

E-Learning Readiness in Public Secondary Schools in Kenya: A Case of Selected Schools in Kaiti Sub-County, Makueni County.

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Abstract: *This study sought to interrogate the level of preparedness in public secondary schools in Kenya in regard to E-learning. The specific objectives of the study were to; assess the availability of ICT resources in public secondary schools, examine the school's' culture in the use of E-learning and establish the level of e-content and preparedness of teachers and students in using electronic learning. The study adopted a descriptive survey design. The targeted population was 56 Principals, 674 teachers and 6,372 students in public secondary schools in Kaiti sub-county. The researcher obtained 40percent of the principal population, 30percent of the teacher population and 10percent of the students' population in every school. Convenient sampling was used to select teachers, students and principals. Questionnaires were used to collect data. Descriptive statistics was used to analyse the collected data. The results showed that technological readiness is the most important factor in e-Learning 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 teachers and students is low; most of them lack access to computers, rarely use the internet and don't have access to online library resources. However, most teachers do not have their teaching materials available on the eLearning platform. It is recommended that the county governments and education management should invest very fast on e-Learning by improving the IT Infrastructure and organizing more training on eLearning content development.*

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I. Introduction

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

According to John Chambers (in Rosenberg, 2001), "the biggest growth in the Internet, and the area that will prove to be one of the biggest agents of change, will be in e-learning."

The demand for a well-educated workforce has driven many countries to rethink their education systems. An education system has to be suited to the demands of the technological age so that a competitive edge can be maintained. Such demand for a technology savvy workforce is reflected in Alvin Toffler's declaration (in Rosenberg, 2001: 3), that "the illiterate of the 21st century will not be those, who cannot read and write but those who cannot learn, unlearn, and relearn." An ancient proverb says: "if we don't change our direction, we'll end up exactly where we are headed" (in Rosenberg 2001: 41). This indicates that learning institutions will have to constantly change and adapt in their environments if they are not to lag behind. According to (Galagan, 2002), "classrooms could not possibly work today, but centuries ago, they made sense: one literate person reading to the illiterate from what might have been the town's only book, but technology and times have changed." The advantages that technology provides to training and learning include not only the possibility of one-on-one interaction for every learner, the ability to simulate new ideas, the chance to try things out at one's own pace and to fail in private without the fear of ridicule from other students (Galagan, 2002). The Internet has also become an important instructional tool to facilitate the transfer of many types of information from one computer to another, and is rapidly becoming an effective means of communication in schools and colleges.

1.1 Global Overview of E-Learning use in Education

E-readiness ranking are released annually by the Economic Intelligence Unit (EIU). The EIU is the world's foremost provider of country, industry and management analysis in terms of use of electronic

technology. The results released in 2008 shows a digital divide between developed countries and developing countries (EIU, 2008). The rankings show the level of preparedness of countries to benefit from use of electronic technology. The 2008 regional ranking indicates that North America and Western Europe are more ready than other regions of the world. They therefore benefit more from use of ICT than countries in the developing world. The e-rankings allow a country to gauge the success of its ICT strategies against those of other countries. The success of North America to its current level is attributed to good e-strategy, developed infrastructure and large investments in the ICT sector. These rankings however consider E-readiness of the whole economy and not education specifically. There is need for e-readiness survey in education globally considering the role that education plays in development.

In education there are efforts both at national and regional levels to harness the use of ICT in education. European member states meeting in Lisbon identified ICT as a core component of the knowledge society and a necessary instrument for adapting education to it. As a result e-learning initiatives and programs were adopted with specific funding and strong support of stakeholders (Commission of European Communities, 2008). All member states have programs and actions to integrate ICT in education.

This translated into intensive efforts to provide equipment and train teachers in ICT skills. This has led to wider use of ICT in schools in Europe. The European Union aims at promoting digital literacy, setting up European virtual campuses and e-twinning of schools. E-twinning of schools refers to partnering schools where students and teachers share academic and social knowledge with their counterparts in other countries. ICT use in Europe is widespread in higher education, nearly all universities have websites and nine out ten have intranets.

However like other regions, reports indicate a digital gap among member countries (Commission of European Commission report, 2008). Nordic countries and the UK took an early lead in using ICT in education. To address the digital gap, European countries developed an e-European information strategy with focus on digital literacy. The 2006 Riga declaration gave this objective a specific target of halving the gap in internet use by 2010 for groups under risk of exclusion, such as older people, people with disabilities and unemployed persons.

A survey by Programme for International Students Assessment (PISA) revealed that ICT use in education in OECD countries is positively correlated with student's performance.

Schools with better ICT resources achieve better academic results than those that are poorly equipped. (PISA, 2005). This can be justified by the fact that students have wide access to information. This perhaps explains the reason why education in the West is of high quality.

In Romania a study carried out between August 2007 and May 2008 to investigate ICT use in education revealed that seven out of ten teachers preferred to teach using computers. The teachers observed a positive performance in their discipline as a result of using ICT (Elina, 2008). This study indicated that students considered most important effect of using ICT for school lessons is a simplified learning process followed closely by easier understanding of the content.

An examination of countries in the Asian-Pacific has shown that ICT is not being used to its full potential in enhancing quality of teaching and learning (UNESCO, 2008). There are both technical and capacity related barriers that have to be overcome. The report indicates infrastructure, equipments and connectivity as impediments to utilization of ICT in their education systems. These are setbacks that affect use of ICT in Africa. UNESCO has initiated projects such as UNESCO schoolNet which aims at strengthening ICTs in schools in the region.

1.2 E-readiness in Africa

Most studies on ICT in Africa have focused on constraints and benefits of ICT in a macro perspective. There is need for more studies on Africa's readiness to benefit from use of ICT especially in education. A study by Infinedo (2005) revealed that Africa has long been disadvantaged by lack of fast and affordable connectivity with the rest of the globe. African countries are not prepared or compare poorly with other economies on the global networked economy. Infinedo (2005) classified the level of readiness in Africa in three regions; North Africa, sub-Saharan Africa (south) and sub-Saharan Africa (East and west). South Africa has higher attainment of e-readiness than other parts of Africa. Miller (1999) attributes this leadership to well nurtured policies. Variations in level of readiness can be attributed to different levels of economic development and geographical locations. North African countries have high speed internet connectivity with Europe.

East and Southern Africa is the only region that is not connected to the global broadband infrastructure and accounts for less than 1percent of the world's international bandwidth, as a result of this missing link, the region relies on satellite connectivity which costs the highest in the world (Farrell, Glen and Shafika, 2007). East African region is however moving fast to address this shortage and the commissioning of the fibre optic from Fujairah in the United Arab Emirates (UAE) in Mombasa, under the TEAMS project will lower the cost of connectivity and enhance access to information (Gitonga, 2009).

Infinedo (2005) suggests that Africa should come up with policies that help them get integrated in global networked economy. The developed world should increase direct investment in ICT especially in sub-Saharan Africa. However, the designing of policies without implementation may not connect Africa to the global economy. Africa should move towards e-actions and cooperate in their efforts of digitalizing the continent. African countries have realized the role of ICT in education. Education ministers meeting at first African ministerial roundtable on ICT for education, training and development in Nairobi June 2007 emphasized the role of ICT in promoting development especially in rural areas (Farrell et al, 2007).

Farrell (2007) summed the state of infrastructure in Africa regarding to access to ICT infrastructure as too little, too expensive and poorly managed. His study revealed the average of African University has bandwidth capacity equivalents to a broadband residential connection available in Europe and pay 50 times more for their bandwidth than their educational counterparts in the rest of the world. The survey revealed that access to ICT in schools is poor; computer laboratories are ill equipped with an average of computer to student ratio as 1:40 and low internet connectivity. In particular Sub-Saharan Africa is missing out of the boons of ICT and therefore its population is missing out on better education. (Shafika, Irene and Thomas, 2006). There are several initiatives in Africa to promote use of electronic technology in education. One of the initiatives is Nepad's E-schools project, a multicountry, multistakeholders continental initiative to impart ICT skills to Young Africans and improve the provision of education in schools. The goal of Nepsads E-initiative is to have all schools implementing use of ICT in 10 years.

The other initiative is African Virtual University (AVU) which is one of the first e-learning projects to be implemented in Africa's institutions of higher learning. AVU seeks to increase access to tertiary and continuing education in African universities by tapping global academic resources and by offering training to academicians in African universities to prepare materials for development (Nafukho 2005). A study by Awoleye and Siyanbola (2007) to assess the readiness of students in Nigerian universities for E-learning adoption revealed that about 80percent of students have access to computer systems, 91percent have access to internet and communicate via the Email while 96.6percent of the teachers have access to computers and use internet. These studies have mostly considered universities with little attention on other education sub-systems. This study seeks to fill the gap by looking at e-readiness in teacher training colleges. In Zimbabwe, lecturers in universities have slow take up of E-learning partly due to lack of awareness of E-learning facilities and reported lack of preparedness (Lockias and Daga, 2008).The results also showed that insufficient infrastructure in universities hampered the preparedness of universities to use E-learning.

1.3 E-Learning Readiness in Kenya

Most studies on ICT in Kenya have focused benefits and constraints to use of ICT. There are few studies on e-learning readiness. One comprehensive study on e-readiness in education in Kenya was done by Kenya Education Network (KENET) in 2007, which focused on e-readiness in higher learning institutions. There are few studies done on other sub-systems such as middle level colleges, primary schools and secondary schools. This study will seek to examine e-learning readiness in public secondary schools.

KENET assessed the level of preparedness of higher education institutions to use ICT in teaching, learning, research and management and the capacity of readiness of the institutions to use electronic learning to improve the quality of education (Kashorda, Waema, Omosa and Kyalo, 2007).The findings from this survey indicated that most institutions are not ready to use ICT for e-learning and allocation of budget to ICT is minimal. The findings also revealed that higher learning institutions in Kenya have inadequate bandwidth, low access to networked PC by staff and students, low quality of campus network infrastructure and limited campus access to Library resources (Kashorda *et al*, 2007).

The MoE policy on ICT is to integrate it into education and training systems in Kenya in order to prepare learners and staff for Kenyan economy and enhance national ICT skills. The policy looks towards providing sufficient and affordable internet infrastructure capacity to all secondary schools and tertiary institutions by the year 2010. It encourages the use of IT and promoting the growth and development of e-learning at all levels of education in order to improve quality of teaching and learning (Republic of Kenya, 2005). Farallel (2007) observes that education sector in Kenya lacks adequate connectivity and network infrastructure although a small number of schools have direct access to high speed connectivity through internet service providers.

The ministry observes that most of the public secondary schools in Kenya are working towards implementing ICT in their operations. The policy presupposes need to upgrade computer labs and building ICT capacity in the schools which will yield high returns. It highlights challenges facing implementation of ICT in public secondary schools as poor access to computers by students, computers lack basic standards and lack of qualified teachers. A study by Ndiku (2003) on problems encountered in implementation of educational ICT projects found that insufficient number of computers and peripherals devices, teacher's lack of knowledge and inadequate soft wares for instructions as impediments to integration of ICT in Kenya. Kenya has become the

third African country to launch e-learning facilities in secondary schools after South Africa and Nigeria (Check point, 2008). The program sponsored by Intel, aims at equipping schools to use computers and wireless connectivity for all types of class work. The new program aims to replace the blackboard with a touch screen and students to send their work to teachers through wireless connectivity. However rolling of this program may not be effective in rural areas since they lack the basic infrastructure to enhance this type of learning.

Kenya School Net (2003) found that although schools are aware of benefits of computers, few had them and only one school had a website. It also found that there was a close association between students studying mathematics or sciences and computer studies.

Ford (2007) reports that Kenya has approximately 19890 primary schools, many of which are in rural areas, of these schools only 15 percent have electricity and only 500 have computers albeit with limited internet access.

He further observes that in some public secondary schools, ICT curriculum is taught but internet connectivity is limited and most available through dial up. In an effort to promote knowledge in use of computers, the Ministry of Youth Affairs (MYA) through the Youth Enterprise Fund (YEF) started a digital village project to connect rural and urban areas with ICT. The project which is to be funded through government and private sector aims at providing each constituency with eight computer work stations and training in entrepreneurship (Wanjiku, 2008). Education system will benefit through increase of online courses and improving management systems. The digital project aims to integrate ICT in formal education and Non-Formal education and training. The education sector has been pinpointed as a crucial sector in ensuring that Kenya meets the objectives stipulated in Vision 2030 such as the achievement of annual economic growth of 10 percent. In addition, the Millennium Development Goals have earmarked the education sector as crucial in bringing about socio economic change to Kenya and other developing economies.

Nyamute (2007), argues that the reason for the economic prosperity of the Asian Tigers stems from development of human capital through an effective education and learning system. It is noted that the education infrastructure in developing countries in general and Kenya in particular is a far cry from ideal. In addition, capacity constraints bedevil the education sector; hence, a paradigm shift is necessary in delivering education and training to citizens through unconventional means such as e-learning. Advocates of E-learning concept may allude to the concept of mobile money transfers such as Mpesa, that is, the ability to use technology to leapfrog some stages of socioeconomic development.

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

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

However the influence was not statistically significant as the human resource capacity was not adequate to support the adoption of e-learning in secondary schools in Kitui district.

Mungania (2003), carried out a study on the seven e-learning barriers facing employees and concluded that four key factors emerged as significant predictors of e-learning barriers, namely organization, self-efficacy, computer competence, and computer training. However, all the above studies seem to indicate a difference of opinions and lack conclusiveness as to what exactly are the factors influencing e-learning use in Public Universities in Kenya.

This study sought to;

- i. Assess how the availability of ICT resources affects e-learning in public secondary schools
- ii. Examine the culture of public secondary schools in the use of e-learning
- iii. Establish how the level of content and preparedness of teachers and students influences e-learning usage.

II. Research Methodology

This study employed a descriptive survey design. The design was suited for this study since a survey design secures evidence of the existing situation and identifies standards or norms to compare with the present conditions in order to plan the next step (Good, 1992). This study surveyed a sample of the public secondary schools to describe the state of e-learning readiness among public secondary schools. The study considered fifty six (56) public secondary schools Primary in Kaiti sub-county, Makueni County in Kenya. The schools are located in different administrative wards in the sub-county. The different geographical locations were considered for this study since it gave the national outlook of preparedness of public secondary schools to use E-learning.

The study targeted fifty six (56) principals, six hundred and four (674) teachers and six thousand, three hundred and seventy two (6,372) students in Kaiti sub-county. This gave an approximate target population of 7,102 respondents. According to Nesbary (2000), a sample is a subset of a population that has been selected to reflect or represent characteristics of a population. The study applied convenience sampling, 40percent of respondents from each public secondary school representing the principals, 30percent the teachers and 10percent students were taken from each selected school. This implied that the sample size would be 352 respondents. The researcher administered questionnaires to collect data. A questionnaire was the preferred data collection instrument for this study. According to Kumar (2005), a questionnaire is a written list of questions, the answers to which are recorded by respondents. The questionnaire comprised both open and closed ended questions. A questionnaire would be most preferred by respondents for anonymity. Drop and pick questionnaires ensured that the researcher did not disrupt the respondents working schedule. To ensure that the respondents of the study have experience in e-learning, snowballing was used where a respondent would be expected to give a referral of another respondent who has undertaken an e-learning course.

The questionnaire consisted of the following parts; Demographic characteristics, technological factors, personal factors, design factors and use of e-learning in Public secondary schools in Kenya. Care was taken in the design of the questionnaires to ensure that the questions obtained accurate answers to the research questions and would be able to address the research objectives.

Factors That Measure E-Learning Readiness

Variable	Indicators	Measurement
Availability of ICT resources	Hardware, Software, Human resources Networking infrastructure	Schools' hardware and software Availability of trained ICT teachers Level of skills Availability of networking infrastructure
Schools' culture on the use of E-learning	Perception Management support	Ease of use of e-learning Usefulness Goals of the school
Level of content and preparedness of teachers and students	Attitude, Technical Competence experience	Level of content Satisfaction Training

III. Results And Discussions

A total of 352 questionnaires were administered to principals, teachers and students in public secondary schools in Kaiti Sub-County. Two hundred and thirteen (213) were returned resulting to 60percent response rate. This response rates were sufficient and representative in addition, it conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 60percent is adequate for analysis and a good representation of the population.

In terms of gender, the results show that 67.6percent of the respondents were male while 32.4percent were female. The respondents were asked to indicate their highest level of education and from the findings, 44.6percent had at least a certificate, 16.0percent had a diploma, 31.9percent had Bachelor Degree and 7.5percent had postgraduate qualifications. This implies that the respondents were on average skilled in their areas of specialization hence more likely to adopt an innovation and used as a predictors of e learning readiness (Rogers, 2003). He points out that every organization has its own norms that can be effective in diffusing an innovation in its system. Technology is one of the factors that can be effectively used to adapt a technological innovation in an organization (Rogers, 2003).

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.

The results for the average number of staff per school show that the frequency for the number of schools with an average population of 20-30 in the number of staff is the highest while that with an average of 30-40 is the lowest. This is an indication that a good number of schools are understaffed.

Results show that only 26.3percent of the respondents are currently using E Learning while 73.7percent are not using. This means that e learning is not practised in most institutions of learning though the will might be there. The 26.3percent is spread among the stable schools.

The length of using ELearning indicates that the highest frequency is marked against duration of less than 3three years while the lowest is duration of more than 11 years. This indicates that the use of ELearning in secondary schools is new and not widely practised.

The ICT staff has a higher level of access to the ELearning systems in their schools. The senior staff has the least access. This indicates that poor attitude towards the ELearning systems highly affects their use. In most of the schools, it is only left for those viewed to have some basic knowledge in use of computer technology. The learners should be ready to adopt the responsibility of a self-driven mode of training, respond to the challenges of technology, and more importantly be disciplined to learn alone and to respond to online instructions. Teachers and students need to be ready to use eLearning systems since it's an alternative way of improving access and quality of teaching and learning. Gakuu (2007) developed a path analysis model and concluded that there is no significance difference of attitude towards the adaption of distance and eLearning.

From the resource data, the frequencies of the managerial positions in the schools indicate that the highest is the subject heads while the lowest was the students which mainly captured the student's council or leaders.

Most of the respondents highly commended the use of ELearning in meeting the school's objectives. This attained the highest frequency of 25. Haney (2002) noted that before initiating, implementing, and using eLearning, it is important to assess institutions readiness for the systems by recognizing its 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" (p. 265). 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).

From the respondents that were not using any E Learning system by the time of the research, a higher percentage plans to use ELearning (81.5percent). This indicates that the attitude towards the use of ELearning is tremendously improving among the secondary schools in Kaiti Constituency, Makeni County. The rest i.e. 18.5percent is still not planning to use E Learning in future.

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.

3.1 E learning 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. This scored an overall mean of 4.045.

The results indicated that the design of the eLearning content is important for attracting and keeping teachers and students using the system had the highest mean of 4.28 while the respondents were highly ready with a mean of 4.16. The respondents' experience with technology based training (e.g. Computer based training, Multimedia based learning, Video

Cassettes etc.) had the lowest mean of 3.73. This is even lower compared to the overall mean of 4.045. In addition; 28.2percent strongly agreed that technology is important factor in e Learning 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. Despite the wide use of information and communication technology in 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 fulfil certain criteria, such as the acquisition of adequate technological infrastructure and adequate educational content of persons with the teaching 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.

3.2 Technological readiness

3.2.1 Access to Resources (Computer and Internet)

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. This scored an overall mean of 4.15. The respondents mean score for access to a dependable computer/laptop is 4.32 which is higher compared to reliability of IT infrastructure that can support ELearning (mean 3.98). Also highest percentages of the respondents strongest disagreed on for access to a dependable computer/laptop and reliability of IT infrastructure that can support ELearning. This means that most respondents have poor access to computer and internet resources.

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 e-learning 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.

3.2.2 Technical Skills on use of Computer and Internet

The respondents were also asked questions regarding their technical skills in the user of internet, online library and their attitude towards eLearning, scoring an overall mean of 3.97

From the results, the respondents mean score for experience in using web browser (e.g. Internet Explorer, Google Chrome, Mozilla Firefox) confidently was 3.58. On the other hand, 14.7percent of the respondents strongly agree that they used internet as a source of information and 18.9percent also strongly agree that they had skills to access online library and other resource databases. This was lower compared to other factors. The respondents had skills on the basic functions of computer hardware components [hw=4.18], in addition, they could use Microsoft office suite confidently [sw=4.09]. Most respondents had an email address and could open / send an email with file attachments as indicated by the highest mean of 4.23. From the results , there is an indication that the respondents were very ready and they had the basic skills required to use eLearning, what need to be done is training on how to use the eLearning tools and system.

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 e Learning users must also have the technical skills to be able to use the system. These results also agree with the findings that revealed that higher learning institutions in Kenya have inadequate bandwidth, low access to networked PC by staff and students, low quality of campus network infrastructure and limited campus access to Library resources (Kashorda et al, 2007).

3.3 Culture readiness

3.3.1 Perception

The results gave an overall mean of 3.79 and showed that minority (11.5percent) of the respondents agreed that that they found it easy to use ELearning tools [Mean of 3.60] .In addition the respondents agreed that eLearning could enhance quality of their teaching and learning [Mean of 3.98]. A good percentage of the respondents, 33.2percent, believed that ELearning could increase their productivity whose mean, 4.23, was higher than the overall mean, 3.79. The respondents' interaction with eLearning tools was not clear and understandable as indicated by a low mean of 3.48.

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 has examined the perception of the teachers 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 behaviour, 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).

3.3.2 Management Support

This scored an overall mean of 3.54 and the results show that majority (42.2percent) of the respondents disagreed that there was adequate Management support to eLearning [Mean of 3.23], but minority were neutral on the departments willing to invest in eLearning [Mean of 3.52], the school's policies making it possible to explore eLearning [Mean of 3.53] and the influence of intellectual property on the use of eLearning [Mean of 3.33]. The departments were willing to accept eLearning as a mode for teaching and learning as indicated by the highest mean of 3.98 but the eLearning initiative was not aligned with the institution's mission and vision (lowest mean of 3.23).

Bell, Martin, and Clarke (2004) noted that the vital role of organizational and intellectual capital also affects eLearning adoption in corporate and organizations worldwide. As noted by Psycharis (2005), the successful implementation of eLearning by an educational system should fulfil certain criteria, such as the acquisition of adequate technological infrastructure and adequate educational content of persons with the teaching skills and a developed culture which encourages learning and sharing of knowledge. 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.

3.4 Content and attitude readiness

The mean of teaching materials availability on eLearning was 3.08 which was lower than the overall mean of 3.53. The mean for the respondents who had attended eLearning training was the lowest and also lower than the overall mean ($Mtr=2.94 < Mov=3.53$) and mean for the respondents having basic ICT Skills required to use the eLearning system was higher than the overall mean ($Ms=3.94 > Mov=3.53$). Many respondents expressed the need for more training for eLearning content development as indicated by the highest mean of 4.15.

Based on this result, it can be inferred that the respondents were ready for eLearning, although they needed more training need to be carried out. 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 teachers, 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 implementation of eLearning (Agbool, 2006).

The level of attitude to e-learning scored a mean of 4.17. From the findings, the majority of the respondents, 45.9 percent, strongly disagreed to a great extent that they had information on what eLearning was [Mean of 4.07]. In addition, the respondents indicated that 47.9 percent were not at all using ELearning, Mean of 3.67. This mean score was below the overall mean for teachers and students attitude towards ELearning. [Mean of not using Elearning=3.67 < overall mean =4.17]. Although the overall mean score for technology readiness was high, the network infrastructure was not reliable enough to support ELearning. The learners should be ready to adopt the responsibility of a self-driven mode of training, respond to the challenges of technology, and more importantly be disciplined to learn alone and to respond to online instructions. Teachers need to be ready to use eLearning systems since it's an alternative way of improving access and quality of teaching and learning. 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. Teachers therefore need to be provided with appropriate pedagogical training on how to integrate ICT into their program. Collectively, teachers' motivation, skills and pedagogical approach are intricate issues that form an essential part of a quality e-learning.

IV. Conclusions and Recommendations

This study sought to assess how the availability of ICT resources affects e-learning in public secondary schools, examine the culture of public secondary schools in the use of e-learning and to establish how the level of content and preparedness of teachers and students influences e-learning usage. The results show that technological readiness is the most important factor in e-Learning 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 teachers and students is low; most of them lack

access to computers, rarely use the internet and don't have access to online library resources. However, most teachers do not have their teaching materials available on the e-Learning 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.

An E-Learning readiness assessment was conducted and the research findings established that the teachers are ready for eLearning [Mean of 4.045]. The Makueni County government and management should therefore invest quickly on eLearning and ensure that it is fully implemented in the public secondary schools.

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 sub-county. However, it can provide some insights into the of eLearning readiness among teachers and students in all public and private schools in the country.

It is recommended that the county governments and education management should invest very fast on eLearning by improving the IT Infrastructure and organizing more training on eLearning content development. The research findings cannot be applied in other institutions of higher learning; this is owing to the fact that different learning institutions have different level of technological readiness, Culture readiness, and Content readiness. The study faced challenges in collecting back the questionnaires and as a result only 213 (60 percent) out of 352 questionnaires were returned. However, the research can be carried out across other institutions of learning and assess how ready they are for eLearning.

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