



E-LEARNING READINESS ASSESSMENT MODEL IN KENYAS' HIGHER EDUCATION INSTITUTIONS: A CASE STUDY OF UNIVERSITY OF NAIROBI

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ABSTRACT

In order to benefit from eLearning, institutions should conduct considerable up-front analysis to assess their eLearning readiness. Studies show that there are numerous models that have been developed, however, they are used in developed counties whose eReadiness is high hence not applicable in developing countries. This paper includes a model that has been developed to assess eLearning readiness of lecturers from institutions of higher learning in Kenya. It investigates the eLearning readiness of lecturers from the University of Nairobi, and the objective was to carry out a diagnostic eLearning readiness assessment of lecturers and determine the factors that influence eLearning readiness. The questionnaires were administered to the lecturers. The results obtained indicate that an overwhelming majority are ready. In addition, the study results show that there is no significant relationship between age, gender, and level of education on eLearning readiness. The study results indicate that technological readiness is the most important factor followed by culture readiness. Most of the lecturers felt that more training on content development need to be conducted. In conclusion, the lecturers are ready for eLearning but the ICT infrastructure is not adequate enough to support the use of eLearning.

Keywords: *eLearning, eReadiness, eMaturity, Institutions Of Higher Learning, Model.*

1. INTRODUCTION

Since 1990s it has become increasingly clear that we are living in an information age, our societies are becoming knowledge-based. The biggest growth in the internet, and the area that will prove to be one of the biggest agents of change, will be in eLearning (Rosenberg, 2001). The tremendous advancement in technological developments in computer applications has culminated in a new concept of teaching, learning and research. Higher Education Institutions (HEIs) have realized the need to be relevant and competitive; therefore, they have invested heavily in information and communication technology (ICT). Advantages such as asynchronous training, training at individual pace, just-in-time training, and cost-effectiveness lure organizations to eLearning (Powell 2000).

Kenyan Universities have implemented eLearning to reach out to their targeted students. This has been made possible by the availability of networks and connection to the internet in the institutions. Kariuki (2006) states that if website analysis is something to go by it is justifiable to conclude that in Kenya, institutions are a distance way from reaping the benefits from eLearning. Gachau (2003) and Omwenga (2003), research on factors that determine eLearning, and identified the following variables: computer and internet availability, computer literacy, motivation of users, management support, and eLearning culture in the institutions. Later (Muganda, 2006) study on eLearning implementation at University of Nairobi found out that factors that determine eLearning readiness were; provision of more computers and internet availability, training of lectures on eLearning. Mogikoyo (2009) research on video teleconferencing (VTC) adoption in higher education in Kenya, gave insight to academic



institutions on the advantages of VTC impact on education. Institutions should therefore carry out research on the areas that have been identified by researches.

Readiness assessment allows institutions to design systems and put in place appropriate measures that are required for its success. The assessment should include learners ability to adapt to technological changes, collaborative training and synchronous as well as asynchronous self-paced training.

As eLearning gains popularity in developing countries whose eMaturity is considered low, users readiness assessment is also becoming critical. The assessment should look at the variables that are crucial, and from the existing research, there are some factors that are common e.g. technical readiness, content readiness, human resources readiness and financial readiness. In addition, there are demographic factors such as age, gender and education level (Aydin and Tasci, 2005) that are considered as important factors in eLearning. Furthermore, it is important to understand that readiness is not a onetime event rather it should be a continuous process of assessment.

Ngare (2007) states that Kenya is trying to catch up with other countries in the use of the digital technology to boost learning ,therefore, as the demand for eLearning increases it has become important to assess the readiness of institutions and design a model that will capture the most relevant parameters that can assess readiness of status of learning institutions. Gakuu (2007) developed a path analysis model and concluded that there is no significance difference of attitude towards the adaption of distance and eLearning and the level of readiness adaptation varies according to the discipline within University of Nairobi.

1.1. University Of Nairobi Background

University of Nairobi has six (6) colleges that are dispersed; each offering diverse courses majority of which are conducted by face-to-face method. Each of the colleges has a computing infrastructure consisting of fiber network and wireless network connections that enable the institution to carry out its obligations effectively and efficiently. It has also significantly fostered the development of online communication between

staff, students and other stakeholders. The University has embraced the use of ICT in learning, teaching, research and in providing administrative services. It realized the strategic importance of ICT, and created a fully-fledged ICT function, the ICT Centre (ICTC) in 2002. The Center's main objective is to maximize students and staff productivity and service delivery, enhance teaching and learning, and improve quality of research through ICT (UoN Strategic Plan 2008- 2013).

The University has collaborated with African Virtual University (AVU) to set up open distance and eLearning (ODEL) centre at College of Education and External studies (CEES) . This has propelled the University to the information age. The eLearning Centre at the UoN has been involved in developing e-content and training staff on e-content development. Currently, over 400 academic staff have been trained on e-content development.

The eLearning at the University of Nairobi has the following five modes: support mode which is aimed at increasing accuracy, and enhancing presentation of work. Exploration and control mode this enables students to explore, examine and experiment with the build in situations. The tutorial mode this is where the information is presented at an appropriate level and pace giving learners feedback on progress. The resource mode is used to access information and other resources. Finally the link Mode for communication between individual students and instructors like e-mail, net meetings and video conferencing (Omwenga, 2003).As an institution that already has eLearning system in place, it is imperative that the management is cognizant of the level of eLearning readiness of the institution. ELearning readiness assessment is therefore necessary for any institution that wants to gain competitive edge.

According to Global Information Technology (GIT) report 2012, on Living in a Hyper-connected world, Kenya is reported to suffer from low levels of ICT readiness due to under development of ICT infrastructure and the lack of a widespread skill base that would enable society to make an optimal use of technology. Gachau(2003) ,Omwenga (2003) and Muganda (2006) identified the factors that determine eLearning readiness, Sang (2003) revealed that there is no relationship between the attitude, perception and exposure of the lecturers and the institution readiness to offer eLearning. Gakuu (2007), developed a path analysis model



and concluded that there is no significance difference of attitude towards the adaption of distance and eLearning . This study integrated the above findings by developing eLearning assessment model and assesses the eLearning readiness of University of Nairobi lectures by assessing their cultural readiness, technology readiness and content readiness.

2. LITERATURE REVIEW

2.1 Learning concept

Learning methods are referred to as ways through which instructors deliver instructions and learners access these instructions. Several learning methods have been described in literature, these are; traditional learning, distance learning, eLearning, blended learning, mobile learning, and personalized learning. Learning is defined as the acquisition, retention and application of knowledge, skills, attitude and ways of thinking (Kolensik,1970).Teaching approaches and pedagogy used in Higher Education Institutions (HEIs) are changing from the traditional method to a learner centered approach of teaching where the learner controls his or her learning (Reinhart, 2008). Learning environments of HEIs in developed countries are often supported by ICTs and continue to evolve to include more active learning through student participation. In developing countries like Kenya, they are still facing a lot of challenges in regard to use of ICT in learning. Meoli & Waema (2009), indicated that there is low usage of ICTs for teaching and most HEIs often use ICTs for operational functions rather than instruction.

2.2 ELearning

ELearning is where the knowledge is delivered via electronic media including; computers, internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, CD-ROM (Pollard & Hillage, 2001). ELearning is carried out in different ways, which is why writers speak about different models of eLearning. However, models of eLearning do not differ only according to the method of implementation, efficiency and effectiveness of education, but also on the economic effects.

ELearning is considered as the appropriate tool for just-in-time accessible and ubiquitous

approach to providing learning at a lower cost in developing countries. The way in which eLearning system and traditional system of education is conducted are quite different. The interaction is not confined to a regular day time activities and can take place in a variety of locations including homes, schools, libraries internet cafes and open fields. Therefore, a modern day classroom is now seen as a virtual learning environment in which learning is no longer bounded by space, time and geographical location (Franklin and Peat, 2001; Brown, 2004; Liaw, 2008). The integration of modern ICT technology signifies a paradigm shift in teaching, and it's 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 technical support (Rogers& Donna, 2003).

2.3 ELearning readiness

Borotis and Poulymenakou (2004) defined eLearning readiness as “the mental or physical preparedness of an organization for some eLearning experience or action”. In other research, eLearning readiness was defined as “a nation’s ability to generate, disseminate and use digital information among its citizens to the betterment of the country’s economic activity” (EIU & IBM, 2003). Conceptualizing eLearning readiness is crucial as it demarcate the parameter of its applicability in a study and to provide a clear framework for a research study. This is because some scholars have rejected some definitions of eLearning out-rightly, while some have been accepted. Thus, before embarking on eLearning implementation, it is crucial to decide on a general conception of the term and model of eLearning to create a strong technology plans for lecturers, because barriers to the effective use of technology involve lecturers’ attitudes and resistance to change, concerns about funding, training deficiencies and inadequate access. In addition, the need for administrative support, adequate funding, time and training has been identified as essential to facilitate change (Fabry & Higgs, 1997). The use of Information and Communication Technologies (ICTs) has been identified as a vehicle that might elevate education in Kenya to better meet the goal of educated and skilled labor. Therefore, there is need for institutions to provide leadership in educational technology to produce holistic students ready to work in this digital era. For many years, various researchers have tried to document the power of



technology, (Ross and Schulz, 1999; Hontron, 2000; Judith and Rosenberg, 2001; Dabbagh and Bannan-Ritland, 2005; McCurdy and Schroeder, 2006). They have found that institutions that have implemented use of technology in learning are witnessing a number of benefits such as cost savings, increased flexibility productivity (Hall, 2001) and maintained competitive (Goldstein and Ford, 2001.)

Lecturers have been identified to be a major factor influencing the success of eLearning. The lecturers need to be well equipped with ICT skills and trained on how to make the course materials available online and take advantage of new teaching methods, this is important as “An ineffective lecturer can waste the time of 30 or 40 students. But bad teaching online can touch thousands and ‘We can create mass damage quickly’.” (EIU and IBM, 2003). Lectures training and development is needed to keep up with today’s rapidly changing technology. Skills requiring improvement center on the efficient and effective use of technology and application of a collaborative, problem based asynchronous learning (Crumpacker, 2001). Heinrich (1995), Fullan (1994) and Wang (2002) support the view that the way teachers teach is a product of their own schooling, training and experiences. Lecturers therefore need to be provided with appropriate pedagogical training on how to integrate ICT into their program. Collectively, lectures motivation, skills and pedagogical approach are intricate issues that form an essential part of a quality eLearning.

Elearning readiness assessment is essential for institutions that want to implement eLearning and those that have the system in place. In sum, eLearning readiness assessment provides key information to supply solutions which can cater to the specific needs of each learning group. Institutional management support, ICT infrastructure, web content availability, alongside with skilled human resources are crucial in determining readiness for eLearning. For that, several organizations, academia and researchers have suggested different assessment models. However, Rogers (2003) points out that every organization has its own norms that can be effective in diffusing an innovation in its system. From this perspective, it can be said that these instruments may not work for organizations of other countries. Higher Education Institutions in developing countries have recently shown advancement in use of ICT as a result, most of the terms and strategies

for implementation that are widely used in western companies have not been adopted as yet.

3. E-LEARNING READINESS ASSESSMENT MODELS

Literature on organizational readiness for eLearning provides managers with questions, guidelines, strategies, models and instruments for assessing the readiness of their companies. E-readiness can be assessed by evaluating an individual’s technical experience and competency to interact with computers. This competency should be supported by the individual’s capability to direct his or her own training through appropriate knowledge, skills, attitudes and habits. As a result, various researchers have developed a significant number of eLearning readiness models. Appendix 2 shows a summary of previous research in evaluating eLearning readiness in different institutions The models looked at Governments initiatives, Partnership between eLearning producers and consumers (Pfaus,2004);Vendor readiness (Haney,2002); Self directed learning (Guglielmino and Guglielmino, 2003). The models discussed below have factors that have been used in institutions of learning and therefore look at factors that are useful in carrying out this research.

3.1.1 Chapnick (2000) E-Learning Readiness Model

Chapnick (2000) designed a model which can be used to measure eLearning readiness of institutions. It looked at; psychological, sociological, environmental, human resources (HR), financial readiness, technological skill (aptitude), equipment, content readiness. The proposed model grouped different factors into eight categories, which are summarized in the Table1. This model has been used by a variety of institutions in a number of countries to assess their own eLearning readiness.

3.1.2 Borotis and Poulymenakou (2004) ELearning Readiness Model

Borotis and Poulymenakou (2004) proposed a model with seven components, based on previous research and his own experience, to counter the lack of congruency in predefined components of e-learning readiness models. He looked at the following; Business, technology,



Content, Training process, Culture, Human resources and financial.

3.1.3 Psycharis (2005) E-Learning Readiness Model

From the available research, there are a number of variables that keep on recurring and Psycharis (2005) suggests three large categories, resources, education and environment, each of which contains unique criteria. In the category resources, technological readiness, economic readiness and human resources readiness are considered as the main factors. Education means the readiness of content and the educational readiness. Environment includes entrepreneurial readiness, leadership readiness and readiness of culture.

Psycharis (2005) proposed a new model built from five e-learning models developed by Rosenberg (2000), Chapnick (2000), Broadbent (2001), Workknowledge (2003) and Borotis and Poulymenakou (2004). It integrated all the five models grouping eight eLearning readiness factors into three categories as shown in Figure 3.

3.1.4 Aydain and Tasci (Aydin, 2005) E-Learning Readiness Model

Aydain and Tasci (Aydin, 2005) developed a model with seven (7) categories: human resources, learning management system, learners, content, IT, finance and vendor. They argue that, as most companies purchase eLearning solutions from outside resources, the existence of sufficient numbers of e-learning vendors and/or consultants could be considered another predictor of whether or not e-learning would be adopted rapidly. The model therefore, asks managers about the average educational level of their employees, whether their company has skilled human resources or personnel or training department specialists, a champion (leader) and whether there are enough e-learning vendors and external eLearning experts.

3.2 Knowledge Gap

The continuing growth in the use of ICT, particularly the Internet, has promoted the ability to adopt eLearning. The internet is an effective tool providing accessible information to diverse users from different places. It's also a vital means for the

survival and growth of institutions in a competitive global market. It enables institutions to build their image and promote it internationally. Chan and Ngami (2007) noted that the Internet has revealed a new dimension of distance learning by providing a new mechanism to deliver training involving strategic tools to enhance training delivery and to improve institutions' performance in optimizing efficiencies.

Expansion of eLearning has been intensified by considerable cost reduction of the technologies, increased processing power, extended network and communications infrastructure, and the utilization of the Internet and World Wide Web (WWW) (Chan and Ngai, 2007; Sharma and Mishra, 2007; Welsh et al., 2003; White, 2007). Condie and Livingston (2007) stated that people are not only required to have knowledge and skills in handling new technologies but also to learn through computers and the available networks via the Internet. Moreover, Bell, Martin, and Clarke (2004) noted that the vital role of organizational and intellectual capital also affects eLearning adoption in corporate and organizations worldwide.

Despite the wide use of information and communication technology in university teaching, research on eLearning adoption suggests that it has not reached its full potential (Zemsky et al., 2004). This therefore shows that a lot more need to be done so as to fully exploit the use of ICT in teaching learning. As noted by Psycharis (2005), the successful implementation of eLearning by an educational system should fulfill certain criteria, such as the acquisition of adequate technological infrastructure and adequate educational content of persons with the university skills and a developed culture which encourages learning and sharing of knowledge. These factors can affect learners' readiness and adoption of eLearning. Adoption of eLearning by students in an educational system is a function of their readiness for it, especially if they are satisfied with the platform. This will in turn, determine the extent to which eLearning reaches its full potential.

Therefore, to successfully implement eLearning it is crucial to assess the institutions readiness for it. Haney (2002) noted that before initiating, implementing, and using eLearning, it is important to assess institutions readiness for the systems by recognizing it's goals, needs, motivators, resources and constraints. The assessment should include all stakeholders. Bates (1992) also contends that technological decisions



need to be preceded by policy and educational decisions. An eLearning readiness assessment helps institutions to design eLearning strategies comprehensively and to implement their ICT goals effectively (Kaur and Abas, 2004). Learners must also be “e-ready” so that a coherent achievable strategy, tailored to meet their needs, might be implemented (infodev, 2001). In sum, eLearning readiness assessment provides key information to institutions to supply solutions which can cater for the specific needs of each learning group (McConnell International, 2000).

Despite of the usefulness of models discussed, they have major shortcomings; hence need to design a model in this research. Most of them were developed for use business organizations, universities or higher education institutions (for example, Borotis and Poulymenakou, 2004; Chapnick, 2000; Hoban, Lawson, Mazmanian, Best and Seibel, 2005; Rosenberg, 2000). In addition, they were designed for use in developed countries whose e-maturity is high. Every system, (organization, culture, country and individual) has its own norms, for that measurement instruments that work in one country might not work for organizations in other countries (Rogers, 2003).

3.3 Conceptual Model for eLearning Readiness Assessment

Based on the review of eLearning readiness models in chapter 2, the model illustrated in Figure 3 was developed to guide the study. The four main parameters that are used to develop the hybrid model are; technological readiness (Chapnick, 2000); (Aydin and Tasci, 2005), culture readiness (Borotis and Poulymenakou, 2004; Kaur and Abas 2004), content readiness (Borotis and Poulymenakou, 2004; Chapnick, 2000; Psycharis, 2005), and demographics factors (Aydin and Tasci, 2005). In addition, each of these factors has sets of sub-factors each of which will be taken into consideration during the assessment period. Integrating these concepts resulted in the model shown in Figure 1.

3.3.1 Technological Readiness

Technology is one of the factors that can be effectively used to adapt a technological innovation in an organization (Rogers, 2003). Without appropriate equipment and easy access, it is quite hard, if not impossible, to implement any eLearning (Oliver & Towers, 2000).

The eLearning users must also have the technical skills to be able to use the system. In this research project, the technological readiness has the following sub-factors; resources, attitude and skills. The sub-factors will assess the availability of computers and internet to the lectures, ability of the lectures to use the computers and the internet, and their attitude towards eLearning.

3.3.2 Culture Readiness

Institutions need to focus on what really matter; creating an environment that truly values learning, which for many may involve a substantial change (Ettinger, Holton, 2006). Therefore, if institutions want eLearning to be successful, they must be prepared both culturally and environmentally. For that, this parameter will examine the perception of the lectures in terms of two constructs; perceived usefulness and perceived ease of use.

Several models focus on the importance of perceptions of ease of use, which is successful in predicting and explaining actual intention and usage behavior, and perceived usefulness which defines the degree to which an individual believes that using a particular system would enhance job performance (Davis, 1989; Davis & al, 1989). The institution's management support towards the adaptation and use of eLearning will also be assessed under this parameter.

3.3.3 Content readiness

Content is the driving engine of any system, from an educational point of view, eLearning readiness is determined by the measurement of content readiness. That is, is the content easily available? , Is it well structured? and is it reusable? (Psycharis, 2005). This model will assess the availability of eLearning content to the lecturers, their satisfaction with the content, and assess if they need training on eLearning content development.

Training is important for eLearning readiness and it should be considered in the of implementation of eLearning (Agbool, 2006). The model therefore assess if more training is needed in the development of eLearning materials.

3.3.4 Demographic Factors

This parameter will collect the demographics factors such as age, gender and



education level (Aydin and Tasci, 2005) of the respondents. The people factor deals with the characteristics of all human resources of a company and individuals who have a level of higher education are more likely to adopt an innovation than others (Rogers 2003), Hence, education levels of employees can be used as one of the predictors of eLearning readiness. This parameter will help determine the influence of demographics factors on the eLearning readiness.

4. PRELIMINARY FINDINGS

4.1 Findings in Demographic Factors readiness

An independent sample t-test analysis was conducted to test if gender makes a difference in the lecturers eLearning readiness. The results in table 1 indicate that female have higher score with a mean of [Mf=4.43] while male mean have a mean score of [Mm=4.26], however, the difference between the male and female score is not statistically significant

Table 2 displays mean scores and standard deviation for questions related to the respondents technical skills and knowledge in use of ICT . From the results, the respondents mean score for experience with technology based training is [M=3.7] this is lower compared to other factors. The results also show that the respondents are willing to collaborate and share information and knowledge through eLearning [Mcl= 4.04 > Melr =3.4]. The respondents have skills on the basic functions of computer hardware components [Mhw=4.31], in addition, they can use Microsoft office suite confidently [Msw=4.22].

The overall score for the items related to respondents factors is [Md=4.034 > Melr = 3.4]. From the results , there is an indication that the respondents are very ready and they have the basic skills required to use eLearning, what need to be done is training on how to use the eLearning tools and system.

4.2 Findings in Technology Readiness

The respondents were asked their technological readiness towards eLearning with regard to access to resources e.g. computers, laptops, and network infrastructure, this is because Learning is facilitated by the access to computers and availability of internet. They were also asked questions regarding their technical skills in the user

of internet, online library and their attitude towards eLearning.

From the findings, the majority of the respondents agree to a great extent that they have access to either a desktop computer or a laptop [M=4.22]. In addition, the respondents indicated that the IT infrastructure at the University is not reliable enough to support the eLearning [3.38], this mean score is below the expected readiness level for eLearning [Mi =3.38 < Melr=3.4] .On the other hand, 66.9 % of the respondents strongly agree that they use internet as a source of information and 51.7 % also strongly agree that they have skills to access online library and other resource databases.

Although the overall mean score for technology readiness is higher than the expected level of readiness [Mt =4.17 > Melr=3.4], the network infrastructure is not reliable enough to support eLearning.

4.3 Findings in Content Readiness

The study further sought to establish whether the respondents had their teaching materials available in eLearning system, if they have attended eLearning trainings and if there is need for more training on eLearning. Table 9 illustrates that; only 16.9% of the respondents strongly agree that their teaching materials are available in the eLearning system, 33.1% agree that they have attended a training on eLearning; 48.3% agree that they have basic skills on ICT skills required to use the system and 52% strongly agree that they need to more training on how to use eLearning system.

From table 3 it can be observed that mean of teaching materials availability on eLearning is lower than the expected readiness level [Mtm=3.08 < Melr=3.4]; the mean for the respondents who have attended eLearning training is also lower than the expected readiness level (Mtr=2.9 < Melr=3.4) and mean for the respondents having basic ICT Skills required to use the eLearning system is higher than the expected level of eLearning readiness (Ms=3.9 > Melr=3.4).

The overall Mean for content readiness is higher than the expected level of eLearning readiness [Mc =3.52 > Melr= 3.4]. Based on this result, it can be inferred that the respondents are ready for eLearning, although they need more training need to carried out.



4.5 Findings in Culture Readiness

This section asked the respondents their view on the following; ease of use of the eLearning tools, if they believe that eLearning can improve quality of their teaching, if the University policies have made it possible to explore eLearning, if there is enough management support in the implementation of eLearning, the institution's is willingness to invest in eLearning and finally if the intellectual property has hindered the use of eLearning.

The results show majority (42.7%) of the respondents agree that that they find it easy to use eLearning tools [M=3.60]. In addition the respondents agree that eLearning can enhance quality of their teaching [M=3.98]. They also agree that there is adequate Management support to eLearning [3.66], but majority are neutral on the University is willing to invest in eLearning [M=3.52], the University policies making it possible to explore eLearning [M=3.53] and the influence of intellectual property on the use of eLearning [M=3.33]. From table 8 it can be observed that the overall mean is higher than the expected eLearning readiness level [Mc= 3.6 > Melr =3.4].

4.6 Findings on ELearning Readiness

The respondents' personal commitment and readiness for eLearning was tested. They were required to answer questions to find out whether they were ready to move beyond a predominant reliance on classroom training. Their view on design of eLearning content and finally their view on technology as a critical factor on eLearning readiness. The results in table 11 indicate that the lecturers are highly ready with a mean of 4.3, this is higher than the expected level of readiness [Mlr=4.3 > Melr =3.4]. In addition, 49.4 % strongly agree that technology is important factor in eLearning readiness. This finding is in line with (Rogers, 2003) finding that technology is one of the factors that can effectively be used to adapt technological innovation in an organization. The overall mean score for ELearning readiness is 3.95 which is higher than the expected level of readiness (Mr= 3.95 > Melr=3.4).

4.7 Model Summary

The study conducted a regression analysis to determine the factors that influence the eLearning readiness and also test the model that was developed. The researcher applied the statistical package for social sciences (SPSS V 16.0) to code, enter and compute the measurements of the regressions for the study. The study utilized the mean scores data based on each variable. Below are the results from the model

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (ELearning readiness) that is explained by all the independent variables (gender, age, education level, technology readiness, content readiness, and culture readiness).

The six independent variables studied, explain 39.1% of the eLearning readiness of lectures from the University of Nairobi as represented by the R² in table 12. The standard error of the estimate (0.703) for regression measures the amount of variability in the points around the regression line. It is the standard deviation of the data points as they are distributed around the regression line. The results indicate that there are other variables that influence eLearning readiness and they to the remaining 60.9%.

The Analysis of Variance (ANOVA) was used to check how well the model developed fits the research. The F statistic is the regression mean square (MSR) divided by the residual mean square (MSE). The F significance value is 0.000, which is less than 0.05 thus the model, is statistically significant in predicting eLearning readiness of lectures from the University of Nairobi. As per the SPSS generated table above, the equation

$$Y = \alpha + \beta_1x_1 + \dots + \beta_kx_k + \epsilon$$

$$Y = 2.082 + 0.450x_1 + 0.163x_3 + 0.004x_4 + 0.0000495x_5 + -0.094x_6 + \epsilon$$

The multiple linear regression model indicates that the five independent variables have positive β coefficients while only one has a negative β coefficient. According to the regression equation established, technology readiness, content readiness, culture readiness, gender, age, and education level at a constant of Zero, the ELearning readiness will be 2.082.



The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in technology readiness will lead to a 0.450 increase in eLearning readiness, a unit increase in Content Readiness will lead to a 0.000 increase in eLearning readiness, a unit increase in Culture Readiness will lead to a 0.163 increase in eLearning readiness. At 5% level of significance and 95% level of confidence, technology readiness had a 0.0000 level of significance; content readiness had 0.993 while culture readiness had 0.009 level of significance. The most significant factor in eLearning readiness is technology readiness followed by culture readiness. Content readiness and demographic factors; age, gender and level of Education had no any significance in eLearning readiness of the lectures.

4.8 Discussion of Findings

From the study findings, majority of the respondents are ready for eLearning [M=4.3]. In addition, they are personally committed to eLearning [M=4.04], have experience with technology based training [M=3.63], and are ready to move beyond a predominant reliance on classroom training to eLearning approach [M=4.31]. This finding is in line with Muganda (2006) research that the academic staff from the University have a positive attitude towards eLearning.

4.8.1 Factors that influence eLearning Readiness

From the findings, majority of the respondents agreed to a great extent that technology is the most critical factor in eLearning readiness adaptation [M=4.14], however they noted that IT infrastructure at the University is not reliable enough to support the eLearning [M=3.38]. They also have access to either a desktop computer or a laptop [M=4.22], they use the internet [M=4.6] and online library [M=4.25] as a source of information and teaching materials. Majority of the respondents did not have their teaching materials available online [M=3.08]. This might have been contributed to the fact that only a few have attended the eLearning trainings [M= 2.94], in addition, they strong agree that they need more training on eLearning [M=4.15]. Being that majority have basic ICT skills required to use eLearning [M=3.94], they will quickly learn how to convert their teaching materials into the required mode.

The Culture readiness was to test the respondents perception ; usefulness and ease of use

and management support towards the adaptation of the eLearning in the institution. The results indicate that respondents find it easy to use the eLearning system that is already in use [M=3.6], and they know that the use of eLearning can improve the quality of their teaching [M=3.98]. They also agree that there is adequate management support [M=3.66] and the management is ready and willing to invest on eLearning [M=3.52]. However, the intellectual property hinder the respondents use of eLearning [M=3.33].

4.8.2 ELearning Readiness Model Developed

The proposed eLearning readiness model has six independent variables; age, gender, level of education, technology readiness, culture readiness and content readiness. The results from the regression analysis indicate that the model explain 39.1% of eLearning readiness of the respondents, this is an indication that there are some more variables that influence eLearning readiness and yet are not included in this study. The demographic factors; age [0.994], gender [0.975] and level of education [0.313] had no significance in eLearning readiness of the lectures. However, the eLearning model is statistically significant with F value of 0.000 and hence can be used to predict the eLearning readiness of the respondents.

The model developed from this research project has technological readiness and culture readiness; this research established that they were the most significant variable in determining the lectures eLearning readiness.

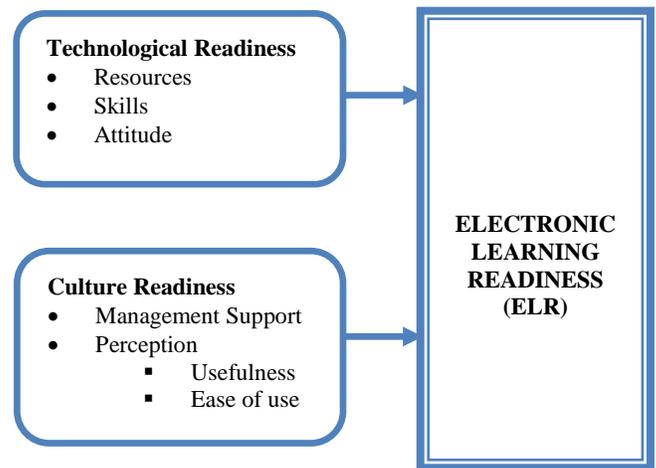


Figure2: ELearning Readiness Assessment Model



5. TECHNICAL REPORT

The study had three objectives; develop an eLearning readiness assessment model, carry out a diagnostic eLearning readiness assessment, and determine the factors that influence eLearning readiness in Kenya's Higher Education Institutions. The study used a stratified sample technique in coming up with the sample for the study. The study used questionnaires as the instrument for data collection. The quantitative data was analyzed using descriptive statistics with the help of Statistical Package for the Social Sciences (SPSS). From the research project a model for assessing lectures eLearning readiness was developed, the results indicate that the model is statistically significant and can be used to assess the lecturers eLearning readiness. The results also show that technological readiness of is the most important factor in eLearning readiness followed by culture readiness. Content readiness and demographic factors had no significance in determining eLearning readiness.

In addition, the findings indicated that the technological readiness of lectures is high; they have access to computers, use the internet and have access to online library resources. However, the lecturers do not have their teaching materials available on the eLearning platform this is because they have not attended any training on how to convert their notes to the required mode and also because of intellectual property.

5.1 Conclusions

From this study, a model for assessing eLearning readiness was developed, the analysis indicate that the model explains 39.1% of the respondents eLearning readiness. The research also identified technology readiness and culture readiness as factors that influence the lectures eLearning readiness. An ELearning readiness assessment was conducted and the research findings established that the lecturers are ready for eLearning [$M_r = 3.95 > M_{elr} = 3.4$]. The University of Nairobi management should therefore invest quickly on eLearning and ensure that it is fully implemented in the institution.

Content readiness and demographic factors; age, gender and Level of education were

not statistically significant in this study. This finding concurs with (Mogikoyo, 2007) findings on Videoteleconferencing (VTC) adoption in higher education in Kenya. However, this finding does not agree with, (Rogers, 2003) findings that individuals who have a level of higher education are more likely to adopt an innovation and hence can be used as a predictors of eLearning readiness.

This study does not represent the overall picture of eLearning readiness of Institutions of higher learning in Kenya as the sample involved are from only one university. However, it can provide some insights into the of eLearning readiness among lectures from the University of Nairobi. Since the model is statistically significant it can be used by other institutions of learning from primary schools, secondary schools and other Universities.

5.2 Recommendations

It is recommended that the University management should invest very fast on eLearning by improving the IT Infrastructure and organizing more training on eLearning content development. The model that was developed out of this research can be used by other institutions of learning in assessing their eLearning readiness.

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ANNEXURES

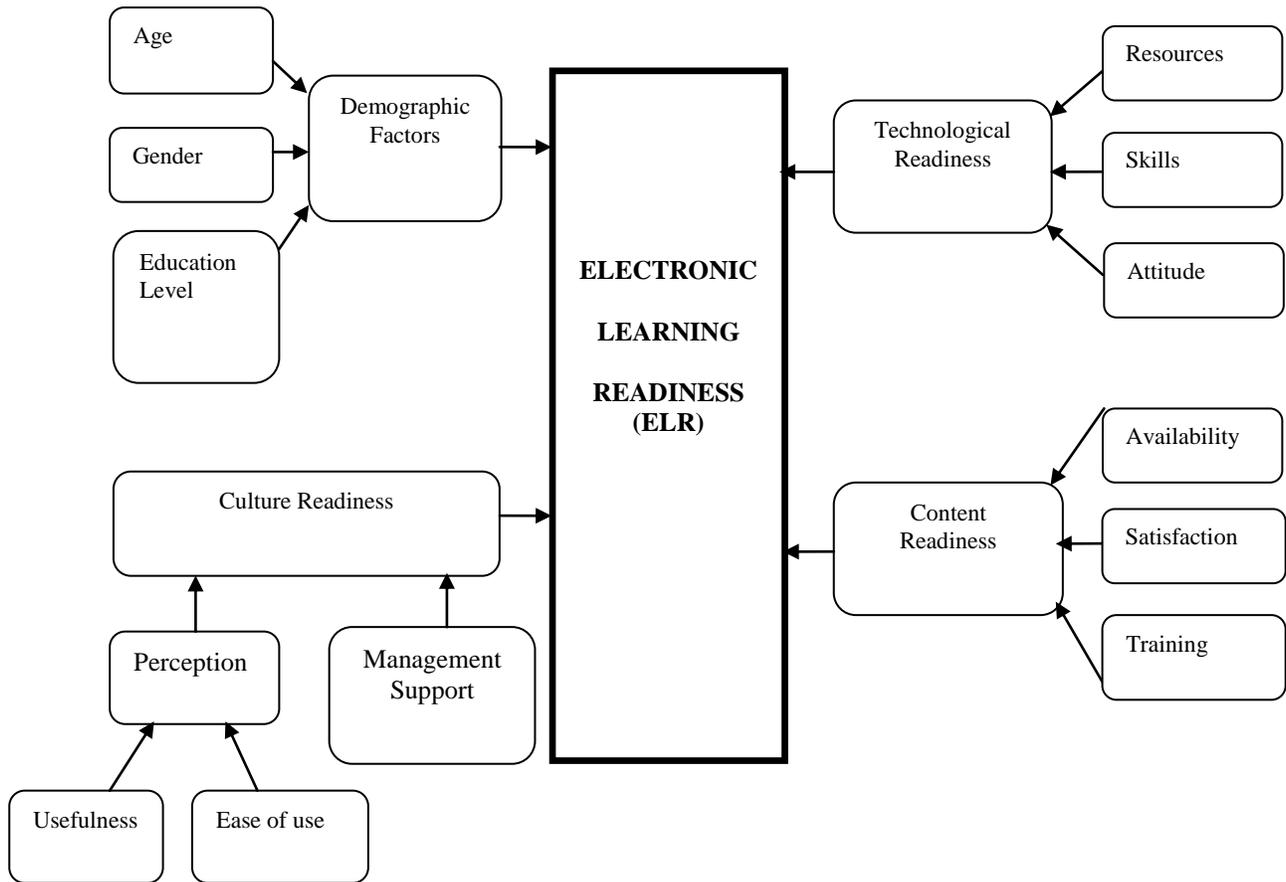


Figure1. Proposed Model For Assessing Elearning Readiness

Table 1: T – Test result for gender eLearning Readiness

	Gender	N	Mean	Std. Deviation	Std. Error Mean	df	Sig. (2-tailed)
Readiness	Male	120	4.26	1.000	.091	135.143	.223
	Female	58	4.43	.819	.108		



Table 2: Statistics items related to respondents factor

	Items	M	SD
1	I have experience with technology based training (e.g. Computer based training, Multimedia based learning, Video Cassettes etc.	3.70	1.182
2	I am willing to collaborate and share information and knowledge through eLearning	4.04	.994
3	I know the basic functions of computer hardware components (CPU and monitor) and its peripherals like the printer, speaker, mouse etc.	4.31	.046
4	I have Microsoft office suite (e.g. Ms. Word, Excel, PowerPoint) installed in my computer and I use them confidently	4.22	1.092
5	I know how to use asynchronous tools (e.g. discussion boards, chat tools) effectively	3.90	1.074
	Overall Mean	4.034	

Table 3: Content Readiness findings

	Mean	Content Readiness findings Percentage(%)				
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Teaching Materials on eLearning	3.08	12.9	24.2	21.3	24.7	16.9
Have Attended eLearning Training	2.94	26.4	17.4	7.3	33.1	15.7
Have basic ICT Skills required	3.94	6.7	3.4	12.4	48.3	29.2
Need more Training	4.15	5.6	5.6	9.6	27.0	52.2
Overall Mean	3.52					

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.625 ^a	.391	.369	.703

a. Predictors: (Constant), Education, Technology Readiness, Gender, Content Readiness, Age, Culture Readiness

b. Dependent Variable: ELearning Readiness