

Digital Migration: E-Learning and Primary School Teacher Nightmare in Kenya

*Tanui, Edward K. & Wanjira Lucy Ndegwa
Maasai Mara University & Karatina University, Kenya*

Abstract

Education is a fundamental right for all children. Cognitive, affective and psychomotor skill acquisition in learners has to be achieved at all costs. Conventional methods have been used in classes since time immemorial but with partial success. E-learning is a new orientation that is reported to have great potential to improve teaching and learning in primary and secondary schools. The pedagogic rationale for the implementation of ICT in learning in schools is something that needs to be hastened for the 21st century teacher. Provision of laptops to the more than 20,000 primary schools in Kenya was a step towards digital migration in education from analogue system of teaching and learning to digital approach. How the teacher interacts with electronic media is of paramount importance. The need for teachers to migrate from analogue to digital e-learning here referred to as digital migration in education is a challenge that needs to be explained. Descriptive survey research design was used for the study. The population for the study included, teachers and pupils. The study used questionnaires and informal interviews to collect data. Data analysis was done using descriptive statistics. The study found that teachers face a dilemma on which way to go as regards adopting e-learning. Their dilemma is compounded by factors beyond them. Politics and economics become bigger players. One is saying yes and the other says no, scarce resources are the problem. Provision of resources to be used is external to the teacher especially the primary school teacher. The laptop project is a step towards digital migration but the dilemma is how, when and with what to use to migrate. There is need to find ways to overcome the dilemma which brings is a nightmare to the teachers whether migration will mean early retirement or redundancy. The study recommends the conversion of the soul of the teachers both material and spiritually so that the digital migration can take place smoothly.

Key words: *dilemma, e-learning, teacher, 21st century, learning, nightmare*

Introduction

Basic education is a fundamental right to every child and it should be free and compulsory for all children aged below 18 years. This is an immediate obligation of the government to all citizens according to Article 46(1a, b) of the Constitution of Kenya. This section grants consumers the right to goods and services of reasonable quality including education. Education as a service needs to meet minimum quality standards. There is therefore an increased pressure for the government to improve education service delivery to schools and especially the primary schools. Vision 2030 places great emphasis on human resource development and articulates for productive citizens who are capable of solving more complex problems (GoK, 2007). Cutter (2006) notes that learning is often seen to be important because it enables citizens to grow and ensure that people have the skills.

Therefore he emphasizes that education is the bedrock on which democratic societies are built. This can only be achieved if more efficient resources in terms of technology are used, hence the introduction of information, communication and technology (ICT) in schools.

Information and Communication Technology (ICT) in school also referred to as electronic-learning (e-learning) is the new orientation in teaching/learning that is reported to have great potential to improve student academic performance in primary and secondary schools. E-learning is also expected to enhance administration and management of schools. In Wiles and Lundt (2004), they observe that who dares to teach must never cease to learn. Tanui and Kiboss (2009) note that computers enable learners and teachers to try out for themselves new approaches to teaching and learning. Hudson (1999) claims that actual computer classroom practices promote development of social skills rather than inhibit as some writers would like to think. More (1993) argues that when computers are used to teach pupils, they get isolated and points out that learning is not a private activity. Tanui and Kiboss (2009) on the contrary found that e-learning makes learning a social affair where learners work together in cooperative learning environment and are able to achieve higher mastery of content taught. ICT use in education enables information retrieval through internet and communication facilities within and without the school (Wiles & Bondi, 2007; Slavin, 1990). The authors also observe that ICT through internet has brought about library resources that can be accessed by anybody anywhere in the world without a swipe card or proof of enrolment anytime of the day in a physical library and therefore e-learning has better promise for the 21st century pupil. On the other hand the teacher is expected to guide the learners in use of ICT and also use it to enhance management of schools.

E-learning has been made cheaper and faster by provision of computers and internet facilities in schools with hope that the technology is able to provide pupils access to learning materials which would otherwise be difficult to reach (Brown, 1998). The Kenyan government aims at introducing e-learning to pupils at an early age because ICT is reported to facilitate more pupil-centered teaching, more self-learning and more peer-teaching, while providing opportunity for teacher to teacher and student to student communication, collaboration and access to internet learning resources as measured by pupil performance (Tanui & Choge, 2012). The Southern and Eastern African consortium for Monitoring Education Quality (SAMMEQ) found that Kenya ranked not very well in primary school pupils performance in reading and mathematics when compared to countries in the consortium of Botswana, Tanzania, Lesotho, Malawi and Mauritius (Cutter, 2006). Therefore there is need to improve performance of pupils and improving learning activities by enhancing digital migration in education to compete with other SAMEQ countries.

Despite the promising potential of ICT some studies show that there is little change in the way teaching and learning is conducted especially in developing countries (Sarbarwal,2012). Kiboss (2010) observes that measurement of effectiveness is complicated and that integrating technology into education can be challenging, frustrating, time consuming and expensive and a nightmare to the teacher. The free primary school education in Kenya has increased enrolment to over 82 per cent (Penuel, (2006). The increased enrolment means good to the society but the absorption rate in classroom and performance poses a challenge to the teacher

that needs external help the use of e-learning and digital migration that is now government policy. This could be described as digital migration by introducing e-learning here described as teachers' nightmare. The 21st century Kenya is encouraging migration from analogue to digital in education and other sectors in the country but the challenge will be with the teacher; the teachers' nightmare.

Role of Teachers in Implementation of E-learning

The point of implementation of change of innovations is the most important process especially in education and this is also a point where most innovations fail (Fuller & Clarke, 1994). They note that implementation of any innovation involves change in practice. This on the part of a teacher means possible use of new or revised materials, new teaching approaches and possible alterations of beliefs which might not take place due to lack of exposure of teachers during training.

Kiboss (2010) and Wiles and Bondi (2007) found that the role of a teacher in implementation is critical at classroom level because the teacher decides what goes on in the classroom the whole day. They stress that when implementing technology, the attitude, value and priority of the teacher must be taken into consideration. Wiles and Bondi further note that through history, teachers have lagged behind in technological change in instruction. Plomp, Pelgrum and Steer (1992) also observe that negative attitudes of teachers towards innovation, lack of clarity, the nature of teaching profession, lack of time and lack of appropriate training are some of the possible reasons why innovation may fail. Hawkrigde (1990) argues that when teachers have limited knowledge of ICT, they have a tendency of shunning its use. The prediction so far highlighted may prove a great nightmare to the teachers and especially primary school teachers in Kenya, when digital migration comes into force. The introduction of laptops for standard one pupils is around the corner. The e-learning technology is new and needs new mindset, new culture, new training. Teachers are used to the old ways of doing things. They have been trained for short time about the computers but the question is; are these short courses enough to propel them on the trail of digital migration from analogue? This could be a nightmare but this study seeks to determine. Who is a savior? Will it be the principals, education officers, or parents? All these are also illiterate in the use of e-learning.

Teachers not only hold the key to learning but also to the effective use of e-learning in schools. ICT as teaching tools are highly dependent on professional development of a teacher. It is therefore important to rethink what is taught, how it is taught and why it is taught at the teacher training institutions (Wiles & Bondi, 2007). When teachers are forced to have computers, they may have little choice of whether to use them or not but they retain great control over how and when to use them and more often than not, they choose not to use them.

The rationale for ICT include; social, vocational, pedagogic and catalytic. Various studies support the idea that computers should be introduced to schools to improve instruction, revitalize teachers and give children the experience to use them. Pedagogic rationale for the implementation of ICT in schools is challenging, a task that needs to be established especially in Kenyan schools. Merium & Caffarella (1991) present four orientations to learning: Behavioral (observing people's behavior), cognitive (memory perception), humanist (needs of individual) and socialist and situational (interaction with observation of people in social

context) that may be observed during implementation. The socialist and situational type of learning provides active participation of stakeholders and help learners to make sense of reality, that is, what is happening and why it happens. Engaging the stakeholders in the learning process during implementation and evaluations may help bring understanding of challenges facing e-learning in schools and more so the teacher.

Teachers hold the key to learning in schools and effective use of ICT tools as teaching tools are highly dependent on professional development of a teacher. It is therefore important to rethink what is taught, how it is taught and why it is taught as implementation of e-learning gets under way in the country. The success of teaching is an ultimate aim of schooling. This is measured by teachers readiness in terms of content and technology used in class. E-learning's success or failure will be determined mostly by the teacher. The nightmare is; how will the teacher migrate from analogue to digital? The study therefore purposed to determine challenges facing e-learning in primary schools from the teachers' perspective.

Theoretical Framework

The theoretical framework that underpinned this study is Kursters' theory of change (2011). The theory explains how stakeholders or organizations or society think concerning change. Change can be brought about in the context within which people work. This shows that when reasons for evaluation are clear, key stakeholders are identified as well as primary users of the evaluation findings.

Kursters et al. (2011) six factor theory was used to establish the effect e-learning on teaching and the teachers. The factors include:

- a) The level of support given by the management of organizers and leader of the community involved in the evaluation process.
- b) Stakeholders' belief, attitude
- c) The experiences influence performance.
- d) The degree to which learning organization structure facilitate learning.
- e) The level and type of communication between and among stakeholders involved in the evaluation process.
- f) Amount of space given for stakeholders to explore issues and express their operations.

Kursters note that including or excluding stakeholders on innovation always has consequences for change. They say Theory of Change can be used to check milestones, document lessons about what really happens, keep the evaluation process transparent and help prepare reports of findings and policy.

Methodology

The study adopted descriptive survey research design. The design was chosen because data can easily be collected that can be used to describe the nature of existing conditions or identify the standards against which existing conditions can be compared better (Brown,

1998). The target population for this research was the teachers, pupils and head teachers in schools. The study used purposive sampling to select schools having computers for classroom instruction in the North Rift Valley Province in Kenya. Mugenda and Mugenda (2003) note that the descriptive research design is not only less complicated but is also less expensive and adequate. The study used semi-structured questionnaires, informal interviews and observation schedules to collect data from respondents.

Findings

Challenges in E-learning Technology

The study sought to find out the challenges of digital migration from analogue, described as nightmare of teachers. In studying the teachers' enthusiasm with e-learning the purpose was to determine whether change in instruction would help teachers to be more effective. Observation on how teachers handled pupils, computers and punctuality to class and consistency in classroom teaching was used. The study found that in the early weeks of introduction of e-learning (computers assisted learning) teachers showed, enthusiasm and happiness in the classroom. The interaction with students was high. The study also found that towards middle of the term, the enthusiasm of teachers decreased. This was shown by teachers' reduced e-learning activity in the classroom. This study also observed more teacher centred class activities where more listening was required from students. It also found that the fear of launching deep into the technology of e-learning created fear in the teachers.

The study found that the fear of migration was the cause of nightmare in among the teachers. This led teachers to progressively begin to talk more and use less of the prepared e-learning lessons. At the end of the term study found that teachers had conducted full class lessons time using the conventional methods and promising pupils to use e-learning material during revision. Asked on reasons for this behavior teachers said that it was because of the zonal examination or district examinations. They observed that it was necessary to use conventional methods of teaching because according to them pupils would go faster. The nightmare arose from competition in the examination oriented curriculum that emphasizes on position expressed in ranking of schools and students. This is in agreement with Wiles and Bondi (2007) who observed that fear of e-learning technology make teachers find comfort in the old ways of teaching.

Teachers were heard arguing that young learners may not understand concepts presented in the digital platform. They said that learners especially in lower primary have tendency to play and cannot concentrate on computer lessons from laptops or computers. This corroborates findings by Weston et al. (2010) on use of technology and student achievement.

The study found teachers arguing that the biggest challenge they faced when using the e-learning technology is the instruction time. They observed that it was difficult to find time to plan for activities that integrate technology in the class lesson. They sounded frustrated over spending instructional time on technology issues such as software updates and

connectivity issues rather than teaching. Above the greatest nightmare here was whether to go to school to acquire new skills on emerging technology issues because computer technology is a dynamic field as observed by Beggs (2000) on his study on influences and barriers to the adoption of instructional technology. Many teachers also thought that they lacked the skills to manage an ICT integrated class competently. In this instance teachers suggested that if they were given more training in computer literacy, trouble shooting hardware, software and application issues they would smoothly accomplish digital migration. The other problem was the fear of the laptops and computers tendency breaking down for one reason or another especially in the hands of children.

The study also found that one of the greatest nightmares was the notion that digital migration could render teachers irrelevant. This is because according to Wiles and Bondi (2007) computers will have capability of presenting lesson content and evaluating students. Teachers felt that the teacher should remain the authority and all knowing and anything that makes them otherwise is deemed an enemy to them.

E-learning and Mathematics

The study also found that one of the reasons was tendency by teachers to associate e-learning with mathematics. The association of e-learning with mathematics made them develop some fear which was prevalent among majority (80%) of primary school teachers interviewed. Mathematics is believed to be a difficult subject among many teachers. This confirmed the nightmare teachers go through as they contemplate the digital migration in education which is not an option as laptops, computers and e-learning is there to stay in schools. This is a nightmare.

The few teachers (about 20%) who actively and faithfully followed the program were mostly mathematics teachers. The result suggested that attitude of teachers towards mathematics from non mathematics background may have led to negative attitude towards e-learning. The study found that teachers who were not mathematics teachers felt that it was only a preserve for those who taught mathematics to pursue and use e-learning. This could probably be the reason why progress of implementation of e-learning is slow in most schools and digital migration for teachers a steep mountain to climb as Hawkrigde (1990) observed. This finding was similar to other studies carried out when e-learning was introduced in the teaching of geography, business studies, foreign languages and physics in secondary schools (Kiboss & Tanui, 2013). The two authors and others observed that the attitudes of teachers towards e-learning contributed to their nightmare and dilemma whether to go forward or backwards.

A part from the influence of mathematics the study also found that in classroom setting, introduction of e-learning may have impacted negatively on attitude of teachers or heads of schools because computer as a subject was not examinable and the teachers said that they did not see any reason why they should use e-learning to teach their subjects. Some of teachers interviewed cited lack of time as an excuse for not using e-learning in classrooms. The teachers observed that mounting computers during lessons required a lot of their time which they did not have. The results of this study are in agreement with results found by,

Kiboss (2010) on teachers, computers and the teaching of accounting in secondary schools. In the study teachers were found to believe that they were better and faster while teaching using traditional approaches than when using electronic learning.

Influence of Adequacy of ICT Equipment on Implementation of E-learning

The study further sought to find out whether the number of computers and ICT equipment per student influenced implementation. The study revealed that some schools had many computers and others had a few but in many of the schools the computers were not working. The study therefore found that in many schools computers were few and the aspect of implementation could not be talked about. Digital migration in this aspect became a nightmare because in addition to question of inability by teachers to use e-learning another problem was the inadequacy of the computers to be used by students. In a number of schools the ICT equipment was inadequate so access was limited. The reason for not using ICT by teachers was the limited access because there were few computers to serve many students. The teachers felt this as waste of time for both the teacher and pupils. In saying this, teachers had not realized that technology had brought a paradigm shift where technology explains the world and predicts the future according to Wiles and Bondi (2007).

Responses in schools that had computers were varied. In some schools that had adequate hardware and software, teachers were not using them. The reason observed was attributed to their negative attitude towards e-learning. For example, the statement of belief “we have been teaching using analogue methods and students have been passing examinations”, is a reflection of negative attitude. These teachers perceived that using e-learning was a waste of time. In other schools it was found that the equipment was obsolete and the hardware could not be used. This confirmed the observation of Plomp et.al. (1993) who found that a number of schools even after purchasing computers have a problem in keeping them in working condition. The unfamiliar technology becomes more unfamiliar as teachers cannot practice skills they have been taught and especially having less technical understanding of the computers. The primary standard one e-learning programme might be different but with time the problem could recur because of maintenance.

Access to Internet

The study also sought to find out whether the school children and teachers had access to internet and how many (if any) computers were connected to the internet. The issues of access to internet varied. In some schools teachers cited cost as a barrier and others cited the issue of security and pornography as factors that discouraged teachers to use e-learning. On these issues the study found that few schools had overcome the problem of high bills and fear of pornography and access to the internet was therefore available. In most cases use of internet was found to be affected by low or high internet access that might contribute to discouragement of teachers (Cutter, 2015). They observe that the paradigm teachers hold in the 21st century represents the old set of concepts that are losing value everyday. The teachers also displayed phobia that computers and internet will encourage phonographic viewing and other vices in class. Teachers also observed that they were likely to face myriad of problems when using e-learning technology in classrooms because most learners use laptops primarily for games in

their homes. This is likely to be a hindrance for learning for achievement of educational objectives which was also echoed by Wiles and Lundt (2004) in their study of implementation and effects of one-to-one computing initiatives.

Influence of Teachers' Characteristics on Implementation of E-learning

The study also sought to find out whether the practice of subject allocation and characteristics of teachers in lower primary would have any influence on adoption of e-learning. The study found that in most primary schools older teachers have specialized in teaching in lower primary (standard 1 to 3) using analogue format. Because the age of teachers made them psychologically, emotionally and even physically more at home with the lower primary children, the analogue system was preferred. Sarbarwal, (2012) observed that traditional system of instruction taught them to have patience with young learners but without e-learning. The study found that e-learning will require young teachers who understand computer work but not endowed with the patience of the older teachers. The younger teachers are likely to negatively influence the motivation of younger primary school pupils because they lack patience. E-learning in the schools will likely be influenced by the "old wine skins and the new wine" syndrome. First e-learning may not be accommodated by majority of teachers currently teaching lower classes on the basis of age while at the same the digital teachers may lack patience with the learners. This is a nightmare of the migration to digital education; how to marry social and cognitive aspect of e-learning.

Role of Head Teachers in Implementation of E-learning

The study also sought to find out the role of head teachers in implementation of the new technology. The study found out that the majority of head teachers were enthusiastic on using ICT. The respondents responded positively on the training they received on e-learning they got. Trained teachers in ICT were more enthusiastic and shared that their classroom practices were participatory while those who had limited or inadequate training still had problems in the use of e-learning. The study corroborates with observation by Wilcox (2005) who asks whether the digital kids will be excited with another diorama or poster for history lesson.

In some schools the principals were the movers. It was found that they sensitized and provided support to teachers and sourced for more funding for ICT. Where the principal is sensitized access for up to 100 students to 25 computers was possible because the principals were able to re-organize the school timetable to accommodate e-learning. The study found that the level of sensitization of the principals on e-learning had great bearing on number of equipment at the school and support to the teachers. The more sensitized the principal, the more support he/she gave to ICT department and therefore better the learning took place. It was also found that some head teachers were disinterested because they had not been trained or did not have any knowledge of ICT. The study agrees with Clarke (1994) who observes that the rush in technology seems to make educators feel powerless, only following what comes up in technology. E-learning is changing definition of education to access to knowledge. The challenge is that the 21st century technology is providing learning activities and content and evaluation through websites. It reported that students will need to click website like www.mathsearch.com to access information. In this instance the teacher is at dilemma what to do in such situations (Wiles & Bondi, 2007). The problem about teachers and e-learning may

be viewed also from the aspect of change and management of change in curriculum (Carnal, 1995). The introduction of technology leads this study to conclude that directed contact change may resolve the problem. The change of e-learning is a product of innovation lead by the government and those in education. In this type of change goals are set by outsiders in order to introduce new ideas a thing which teachers find foreign. The dilemma by teachers is likely to cause dissatisfaction.

Therefore the e-learning though with promises of bright future the head teachers attitude plays a great part for its implementation. E-learning and the old wine skins and new wine continue to be a challenge. The study also observed that if teachers are forced to use computers, they may have little choice of whether to use or not but they retain great control over how and when to use them and more often than not, they will choose not to use them. The nightmare of the teacher will be compounded by assertion that in future knowledge will be universally accessible no longer confined to a place or one medium (Wiles & Bondi, 2007). The media will be mostly electronic and there will be increasing technological fusion from multimedia to monomedia (Kiboss 2010). The future knowledge and instruction will be digitized, broken down into parts and easily reassembled in new forms and the teacher may be rendered irrelevant. A great nightmare!

Conclusions

In conclusion the following questions should be answered in the road to digital migration, “How do you create a compelling picture of young people’s future with people who are less technologically literate? How do we educate today’s kids for their future rather than our past?

The study found that e-learning in primary school will be influenced by the characteristics of teachers in terms of attitudes, and age. The teachers’ future is uncertain as the e-learning is decentralizing the school to the home or any place away from the traditional school building.

Technology has given us new definition of school from the 19th century factory like conception of school to the new paradigm where education can take place without the teacher. The presence of hardware and software does not have direct correlation with access by teacher and student to the ICT equipment.

That contact change principle is applied to enable teachers’ exposure to new technology to diffuse gradually into the social system of the school to replace nightmare with confidence.

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