preparing distance learning course materials						

Statement	Extremely important	Very important	Not sure of its importance	Not very important	Not Important at all	Not applica
9) The provision of distance learning technical support to enable a lecturer to use ICT to deliver a course by distance learning.						
10) A clear policy on the level of Support in form of Stipends, to lecturers participating in Distance learning activities.						
11) A clear policy on promotion opportunities for lecturers participating in Distance learning activities.						
12) A clear policy on issues of intellectual property rights for distance learning course materials						
13) Moral support from colleagues while participating in distance learning activities						
14) Encouragement from colleagues while participating in distance learning activities.						

15. In the space provided here below, please indicate any other elements you would consider important for you participate in distance learning activities.

.....

.....

.....

.....

.....

SECTION 3:

For the statements listed here below, please indicate by ticking whether you strongly agree, agree, you are uncertain, disagree, strongly disagree or not applicable against each of the following statements. Tick only one choice for each statement.

<i>STATEMENT</i>	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Not applicable
1) Distance education is an effective and acceptable mode of teaching.						
2) The use of Information Communication Technology (ICT) in distance learning enhances teaching in distance learning programmes.						
3) All lecturers should be trained in the use of ICT in distance learning.						
4) There is a difference in examination performance, in the same course, between distance learners and regular learners.						
5) It does not take a lot of time for a lecturer to write a course in a distance learning mode.						
6) I would support all programmes in my department to be also offered by distance learning methods to reach more students.						

7) Though there is a separation of teacher and student in time and space in distance learning, teacher-student interaction is just as good as in a regular course.						
8) A lecturer has complete control of his/her intellectual property of the distance learning course he/she has developed.						
9) Examination cheating in distance learning is not any greater a threat to the quality of distance learning courses than in a regular course.						
10) It is easy for a lecturer to discuss with the learner, course content and quality in a distance learning course.						
11) A lecturer's time commitment in course preparation is not any greater in distance learning than in a regular course.						
12) Distance learning is appropriate for all courses in any discipline.						
13) Distance learning courses offer the same quality of learning as in regular courses.						
14) All lecturers should be trained in distance learning deliver methods.						

15) I would encourage my colleagues to participate in the use of computer-mediated teaching (E-learning) methods.						
16) I would be ready to participate in further training in the use of ICT in distance learning.						
17) The university offers promotion opportunities to lecturers who participate in distance learning activities.						
18) The university offers incentives to motivate lecturers to participate in the use of ICT in distance learning.						
19) The university offers adequate stipend to the lecturers who write distance learning course material.						
20) A clear policy on open and distance learning would facilitate the adoption of ICT in distance learning.						
21) Training in distance learning methods would facilitate the adoption of ICT.						
22) Adequate support systems, for example, the availability of facilities and equipments, are a						

major concern to me in delivering my course by distance learning.						
23) There is adequate distance learning technical support to handle ICT technology and equipment in distance learning.						
24) I am ready to receive further training in distance learning.						
25) I would support the idea of Starting a University-wide distance learning centre to coordinate distance learning activities for all disciplines.						

26. In the space provided here below, list any other element that you consider to be of significance to you.

APPENDIX 4: Instruments Reliability Analysis Tests (CRONBACH'S ALPHA)

Section 1 Items S106 TO S112

Reliability Analysis - Scale (ALPHA)

(A) *** Method 2 (covariance matrix) will be used
for this analysis *******

1. S16
2. S17
3. S18
4. S19
5. S110
6. S111
7. S112

			Mean	Std Dev	Cases
1.	S16	1.4106	.4923	789.0	
2.	S17	1.5944	.4913	789.0	
3.	S18	1.5120	.5002	789.0	
4.	S19	1.0608	.2392	789.0	
5.	S110	1.1521	.3593	789.0	
6.	S111	1.2281	.4199	789.0	
7.	S112	1.3397	.4739	789.0	

		Correlation Matrix				
		S16	S17	S18	S19	S110
S16		1.0000				
S17		.6895	1.0000			
S18		.8149	.8462	1.0000		
S19		.3049	.2102	.2485	1.0000	
S110		.5074	.3498	.4134	.6009	1.0000
S111		.6513	.4491	.5307	.4681	.7790
S112		.8592	.5924	.7001	.3549	.5905

S111	S112		
S111	1.0000		
S112	.7580	1.0000	

N of Cases = 789.0

Reliability Coefficients 7 items

Alpha = .9012 Standardized item alpha = .8984

*******Method 2 (covariance matrix) will be used for
this analysis *******

RELIABILITY ANALYSIS - SCALE (ALPHA)

	Mean	Std Dev	Cases
1. S16	1.4106	.4923	789.0
2. S17	1.5944	.4913	789.0
3. S18	1.5120	.5002	789.0
4. S19	1.0608	.2392	789.0
5. S110	1.1521	.3593	789.0
6. S111	1.2281	.4199	789.0
7. S112	1.3397	.4739	789.0

Correlation Matrix

	S16	S17	S18	S19	S110
S16	1.0000				
S17	.6895	1.0000			
S18	.8149	.8462	1.0000		
S19	.3049	.2102	.2485	1.0000	
S110	.5074	.3498	.4134	.6009	1.0000
S111	.6513	.4491	.5307	.4681	.7790

S112 .8592 .5924 .7001 .3549 .5905

	S111	S112
S111	1.0000	
S112	.7580	1.0000

N of Cases = 789.0

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	1.3283	1.0608	1.5944	.5336	1.5030	.0374

RELIABILITY ANALYSIS - SCALE (ALPHA)

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	653.5723	788	.8294		
Within People	564.2857	4734	.1192		
Between Measures	176.8238	6	29.4706	359.6152	.0000
Residual	387.4619	4728	.0820		
Nonadditivity	44.0026	1	44.0026	605.6040	.0000
Balance	343.4593	4727	.0727		
Total	1217.8580	5522	.2205		
Grand Mean	1.3283				

Intraclass Correlation Coefficients

Two-Way Mixed Effects Model (Absolute Agreement Definition)

ICC 95% Confidence Interval

Measure	Value	Lower Bound	Upper Bound	F-Value	Sig.
Single Rater	.4725	.3727	.5580	10.1208	.0000
Average of Raters*	.8625	.7999	.9007	10.1208	.0000

Degrees of freedom for F-tests are 788 and 4728. Test Value = 0.

* Assumes absence of People*Rater interaction.

Tukey estimate of power to which observations
must be raised to achieve additivity = -.9262

Hottelling's T-Squared = 901.4891 F = 149.2948 Prob. = .0000
Degrees of Freedom: Numerator = 6 Denominator = 783

Reliability Coefficients 7 items

Alpha = .9012 Standardised item alpha = .8984

Method 2 (covariance matrix) will be used for this analysis *****

Reliability Analysis - Scale (ALPHA)

		Mean	Std Dev	Cases
1.	S16	1.4106	.4923	789.0
2.	S17	1.5944	.4913	789.0
3.	S18	1.5120	.5002	789.0
4.	S19	1.0608	.2392	789.0
5.	S110	1.1521	.3593	789.0
6.	S111	1.2281	.4199	789.0
7.	S112	1.3397	.4739	789.0

Covariance Matrix

	S16	S17	S18	S19	S110
S16	.2423				
S17	.1668	.2414			
S18	.2006	.2079	.2502		
S19	.0359	.0247	.0297	.0572	
S110	.0897	.0618	.0743	.0516	.1291
S111	.1346	.0926	.1115	.0470	.1175
S112	.2004	.1379	.1660	.0402	.1006

S111 S112

S111	.1763
S112	.1508 .2246

Correlation Matrix

	S16	S17	S18	S19	S110
S16	1.0000				
S17	.6895	1.0000			
S18	.8149	.8462	1.0000		
S19	.3049	.2102	.2485	1.0000	
S110	.5074	.3498	.4134	.6009	1.0000
S111	.6513	.4491	.5307	.4681	.7790
S112	.8592	.5924	.7001	.3549	.5905

	S111	S112
S111	1.0000	
S112	.7580	1.0000

Reliability Analysis - Scale (ALPHA)

N of Cases = 789.0

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	1.3283	1.0608	1.5944	.5336	1.5030	.0374

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	.1887	.0572	.2502	.1930	4.3730	.0053

Inter-item

Correlations	Mean	Minimum	Maximum	Range	Max/Min	Variance
	.5581	.2102	.8592	.6490	4.0870	.0385

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	653.5723	788	.8294		
Within People	564.2857	4734	.1192		
Between Measures	176.8238	6	29.4706	359.6152	.0000
Residual	387.4619	4728	.0820		
Nonadditivity	44.0026	1	44.0026	605.6040	.0000
Balance	343.4593	4727	.0727		
Total	1217.8580	5522	.2205		
Grand Mean	1.3283				

Intraclass Correlation Coefficients

Two-Way Random Effects Model (Consistency Definition)

ICC 95% Confidence Interval

Measure	Value	Lower Bound	Upper Bound	F-Value	Sig.
Single Rater	.5658	.5369	.5950	10.1208	.0000
Average of Raters	.9012	.8903	.9114	10.1208	.0000

Degrees of freedom for F-tests are 788 and 4728. Test Value = 0.

Tukey estimate of power to which observations
must be raised to achieve additivity = -.9262

Hotelling's T-Squared = 901.4891 F = 149.2948 Prob. = .0000
Degrees of Freedom: Numerator = 6 Denominator = 783

Reliability Coefficients 7 items

Alpha = .9012 Standardized item alpha = .8984

Questionnaire Section 2: Items, S201 TO S214

***** *Method 2 (covariance matrix) will be used for this analysis* *****

Reliability Analysis - Scale (ALPHA)

1. S201
2. S202
3. S203
4. S204
5. S205
6. S206
7. S207
8. S208
9. S209
10. S210
11. S211
12. S212
13. S213
14. S214

	Mean	STD Dev	Cases
1. S201	3.7763	1.1022	733.0
2. S202	4.6726	.4696	733.0
3. S203	4.7271	.4895	733.0
4. S204	4.2701	1.0017	733.0
5. S205	3.9536	.8935	733.0
6. S206	4.2360	.9933	733.0
7. S207	4.0218	.9464	733.0
8. S208	4.6248	.5865	733.0
9. S209	4.5225	.6325	733.0
10. S210	4.1883	.8281	733.0
11. S211	4.2156	.8297	733.0
12. S212	4.3997	.7446	733.0

13.	S213	4.0177	.7600	733.0
14.	S214	3.7012	.9748	733.0

Correlation Matrix

	S201	S202	S203	S204	S205
S201	1.0000				
S202	.8084	1.0000			
S203	.8994	.7994	1.0000		
S204	.7984	.9288	.7912	1.0000	
S205	.9479	.7126	.7986	.7253	1.0000
S206	.7795	.8981	.7507	.9560	.7066
S207	.8900	.6924	.7795	.7157	.9398
S208	.8209	.9174	.8562	.9051	.7748
S209	.7675	.7607	.7698	.8399	.7342
S210	.7960	.6330	.6997	.6764	.8814
S211	.7937	.6372	.7167	.6909	.8630
S212	.7516	.6873	.7118	.7396	.7794
S213	.9523	.7628	.8209	.7707	.9085

Reliability Analysis - Scale (ALPHA)

Correlation Matrix

	S201	S202	S203	S204	S205
S214	.9371	.7858	.8881	.7767	.8953
	S206	S207	S208	S209	S210
S206	1.0000				

S207	.7008	1.0000			
S208	.8557	.7654	1.0000		
S209	.8537	.7477	.8605	1.0000	
S210	.6650	.9203	.7503	.7586	1.0000
S211	.6808	.9091	.7699	.7951	.9707
S212	.7459	.7940	.8130	.8698	.8592
S213	.7600	.8694	.7658	.7423	.7935
S214	.7516	.8822	.8192	.7542	.7822

S211 S212 S213 S214

S211	1.0000			
S212	.8841	1.0000		
S213	.7912	.7310	1.0000	
S214	.7824	.7407	.8757	1.0000

N of Cases = 733.0

Reliability Coefficients 14 items

Alpha = .9777 Standardized item alpha = .9825

******* Method 2 (covariance matrix) will be used for this analysis *******

Reliability Analysis - Scale (ALPHA)

Mean Std Dev Cases

1.	S201	3.7763	1.1022	733.0
2.	S202	4.6726	.4696	733.0
3.	S203	4.7271	.4895	733.0
4.	S204	4.2701	1.0017	733.0
5.	S205	3.9536	.8935	733.0
6.	S206	4.2360	.9933	733.0
7.	S207	4.0218	.9464	733.0
8.	S208	4.6248	.5865	733.0
9.	S209	4.5225	.6325	733.0
10.	S210	4.1883	.8281	733.0
11.	S211	4.2156	.8297	733.0
12.	S212	4.3997	.7446	733.0
13.	S213	4.0177	.7600	733.0
14.	S214	3.7012	.9748	733.0

Correlation Matrix

	S201	S202	S203	S204	S205
S201	1.0000				
S202	.8084	1.0000			
S203	.8994	.7994	1.0000		
S204	.7984	.9288	.7912	1.0000	
S205	.9479	.7126	.7986	.7253	1.0000
S206	.7795	.8981	.7507	.9560	.7066
S207	.8900	.6924	.7795	.7157	.9398
S208	.8209	.9174	.8562	.9051	.7748
S209	.7675	.7607	.7698	.8399	.7342
S210	.7960	.6330	.6997	.6764	.8814
S211	.7937	.6372	.7167	.6909	.8630
S212	.7516	.6873	.7118	.7396	.7794
S213	.9523	.7628	.8209	.7707	.9085
S214	.9371	.7858	.8881	.7767	.8953

S206 S207 S208 S209 S210

S206	1.0000				
S207	.7008	1.0000			
S208	.8557	.7654	1.0000		
S209	.8537	.7477	.8605	1.0000	
S210	.6650	.9203	.7503	.7586	1.0000
S211	.6808	.9091	.7699	.7951	.9707
S212	.7459	.7940	.8130	.8698	.8592
S213	.7600	.8694	.7658	.7423	.7935
S214	.7516	.8822	.8192	.7542	.7822

Reliability Analysis - Scale (alpha)

Correlation Matrix

	S211	S212	S213	S214
S211	1.0000			
S212	.8841	1.0000		
S213	.7912	.7310	1.0000	
S214	.7824	.7407	.8757	1.0000

N of Cases = 733.0

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
---------------------	------------	----	-------------	---	-------

Between People	5425.6728	732	7.4121		
Within People	2573.6429	9529	.2701		
Between Measures	1001.5148	13	77.0396	466.3162	.0000
Residual	1572.1280	9516	.1652		
Nonadditivity	270.7685	1	270.7685	1979.7469	.0000
Balance	1301.3595	9515	.1368		
Total	7999.3156	10261	.7796		
Grand Mean	4.2377				

Intraclass Correlation Coefficients

Two-way Random Effects Model (Absolute Agreement Definition)

Measure	ICC		95% Confidence Interval		F-Value	Sig.
	Value	Lower Bound	Upper Bound			
Single Rater	.6571	.5770	.7209		44.8651	.0000
Average of Raters	.9641	.9499	.9732		44.8651	.0000

Degrees of freedom for F-tests are 732 and 9516. Test Value = 0.

Tukey estimate of power to which observations
must be raised to achieve additivity = 4.0303

Reliability Coefficients 14 items

Alpha = .9777 Standardized item alpha = .9825

Questionnaire Section 3: Sc301 to Sc325

******* Method 2 (covariance matrix) will be used for this analysis *******

RELIABILITY ANALYSIS - SCALE (ALPHA)

1. S301

2. S302
3. S303
4. S304
5. S305
6. S306
7. S307
8. S308
9. S309
10. S310
11. S311
12. S312
13. S313
14. S314
15. S315
16. S316
17. S317
18. S318
19. S319
20. S320
21. S321
22. S322
23. S323
24. S324
25. S325

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	S301	3.9615	.6929	597.0
2.	S302	4.2797	.7331	597.0
3.	S303	4.0871	.9318	597.0
4.	S304	2.9782	.8261	597.0
5.	S305	1.7253	.6225	597.0
6.	S306	3.2915	1.2473	597.0
7.	S307	2.6683	1.0086	597.0
8.	S308	2.3836	.9022	597.0
9.	S309	2.6281	.9478	597.0
10.	S310	2.9280	.9898	597.0
11.	S311	2.2261	.8499	597.0
12.	S312	2.1139	.9271	597.0
13.	S313	2.8191	1.0220	597.0
14.	S314	3.8358	1.0960	597.0
15.	S315	4.2546	.7478	597.0
16.	S316	4.3551	.7950	597.0
17.	S317	3.0017	1.0830	597.0
18.	S318	3.0737	1.2253	597.0
19.	S319	3.1491	1.2218	597.0
20.	S320	4.2797	.7098	597.0
21.	S321	4.2379	.7533	597.0
22.	S322	4.1960	1.0713	597.0
23.	S323	2.7253	1.1359	597.0
24.	S324	4.2714	.9233	597.0
25.	S325	4.1792	1.0664	597.0
N of Cases =		597.0		

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	11280.3933	596	18.9268		
Within People	12120.8800	14328	8460		
Between Measures	9749.6150	24	406.2340	2450.4940	.0000
Residual	2371.2650	14304	.1658		

Nonadditivity	9.6992	1	9.6992	58.7442	.0000
Balance	2361.5657	14303	.1651		
Total	23401.2733	14924	1.5680		
Grand Mean	3.3460				

Intraclass Correlation Coefficients

Two-way Random Effects Model (Absolute Agreement Definition)

ICC 95% Confidence Interval

Measure	Value	Lower Bound	Upper Bound	F-Value	Sig.
---------	-------	-------------	-------------	---------	------

Single Rater	.4701	.3439	.5758	114.1709	.0000
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Average of Raters	.9569	.9288	.9715	114.1709	.0000
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Degrees of freedom for F-tests are 596 and 14304. Test Value = 0.

Tukey estimate of power to which observations

must be raised to achieve additivity = 1.1214

Hotelling's T-Squared = 36728.0939 F = 1471.2806 Prob. = .0000

Degrees of Freedom: Numerator = 24 Denominator = 573

Reliability Analysis - Scale (ALPHA)

Reliability Coefficients 25 items

Alpha = .9912 Standardized item alpha = .9924

******* Method 2 (covariance matrix) will be used for this analysis *******

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Reliability Analysis - Scale (ALPHA)

1. S301
2. S302
3. S303
4. S304

5. S305
6. S306
7. S307
8. S308
9. S309
10. S310
11. S311
12. S312
13. S313
14. S314
15. S315
16. S316
17. S317
18. S318
19. S319
20. S320
21. S321
22. S322
23. S323
24. S324
25. S325

N of Cases = 597.0

Statistics for	Mean	Variance	Std Dev	Variables
Scale	83.6499	473.1709	21.7525	25

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	11280.3933	596	18.9268		
Within People	12120.8800	14328	.8460		
Between Measures	9749.6150	24	406.2340	2450.4940	.0000
Residual	2371.2650	14304	.1658		
Nonadditivity	9.6992	1	9.6992	58.7442	.0000
Balance	2361.5657	14303	.1651		

Total	23401.2733	14924	1.5680
Grand Mean	3.3460		

Intraclass Correlation Coefficients

Two-Way Random Effects Model (Consistency Definition)

	ICC	95% Confidence Interval		F-Value	Sig.
Measure	Value	Lower Bound	Upper Bound		
Single Rater	.8191	.8016	.8362	114.1709	.0000
Average of Raters	.9912	.9902	.9922	114.1709	.0000

Degrees of freedom for F-tests are 596 and 14304. Test Value = 0.

Tukey estimate of power to which observations
must be raised to achieve additivity = 1.1214

Hotelling's T-Squared = 36728.0939 F = 1471.2806 Prob. = .0000
Degrees of Freedom: Numerator = 24 Denominator = 573

Reliability Analysis - Scale (ALPHA)

Reliability Coefficients 25 items

Alpha = .9912 Standardized item alpha = .9924

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS - SCALE (ALPHA)

1. S301
2. S302
3. S303
4. S304
5. S305
6. S306

7. S307
8. S308
9. S309
10. S310
11. S311
12. S312
13. S313
14. S314
15. S315
16. S316
17. S317
18. S318
19. S319
20. S320
21. S321
22. S322
23. S323
24. S324
25. S325

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	S301	3.9615	.6929	597.0
2.	S302	4.2797	.7331	597.0
3.	S303	4.0871	.9318	597.0
4.	S304	2.9782	.8261	597.0
5.	S305	1.7253	.6225	597.0
6.	S306	3.2915	1.2473	597.0
7.	S307	2.6683	1.0086	597.0
8.	S308	2.3836	.9022	597.0
9.	S309	2.6281	.9478	597.0
10.	S310	2.9280	.9898	597.0
11.	S311	2.2261	.8499	597.0
12.	S312	2.1139	.9271	597.0
13.	S313	2.8191	1.0220	597.0
14.	S314	3.8358	1.0960	597.0
15.	S315	4.2546	.7478	597.0

16.	S316	4.3551	.7950	597.0
17.	S317	3.0017	1.0830	597.0
18.	S318	3.0737	1.2253	597.0
19.	S319	3.1491	1.2218	597.0
20.	S320	4.2797	.7098	597.0
21.	S321	4.2379	.7533	597.0
22.	S322	4.1960	1.0713	597.0
23.	S323	2.7253	1.1359	597.0
24.	S324	4.2714	.9233	597.0
25.	S325	4.1792	1.0664	597.0

Reliability Coefficients

N of Cases = 597.0 N of Items = 25 Alpha = .9912

APPENDIX 5: Questionnaire Coding Frame

Questionnaire Section 1: Code= Sc1

CODE FOR SPECIFIC ITEMS 1-14

ITEM	ITEM CODES	RESPONSE CODE				
1	S101	College Code				
2	S102	Male=01	Female = 02			
3	S103	0-2 Years=1	3-5 Years =2	6-10 years = 3	11-15years=4	16 & Above=5
4	S104	Part-Time=1	Full-Time = 2			
5	S105	Parmanent=1	Contract = 2			
6	S106	YES = 1	NO = 2			
7	S107	YES = 1	NO = 2			
8	S108	YES = 1	NO = 2			
9	S109	YES = 1	NO = 2			
10	S110	YES = 1	NO = 2			
11	S111	YES = 1	NO = 2			
12	S112	YES = 1	NO = 2			
13	S113	YES = 1	NO = 2			

QUESTIONNAIRE SECTION2: CODE=SC2

- CODE FOR SPECIFIC ITEMS1-14**

ITEM	ITEM CODE	RESPONSE CODE				
1	S201	EXTREMELY IMPORTANT = 5	VERY IMPORTANT = 4	NOT SURE OF ITS IMPORTANCE = 3	NOT VERY IMPORTANT=2	NOT IMPORTANT AT ALL =1
2	S202	<i>SAME TO ITEM 14</i>	<i>SAME TO ITEM 14</i>	<i>SAME TO ITEM 14</i>	<i>SAME TO ITEM 14</i>	<i>SAME TO ITEM 14</i>
3	S203					
4	S204					
5	S205					
6	S206					
7	S207					
8	S208					
9	S209					
10	S210					
11	S211					
12	S212					
13	S213					
14	S214					
15	S215					

QUESTIONNAIRE SECTION 3: CODE= S3

- **CODE FOR SPECIFIC ITEMS S301-S325**

ITEM	ITEM CODE	RESPONSE CODE				
1	S301	EXTREMELY IMPORTANT=5	VERY IMPORTANT=4	NOT SURE OF ITS IMPORTANCE=3	NOT VERY IMPORTANT=2	NOT IMPORTANT AT ALL=1
2	S302	<i>SAME TO ITEM 25</i>	<i>SAME TO ITEM 25</i>	<i>SAME TO ITEM 25</i>	<i>SAME TO ITEM 25</i>	<i>SAME TO ITEM 25</i>
3	S303					
4	S304					
5	S305					
6	S306					
7	S307					
8	S308					
9	S309					
10	S310					
11	S311					
12	S312					
13	S313					
14	S314					
15	S315					
16	S316					
17	S317					
18	S318					
19	S319					
20	S320					
21	S321					
22	S322					
23	S323					
24	S324					

25	S325					
26	S326					

APPENDIX 6 : READINESS TO ADOPT DE MODEL SPSS EXTRACTIONS

MODEL SUMMARY

Model Summary

	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin Watson
Model					R Square Change	F Change	df1	df2	Sig. F Change	
1	.963	.928	.924	.240	.928	231.997	8	144	.000	.659

(a) Predictors: (Constant), UONIS10, S316, UONIS6, UONIS4, UONIS8, UONIS7, UONIS5, UONIS9

(b) Dependent Variable: S324.

ANOVA ANALYSIS

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	107.211	8	13.401	231.997	.000
	Residual	8.318	144	.058		
	Total	115.529	152			

(a) Predictors: (Constant), UONIS10, S316, UONIS6, UONIS4, UONIS8,
UONIS7, UONIS5, UONIS9

(b) Dependent Variable: S324

READINESS TO ADOPT DISTANCE EDUCATION (RDE) MODEL COEFFICIENT

ANALYSIS

-

- **Coefficients**

Model		Unstandard Coefficients	Std. Error	Standardized Coefficients	t	Sig.	95% Confide nce Interval for B	Lower Bound	Upper Bound	Correl ons	Zero- order	Partial	Part	Toleranc e	Collinea rity Statistic s	VIF
1	(Constant)	-.105	.400		-.262	.794	-.894	.685								
	S316	.869	.049	.751	17.569	.000	.771	.966	.954	.826	.393	.274	3.6			
	UONIS4	.136	.095	.082	1.439	.152	-.051	.324	-.572	.119	.032	.153	6.5			
	UONIS5	.024	.121	.013	.196	.845	-.216	.263	-.511	.016	.004	.109	9.3			
	UONIS6	.081	.077	.035	1.057	.292	-.071	.233	-.296	.088	.024	.454	2.2			
	UONIS7	-.012	.057	-.015	-.210	.834	-.126	.101	-.746	-.018	-.005	.098	10.9			
	UONIS8	-.144	.058	-.154	-2.507	.013	-.258	-.031	-.804	-.205	-.056	.132	7.5			
	UONIS9	-.154	.061	-.191	-2.537	.012	-.274	-.034	-.829	-.207	-.057	.088	11.5			
	UONIS10	.069	.114	.038	.609	.543	-.156	.295	-.470	.051	.014	.130	7.7			

(a) Dependent Variable: S324

READINESS TO ADOPT DISTANCE EDUCATION (RDE) MODEL COEFFICIENT

CORRELATIONS

Coefficient Correlations

Model			UONIS10	S316	UONIS6	UONIS4	UONIS8	UONIS7	UONIS5	UONI	
1	Correlations	UONIS10	1.000	-.039	-.115	-.061	-.027	-.234	-.719		
		S316	-.039	1.000	-.079	-.117	.281	-.060	-.020		
		UONIS6	-.115	-.079	1.000	-.210	-.175	-.291	.001		
		UONIS4	-.061	-.117	-.210	1.000	.206	.050	-.355		
		UONIS8	-.027	.281	-.175	.206	1.000	-.536	-.002		
		UONIS7	-.234	-.060	-.291	.050	-.536	1.000	.065		
		UONIS5	-.719	-.020	.001	-.355	-.002	.065	1.000		
		UONIS9	.173	.443	.332	-.558	-.198	-.374	-.102	1	
		Covariances	UONIS10	.013	.000	-.001	-.001	.000	-.002	-.010	
			S316	.000	.002	.000	-.001	.001	.000	.000	
UONIS6	-.001		.000	.006	-.002	-.001	-.001	4.961E-06			
UONIS4	-.001		-.001	-.002	.009	.001	.000	-.004			
UONIS8	.000		.001	-.001	.001	.003	-.002	-1.090E-05			
UONIS7	-.002		.000	-.001	.000	-.002	.003	.000			
UONIS5	-.010		.000	4.961E-06	-.004	-1.090E-05	.000	.015			
UONIS9	.001		.001	.002	-.003	-.001	-.001	-.001			

(a). Dependent Variable: S324

RDE MODEL RESIDUAL STATISTICS

Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.77	5.16	4.43	.840	15
Std. Predicted Value	-4.363	.868	.000	1.000	15
Standard Error of Predicted Value	.028	.121	.055	.020	15
Adjusted Predicted Value	.69	5.18	4.41	.852	14
Residual	-1.52	.48	.00	.234	15
Std. Residual	-6.313	2.008	.000	.973	15
Stud. Residual	-6.560	2.087	.000	1.026	14
Deleted Residual	-1.64	.52	.00	.255	14
Stud. Deleted Residual	-7.807	2.112	-.013	1.101	14
Mahal. Distance	1.035	37.590	7.948	6.841	15
Cook's Distance	.000	.381	.008	.035	14
Centered Leverage Value	.007	.247	.052	.045	15

(a) Dependent Variable: S324