

Organizational Factors Affecting E-learning Adoption by Lecturers in Kenya: A Case Study of Moi University

Margaret Adisa Galia^{1*}, Francis Nyarombe Nyachwaya², and Josphat Igadwa Mwasiagi³

¹Moi University, Department of Electrical and Communication Engineering, P. O. Box 3900-30100 Eldoret, Kenya

²Kisii University, Faculty of Commerce, P. O. Box 6434-30100 Eldoret, Kenya

³Moi University, Department of Manufacturing and Industrial Textile Engineering, P. O. Box 3900-30100 Eldoret, Kenya

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Abstract: In this paper organizational factors affecting the adoption of e-learning by lecturers in Moi University were discussed and possible ways of enhancing its adoption recommended. E-learning has changed the way teaching and learning is taking place in university campuses. However, despite this change, the uptake of e-learning in developing countries especially in Africa is slow compared to their Western counterparts. The literature review also revealed that most developing countries including Kenya are still experiencing challenges in their attempts to implement e-learning as an alternative approach to teaching and learning. Descriptive research method based on a case study approach was applied. The target population of this study was 300 and sample size of 171 was used. Both inferential and descriptive statistical methods were employed in analyzing data. Findings proved that organizational factors namely professional development, access to ICT infrastructure and resources, technical support, Institutional culture, and Leadership support affect e-learning adoption by lecturers in Moi University. However, technical support and institutional culture significantly affect the adoption of e-learning by lecturers in Moi University. The main conclusion drawn from this research was that organizational factors affect e-learning adoption by lecturers in Moi University and therefore these factors should be considered in order to enhance the level of e-learning adoption by lecturers. The study recommends that Moi University management expands ICT and e-learning infrastructure, provide Lecturers with comprehensive training on e-learning skills, establish technical support staff at each department, and identify a way of motivating the lecturers to use e-learning.

Keywords: E-learning; E-learning adoption; E-learning organizational factors

1. Introduction

The rapid development of information communication and technologies (ICT), internet technologies and Web-based applications have initiated unparalleled transformation in universities all over the world (Cheng *et al.*, 2011). E-learning is changing the way teaching and learning is taking place in university campuses (Ahmed, 2010). Makaza and Madzima (2008) point out that e-learning is gaining some ground in University education throughout the world. Currently, a large number of universities world-wide support e-learning in different forms. E-learning is changing the way teaching and learning is taking place in university campuses. The uptake of e-learning in developing countries especially in Africa is slow compared to the Western counterparts. However, the last decade has witnessed some concerted efforts on the part of university administrators to implement e-learning strategies in order to catch up with their counterparts in the developed countries. Chaula *et al.* (2006) attribute the unsuccessful adoption of e-learning in developing countries to solutions imported from the developed countries whose cultures differ significantly from the developing world. Basically, e-learning is usually defined as a type of learning supported by information and communication technology (ICT) via the Internet, intranets and extranets to improve the quality of teaching and learning (Tagoe, 2012).

There are many reasons for encouraging e-learning in Africa. Bates (2009) reported that given the particular challenges faced by universities in Africa (poor and expensive Internet infrastructure, relatively high cost of computers, shortage of quality IT staff and e-learning specialists, and the need for more knowledge workers), universities need to be very focused and strategic in their use of e-learning.

According to a study by Prakash (2003), access to education in the developing countries is limited with less than 5% of students in tertiary education compared to the world average of 16%. The demand for education in Africa exceeds the ability to deliver and is not offered to significant portions of the population. This inadequacy of access to higher education in Africa is evident from the number of students who seek universities. For instance, in 2003, Kenya was reported to have sent 12,000 students to foreign universities of which 7,000 went to India and 5,000 went to Europe and the United States (Mutula, 2003). However, African students are beginning to expect education to emphasize the process of learning rather than the content as the 'shelf-life' of information is limited because of rapid innovations (Carroll, 2006). Increasingly, students expect technology to have a significant role in their learning as the demand for courses offered by the African Virtual University (AVU) increases (Juma, 2003).

Over 80% of Higher Education Institutions (HEIs) such as Universities in the developed world are actively engaging in the use of e-learning systems for supporting their teaching and learning, with 97% of Universities reported to be using one or more forms of Virtual Learning Environments (VLE) (Britain and Liber, 2003). Universities in developing countries especially sub-Saharan Africa are gradually adopting these e-learning technologies for teaching, research and supporting students' learning so as to reap the same benefits harnessed by the developed economies.

However, education in sub-Saharan Africa is grappling with the continuing economic downturn, high demand for higher education in emerging knowledge-driven economies as well as inadequate availability of experienced and skilled teachers (UNESCO, 2006).

African countries including Kenya have inefficient ICT-related infrastructure such as electricity, telecommunications, computers and trained personnel. A survey carried out by the AVU revealed that Internet connectivity in tertiary institutions in Africa is inadequate, expensive and poorly managed (Twinomugisha *et al.*, 2004). Therefore, the three pillars of the ICT revolution, that is, connectivity, capacity and content, are yet to be realized in Africa. The problem in Africa is generally not just the near absence of e-learning programmes but also the inability of students to gain access even to the few that do exist.

Kenyan universities have implemented the e-learning strategy to reach out their students. This has been made possible by the networking that has taken place in the institutions and the connections of the institutions to the Internet. Kariuki (2006) states that if the websites analysis is something to go by, it is justifiable to conclude that in Kenya; institutions are a distance away from reaping the benefits of e-learning. However, currently, a number of initiatives are in progress in Kenya to implement e-learning technologies in higher education institutions despite the numerous challenges. A study carried out by Tarus (2011) in a Kenyan university found out that inadequate ICT and e-learning infrastructure were among the major constraints hindering the adoption of e-learning in Kenyan public universities.

Since its establishment in 1984, Moi University has remained largely a single mode institution. However, with advancements in information and communication technology and their impact on education, there are many changes which continue to emerge. It is in recognition of this that Moi University has put Open and Distance Learning as one of the planned activities in its strategic plan. Furthermore, the Directorate of Distance Learning (DODL) was established at Moi University in November, 2007. The directorate is currently located in the Administration block of RIVATEX East Africa LTD, a Moi University Facility in Eldoret town. It has a computer laboratory based at Kiptagich house, in the same town of Eldoret. The computer laboratory is used for training staff and for teaching purposes (Seminega and Nginye, 2011).

The Directorate is specifically designed to address issues pertaining to open and distance learning within the University. Attitude towards a new development can break or make its implementation. The following issues need to be addressed: adoption of innovations, acceptance of e-learning/on-line/distance teaching and understanding of distance education (what works at a distance) and organizational values. These problems are addressed gradually through appropriate training, workshops and conferences targeting all staff and prospective students (DODL, 2008).

According to Nanayakkara and Whiddett (2005), universities are making significant efforts in e-learning development and investing heavily in associated information technology infrastructure with the expectation of high return on their

investment. However, in spite of this effort the lecturers do not always use the technology as expected and more often e-learning systems continue to be underutilized. Despite the increased application of ICTs in university teaching, evidence from literature indicates that in developing countries like Kenya, work is still at large to realize the adoption, utilization, optimization and full potential of e-learning at all levels of education (Zemsky and Massy, 2004). Implementation of e-learning in Moi University started in 2007 with MUSOMI (customized from Chisimba framework) as an e-learning platform. However, Moi University is using e-learning in blended mode and is still lagging behind in full utilization of e-learning. It is against this backdrop the study was conducted. In order to prepare developing countries to move towards adopting e-learning at the higher educational institutions, it is necessary to understand the factors that promote the adoption of e-learning. Hence, this study investigated the organizational factors that affect the adoption of e-learning by lecturers in Moi University with a view to promote the use of e-learning in teaching and learning in universities.

From the objective, the following hypothesis was formulated:

HO There are no organizational factors that significantly affect the adoption of e-learning by lecturers in Moi University.

2. Research Methods

2.1. Description of the Study Area

The research was conducted in Moi University which is one of the public universities in Kenya. Moi University is situated in Kesses division, Uasin Gishu County, Rift Valley province, Kenya and it is located 35 km from Eldoret town. Moi University was chosen as the area of study because it has an e-learning system which is used for Open and Distance Learning programmes. The Institute of Open and Distance Learning (IODL) was established at Moi University in November, 2007 with MUSOMI (customized from Chisimba framework) as an e-learning platform. IODL is currently located on the administration block of RIVATEX East Africa LTD, a Moi University Facility in Eldoret town. The Institute is mandated to co-ordinate all ODL programmes of the University.

2.2. Research Design

In this study, descriptive research method, based on a case study approach, was applied. The approach is effective while focusing a research on one organization, such as Moi University. Cohen *et al.* (2007) describe a case study as one where the researcher typically observes the characteristics of an individual unit—a child, a class, a school or a community. A case study approach enabled the researcher to carry out an in-depth investigation of the factors affecting e-learning adoption by lecturers in Moi University and also the results of the study can be transferred and applied to other universities. Moi University was found to be ideal because it is one of the universities in Kenya with an e-learning system in place.

2.3. Target Population

The target population of this study was 300, consisting of 295 lecturers from all the seven schools in Moi University, and 5 ICT staff from the e-learning office. This is shown in Table 1.

Table 1. Target population

School	Lecturers
Engineering	44
Business Studies	52
Arts & Social Sciences	65
Education	63
Biological & Physical Sciences	13
Human Resource & Development	35
Information Sciences	23
ICT staff	5
Total	300

Source: Moi University website - www.mu.ac.ke (2013)

2.4. Sampling Technique and Sample Size

Sample size of 171 respondents consisting of 166 lecturers and 5 ICT staff from e-learning office was used for this study. Stratified sampling technique was adopted to select a study sample of 166 instructors who are full time lecturers in Moi University main campus which translates to 56% of the target population. This approach helped in dividing the entire population into homogeneous subgroups (strata) based on the schools in Main campus. Moi University was stratified into schools, and then final subjects were randomly selected proportionally from the different strata. Moi University main campus consists of seven schools, namely, School of Education, School of Arts and Social Sciences, School of Business and Management, School of Engineering, School of Human Resource Development, School of Biological and Physical Sciences, School of Information Sciences. However, purposive sampling technique was used to select 5 ICT staffs because it allowed the researcher to choose who will provide relevant information on e-learning in Moi University. To get the sample size for the lecturers the formula provided by Yamane (1967) as shown below was used.

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = Sample size

N = Population size

e = level of precision

$$n = \frac{300}{1 + 300(0.05)^2}$$

$$n = 171$$

To get the ratio of the lecturer population the researcher used: $(166/295) \times 100 = 56\% = 0.56$. This is distributed as shown in Table 2.

Table 2. Sample size

School	Population size	Sampling fraction	Sample size
Engineering	44	0.56	25
Business Studies	52	0.56	30
Arts & Social Sciences	65	0.56	36
Education	63	0.56	35
Biological & Physical Sciences	13	0.56	7
Human Resource & Development	35	0.56	20
Information Sciences	23	0.56	13
ICT Staff	5		5
Total	300		171

2.5. Data Collection Instruments

Questionnaires were used to solicit data from the respondents who included lecturers and ICT staff from Moi University, Main Campus. Questionnaires were chosen because of their advantages of accommodating a variety of questions and minimizing time and money constraints. Besides, questionnaires encourage frankness of respondents' opinions. The questionnaires were personally distributed to the respondents and later collected on agreed upon date. The questionnaires were developed by examining the research objectives, hypothesis and related literature. The questionnaire was divided into two sections, namely A to B. Section A sought information on the respondents' demographic data. Section B was used to collect data on the factors affecting e-learning adoption by lecturers in Moi University. A 5-point Likert Scale was used to construct the questionnaire. The items included in the questionnaire were measured with 5-point Likert-type scale requiring the respondents to choose from a continuum which is anchored at both extremes (1= strongly disagree to 5=strongly agree). The use of likert-type scale instruments was justified in this study on the ground that participants considered all options provided and selected the most appropriate one that reflect their stance regarding the items on the questionnaire.

2.6. Validity of Data Collection Instruments

To establish content and construct validity of the instruments, opinion was sought from the experts in the field of research. They read through the questions that were to be used in the study. They evaluated the instrument for important deletions or inappropriate choices of items.

2.7. Reliability of Data Collection Instruments

To establish the reliability of the instruments, a pilot study was conducted. The data collected from the pilot study was used to compute the reliability of the instruments. Cronbach's coefficient alpha method was used to determine internal consistency of the items. In the study, the items were considered reliable if they yielded a reliability coefficient of 0.70 and above. Reliability analysis was employed in order to test whether there was internal consistency of the items. In order to ascertain this, Cronbach's Alpha was computed for all the 18 items in the questionnaires issued to lecturers. From Table 3, the results gave a correlation coefficient alpha value of 0.718 implying that there was a strong positive correlation and reliability between the items. These reliability tests were, therefore, considered desirable for consistency levels.

Table 3. Cronbach's alpha

Reliability statistics	
Cronbach's alpha	.718
No. of items	18

2.8. Data Analysis

Data was analyzed using both descriptive and inferential statistics. Frequency, means, mode and percentages were used for descriptive statistics while Chi-square test was used to determine the goodness of fit between observed and expected frequencies. Multiple regression analysis was employed to establish the existence of relationships between dependent and independent variables. Statistical Package for Social Science (SPSS) version 19.0 software was used for data analysis.

3. Results and Discussion

This section presents the results of the data collected according to the study objective that is "To investigate the organizational factors affecting the adoption of e-learning by lecturers in Moi University".

3.1. Respondents' Rate

The target population in this study was the lecturers of Moi University. A total of 171 questionnaires were distributed out to the respondents. Out of the 171 questionnaires, 131 were returned, translating to 77% which is acceptable given that some respondents were not in session and could not return the questionnaires on time.

3.2. Demographic Characteristics of the Respondents

This section contained information on lecturers' demographic characteristics in order to establish whether they influence adoption of e-learning by lecturers in Moi University. The lecturer characteristics covered included teaching experience and level of education as indicated in Table 4 and Table 5. These characteristics are believed to be important in adoption of e-learning.

3.2.1. Respondent distribution in terms of teaching experience

The first part of the questionnaire in this study sought to find out how long the respondents have been teaching in the university. This was important as the researcher had a perception that the longer a respondent has taught at the university the better position he/she is in to understand the factors affecting adoption of e-learning. Table 4 shows the percentage of the respondents teaching experience in terms of years.

Table 4. Teaching experience of the respondents

Number of years	Frequency	Percent
1	17	13.0
2	22	16.8
3	13	9.9
4 and above	79	60.3
Total	131	100.0

The respondents were asked how long he/she has been teaching in the university and from the findings shown in Table 4 above, 13% of the respondents had one year teaching experience, 16.8% had 2 years, 9.9% had 3 years and the majority 60.3% had more than 4 years. Therefore, the researcher assumed that majority of the respondents had more than 4 years of teaching experience, and this implied that respondents had been in Moi University long enough and were aware of the factors affecting adoption of e-learning by lecturers in Moi University.

3.2.2. Respondent distribution in terms of level of education

The second part in the questionnaire sought to find out the level of education of the respondents. This was important as the researcher had perceived that those respondents with the lower levels of education are able to embrace technological change as they have been brought up in the era of information technology. Table 5 shows the percentage of the respondents' level of Education.

Table 5. Educational level of respondents

Item	Frequency	Percent
Bachelor	22	16.8
Masters	81	61.8
PhD	28	21.4
Total	131	100.0

The respondents were asked to state their level of education and the findings in Table 5 above shows that 61.8% of the respondents had Master's degree, 21.4% had Phd degree and 16.8% had Bachelor's degree. The majority of the respondents had master's degree and therefore the researcher assumed this implied that respondents were willing and ready to embrace e-learning.

3.2.3. Organizational factors affecting e-learning adoption

The researcher sought to find out whether organizational factors such as professional development, access to infrastructure and resources, technical support, institutional culture and leadership support do affect the adoption of e-learning in Moi University. Respondents in the study were presented with a list of factors affecting e-learning adoption. They were asked to “strongly agree” “agree” “Disagree” or “strongly disagree” to the statements provided. They were also asked to indicate whether they were “Undecided” in case they were not sure. The bi-polar adjectives were merged together into “Agree”, “Disagree” and “Not sure”. Data for “strongly disagree” and “disagree” and “strongly agree” and “agree” were compounded together. Data on “Undecided” was not interfered with.

Table 6 shows respondent distribution of organizational factors affecting e-learning adoption.

Table 6. Organizational factors affecting e-learning adoption

Organizational factors	Agree		Undecided		Disagree		Total	
	F	%	F	%	F	%	F	%
Professional development	27	20.61	16	12.21	88	67.18	131	100.0
Access to ICT infrastructure and resources	21	16.03	6	4.58	104	79.39	131	100.0
Technical support	24	18.32	10	7.63	97	74.05	131	100.0
Institutional culture	21	16.03	22	16.79	88	67.18	131	100.0
Leadership support	20	15.27	19	14.50	92	70.23	131	100.0

The findings of the study as shown in Table 6 revealed that 67.18% of the respondents disagreed that professional development does not affect the adoption of e-learning while 20.61% agreed. Only 12.21% were not sure. On the other hand, 79.39% of the respondents disagreed that access to ICT infrastructure and resources do not affect the adoption of e-learning while 16.03% agreed. Only 4.58% were not sure. 74.05% of the respondents disagreed that technical support does not affect the adoption of e-learning while 18.32% agreed. Only 7.63% were not sure. 67.18% of the respondents disagreed that institutional culture does not affect the adoption of e-learning while 16.03% agreed. Only 16.79% were not sure. 70.23% of the respondents disagreed that leadership support do not affect the adoption of e-learning while 15.27% agreed. Only 14.50% were not sure.

3.3. Multiple Regression Analysis for Organizational Factors

Multiple regression analysis for sub-variables, namely leadership support, professional development, institutional culture, technical support and ICT access were analyzed as organizational factors affecting e-learning adoption by lecturers in Moi University. The findings are shown in Table 7 below.

Table 7. Model summary

Model summary	
Model	1
R	.731 ^a
R square	.540
Adjusted R square	.074
Std. error of the estimate	.904

a. Predictors: (constant), Leadership support, Professional development, Institutional culture, Technical support, ICT access

The results on Table 7 shows the value of R^2 has increased to 0.540 or 54% of variation in adoption of e-learning by lecturers in Moi University based on the organizational factors. This implies that 54% of the variability in the dependent variable (e-learning adoption) is explained by the independent variable (leadership support, professional development, institutional culture, technical support, and ICT access).

Table 8. Regression coefficients

Model	Coefficients ^a			t	Sig.
	Unstandardized		Standardized		
	B	Std. error	Beta		
1 (Constant)	3.132	.404		7.745	.000
Professional development	-.007	.066	-.010	-.109	.914
ICT access	-.054	.083	-.070	-.654	.515
Technical support	-.063	.090	-.074	-.698	.024
Institutional culture	.263	.072	.336	3.645	.000
Leadership support	-.002	.078	-.003	-.032	.975

a. Dependent variable: adoption of e-learning by lecturers in Moi University.

When the p-value for each independent variable is examined, the findings from Table 8 clearly indicates organizational factors, namely technical support and institutional culture (whose results are p-value, $p=0.024$ and $p = 0.000 < 0.05$) respectively are statistically significant at 5% level of significance. Thus, we conclude that organizational factors, namely technical support and institutional culture significantly affect the adoption of e-learning by lecturers in Moi University.

This concurred with study done by Keller & Cernerd (2002) who proved that organizational culture has the strongest impact on e-learning technology integration by academic teachers. Furthermore, a study by Korte and Husing (2007) revealed that schools in Britain and the Netherlands have appreciated the significance of technical support to help teachers to integrate technology into their teaching. However, a study by Ngamau (2013) revealed that management support was a significant predictor of e-learning adoption.

3.4. Chi-square Test

Chi-square was used to determine the goodness of fit between observed and expected frequencies i.e. whether the observed frequencies markedly differ from the frequencies that we would expect by chance. This is shown in table 9.

Table 9. Organizational factors

	Test statistics				
	Professional development	ICT infrastructure and resources	Technical support	Institutional culture	Leadership support
Chi-square	44.229	86.061	99.878	47.435	54.153
Df	4	4	4	4	4
Asymp.sig.	.000	.000	.000	.000	.000

The findings from Table 9 above clearly indicates organizational factors (whose results are $df=4$, p -value, $p=0.000 < 0.05$) are statistically significant at 5% level of significance. Hence, we reject the null hypothesis and conclude that organizational factors, namely the professional development, access to ICT infrastructure and resources, technical support, Institutional culture, and leadership support significantly affect the adoption of e-learning by lecturers in Moi University.

3.5. Discussion of the Findings

Organizational factors namely professional development, access to ICT infrastructure and resources, technical support, Institutional culture, and Leadership support affect e-learning adoption by lecturers in Moi University. Of the respondent lecturers, 67.18% of them were in agreement that professional development affect e-learning adoption, 79.39% agreed that access to ICT infrastructure and resources affect e-learning adoption, 74.05% agreed that technical support affect e-learning adoption, 67.18% agreed that Institutional culture affect e-learning adoption, and 70.23% agreed that Leadership support affect e-learning adoption by lecturers in Moi University. However, technical support and institutional culture were found to be statistically significant at 5% level of significance with a p -value of 0.000.

Multiple regression analysis results revealed that technical support and institutional culture are the most statistically significant sub-variables that affect e-learning adoption by lecturers in Moi University. This concurred with study done by Singh and Priola (2005) who noted that training staff may be regarded as a major challenge in the adoption of e-learning initiatives.

Consistent with these findings, another study by Plomp *et al.* (2009) revealed that access to ICT infrastructure and resources in schools is a necessary condition to the integration of ICT in education. Similarly, a study carried out by Tarus (2011) in a Kenyan university found out that inadequate ICT and e-learning infrastructure were

among the major constraints hindering the adoption of e-learning in Kenyan public universities.

Furthermore, a study by Korte and Husing (2007) revealed that schools in Britain and the Netherlands have appreciated the significance of technical support to help teachers to integrate technology into their teaching. In addition Thorpe *et al.* (2007) observed that lack of leadership among people in senior positions throughout the education can be considered to be one of the most important barriers to effective e-learning implementation. Keller and Cernerd (2002) also proved that organizational culture has the strongest impact on e-learning technology integration by academic teachers.

Finally, Nanayakkara and Whiddelt (2005) and Nanayakkara (2007) reported that institutional leadership needs to lead the e-learning development and should facilitate the infrastructure and training support for staff adoption. However, a study carried out by Ngamau (2013) in Jomo Kenyatta University of agriculture and Technology found out that management support was the only significant predictor of e-learning adoption.

5. Conclusion

The researcher investigated the organizational factors affecting e-learning adoption by lecturers in Moi University. Organizational factors, namely professional development, leadership support, access to ICT infrastructure and resources, technical support and institutional culture were investigated. It emerged from this study that among organizational factors, only technical support and institutional culture were found to be statistically significant predictors of e-learning adoption by lecturers in Moi University. However, the findings obtained from descriptive statistics regarding all organizational factors that were investigated revealed that majority of the respondents were in agreement that professional development, leadership support, access to ICT infrastructure and resources, technical support and institutional culture indeed affect e-learning adoption by lecturers in Moi University. It is evident from the study that successful adoption of e-learning by lecturers in Moi University can be enhanced if these organizational factors are considered.

In general, the researcher concludes that in order for Moi University to promote and enhance the adoption of e-learning by lecturers, organizational factors categorized in this paper as professional development, leadership support, access to ICT infrastructure and resources, technical support and institutional culture must be addressed.

6. Recommendations

Based on these findings, the researchers have suggested various recommendations that Moi University can implement so as to resolve the organizational factors affecting adoption of e-learning by lecturers.

The University management should support the lecturers through the expansion of ICT and e-learning infrastructure to facilitate access to e-learning by students, teaching staff and other stakeholders through allocation of more resources towards

ICT and e-learning infrastructure development. Availability of computers, laptops, networks and other relevant infrastructure will facilitate the adoption of e-learning.

Lecturers should be provided with comprehensive training on e-learning skills. Training of lecturers on e-learning skills will boost the lecturers' confidence towards the use of computers and hence enhance e-learning adoption.

Moi University should establish technical support staff at each department to continuously work with lecturers to make them more interactive and motivating.

Moi University should identify a way of motivating the lecturers to use e-learning either through being given extra credit points during promotions and monetary incentives. This will reduce the institutional culture of lecturers depending on traditional way of teaching using board and chalk.

7. References

- Ahmed, A. & Nwagu, W. E. 2010. Challenges and opportunities of e-learning networks in Africa. *Development*, 49 (2): 65-682.
- Ahmed, H. M. S. 2010. Hybrid e-learning acceptance model: learner perceptions. *Decision Sciences Journal of Innovative Education*, 8 (2): 313-346.
- Bates, C. 2009. *Integrating e-learning in African Universities*. (<http://www.tonybates.ca/2009/10/04/integrating-e-learning-in-africanuniversities/>). (Accessed on November 3, 2012).
- Britain, S. & Liber, O. 2003. A framework for the pedagogical evaluation of virtual learning environments. JISC. UK.
- Carroll, J. 2006. Short shelf life. *CA Magazine*, 139 (4): 14.
- Chaula, J. A., Yngstrom, L. and Kowalski, S. 2006. Technology as a tool for fighting poverty: how culture in developing world affect the security of information systems. Proceedings of the 4th IEEE international workshop on technology for education in developing countries, 10-12 July 2006, Iringa, Tanzania.
- Cheng, B., Wang, M., Yang, Stephen, J. H., Kinshuk, & Peng, J. 2011. Acceptance of competency-based workplace e-learning: effects of individual and peer learning support. *Computers & Education*, 57 (2): 1317-1333.
- Cohen, L., Manion, L., & Morrison, K. 2007. *Research Methods in Education*. London: Routledge/Falmer.
- DODL, Annual Report: November 2007- December 2008, Moi University Press, Moi University, Eldoret, 2008.
- Juma, M. N. 2003. An evolution of an existing institution. The University-Current challenges and opportunities. Nairobi: African Virtual University. (<http://www.unesco.org/iiep/virtualuniversity/home.php>) (Accessed on December 14, 2011).
- Kariuki, J. 2006. E-learning in Africa: Random reflections about e-learning in Africa, e-learning in Kenyan Universities. (<http://www.elearning.fundi.Blogspot.com/2006/10/elearning-in-kenya-universities.html>) (Accessed on November 8, 2012).
- Keller, C., & Cerner, L. 2002. Student's perception of e-learning in university education. *Journal of Educational Media*, 27 (2): 55-67.

- Korte, W. B. & Husing, T. 2007. Benchmarking access and use of ICT in European schools: Results from head teacher and classroom surveys in 27 European countries. *E-learning papers*, 29 (10):1-6.
- Makaza, D. & Madzima, K. 2008. The current state of e-learning at universities in Zimbabwe: Opportunities and challenges. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 4 (2): 5-15.
- Moi University website. Moi University departments and staff members. (<http://www.mu.ac.ke>). (Accessed on January 14, 2012).
- Mutula, S. M. 2003. Assessment of Africa's telematics, policy and regulatory infrastructure: potential for e-learning. Conference paper. (<http://www.ntesu.org.za/html/conference/papers/mutula.pdf>). (Accessed on January 14, 2012).
- Nanayakkara, C. & Whiddett, D. 2005. A model of user acceptance of e-learning technologies: A case study of a Polytechnic in New Zealand, 4th *International Conference on Information Systems Technology and its Application (ISTA'2005)*, Palmerston North, New Zealand, GI.
- Nanayakkara, C. 2007. A model of user acceptance of learning management systems. *The International Journal of Learning*, 13 (12): 223-231.
- Plomp, T., Anderson, R. E., Law, N. & Quale, A. 2009. *Cross-national information and communication technology: policies and practices in education*. Charlotte, N.C.: Information Age Publishing.
- Prakash, S. 2003. The African virtual university and growth in Africa: a knowledge and learning challenge. Human development. (<http://www.worldbank.org/afr/findings/english/find223.pdf>). (Accessed on February 9, 2012).
- Seminega, C. E. & Nginye, M. G. 2011. Online teaching of languages: a case study of Moi University, Kenya. *Journal of Language, Technology & Entrepreneurship in Africa*, 3 (1): 231-232.
- Singh, G. & Priola, V. 2005. Long distance learning and social networks: An investigation into the social learning environment on online students. *Proceedings of the Sixth Annual ELSIN conference*. pp. 158-164.
- Tagoe, M. 2012. Students' perceptions on incorporating e-learning into teaching and learning at the University of Ghana. *International Journal of Education and Development Using ICT*, 8 (1).
- Tarus, J. 2011. Adoption of e-learning to support teaching and Le University. MPhil Thesis (Information Technology), Moi University.
- Ngamau, K. 2013. Factors affecting effective adoption of e-learning in Kenyan universities: the case of Jomo Kenyatta University of agriculture and Technology. MBA Project (Organizational Development), United States International University.
- Twinomugisha, A., Magochi, J., & Aluoch, S. 2004. *Investigation of bandwidth consolidation for partnership universities*. Nairobi: The African Virtual

- University. (<http://www.avu.org/documents/Partnership/20Connectivity/20Report-20revised/2017-10-04.pdf>). (Accessed on December 13, 2011).
- Thorpe, A., Preston, M. & Braye, S. 2007. Beyond the classroom: learning social work law in practice. *Journal of Social Work*, 7 (3): 322-340.
- UNESCO. 2006. Teachers and educational quality: monitoring global needs for 2015. (<http://www.uis.unesco.org/TEMPLATE/pdf/Teachers2006/TeachersReport.pdf>). (Accessed on December 14, 2011).
- Zemsky, R. & Massy, W. 2004. Thwarted innovation: what happened to e-learning and why, the learning alliance at the university of Pennsylvania. (<http://www.irehe.upenn.edu/WeatherStation.html>). (Accessed on February 10, 2012).

