

TEACHER PREPAREDNESS FOR IMPLEMENTATION OF E-LEARNING PROGRAMMES IN PUBLIC PRIMARY SCHOOLS IN KENYA

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ABSTRACT: *The use of ICT in many countries has contributed to improvement of their economies through scientific knowledge and services. In Kenya the policy makers initiated Vision 2030 as a vehicle for industrial advancement and growth of economy. The purpose of this study was to assess teacher preparedness for the implementation of e – learning programmes in Emuhaya Sub-county in Kenya. Objectives that guided this study include: To establish teachers preparedness in terms of knowledge, attitudes and skills for implementation of e – learning in public primary school and to identify challenges which implementers of e – learning are likely to face in public primary schools in Emuhaya Sub-county. The target population of the study was 664 class teachers from 83 public primary schools, each school providing eight teachers. Simple random sampling method was used to select 25 public primary schools from 83 schools in the sub-county. The sample size comprised 200 class teachers as respondents selected from middle and upper primary. Questionnaires were administered to class teachers and their responses presented in frequencies and percentages for the purpose of data analysis. The findings of the study revealed that teachers are not well prepared to implement e-learning programme therefore a lot of resistance to the programme. Teachers require sufficient time to prepare for integration into the new system of instruction. To address the problem teachers need encouragement through pre-service and in-service training. The respondents encounters challenges such as computer illiteracy and phobia, lack of computers and e – learning classrooms, lack of electricity, financing of e – learning programmes, sensitization of stakeholders, accessibility and time for training, old age and attitude. The study recommends that the Ministry of Education should introduce clusters of e – learning centres with instructors to man a group of schools. These centres can be used for training teachers from nearby schools. It is easier and cheap in terms of transport costs and also it is convenient. The private sector which plays a significant role in the development and growth of economy should be encouraged to support the initiative by donating funds to equip schools with computers.*

KEYWORDS: Preparedness, Implementation, E-learning

INTRODUCTION

The increasing explosion of information, communication and technology (ICT) needs flexible learning and teaching approaches to be able to meet the challenges of the 21st century. Mukwa (2000) argues that the increasing explosion is the expanding knowledge and continued demand for education. Menjo (2008) says that integrating electronic media resources would supplement and complement traditional classroom learning and teaching.

The contemporary world has sophisticated electronic media such as the computers which could be integrated into the system. To operate them there is need to train teachers first and provide security to the hardware against vandalism a practice that is prevalent in rural communities. Learning and teaching is the concern of a trained teacher. Media is a powerful tool that

influences the minds of those who use them. Kafwe (1998) says that media technology is ideal for young people to be engaged with educational material from the internet. It advocates for training of teachers to know how to handle the media effectively. Learning is reinforced with learning aids of different variety because they stimulate, motivate as well as arrest learners' attention for a while during the instructional process.

Wentling, (2000) Developed countries have taken great strides towards exploitation of new and emerging technologies for instructional process. It is important to address the issue of funds in the development of educational projects. Efforts to initiate the same technologies in developing countries like Kenya are down played. Money is needed to purchase equipment and sustain the programmes. Alternative way such as encouraging the participation of private sector should be sought because economic development of the country cannot be achieved without modern technology. Faced with deteriorating quality of education and poor academic results in the core subjects such as mathematics, one way is the use of integrated electronic media resources in schools. It would assist to reap the benefits of such an intervention. Application of electronic media resources is classified as hardware approach. However, the approach is not expected to replace the role of the teacher in the classroom. The media is supposed to supplement and complement the learning activities (Ashworth 1994).

Multimedia is a very effective means of instruction. Multimedia arouses interest, attention and increased level of understanding. Intellectual development is supposed to be harmonizing with aesthetic education and works of art. The long term implications for the use of technology are profound both for the delivery of literacy education and for a new innovation. In view of that, it is possible to say that the world is fundamentally transformed by technology. Santhanam (1992) says that the approach mechanizes the process of teaching so that teachers are able to deal with more learners with less expenditure educating them.

After studies were carried out in e – schools project, NEPAD (2003) report recommended that ICT delivery of education be integrated in primary schools. It was followed by MOEST (2005) report in the Kenya Government Sessional Paper No. 1 of 2005 which laid emphasis on ICT skills to provide economic development in the country. Since then public primary schools have not been seen carrying out the process of implementation. It prompted the need to carry out an assessment of public primary schools preparedness by looking at the availability of appropriate physical structures for e - learning, electronic equipment and human resources.

Osei (2006) on professional development argues that consultative meetings give teachers the opportunity to interact and get new ways of assessing learners. Their positive attitude towards e – learning may stimulate learners' creativity and motivation. Consultative meetings with other teachers in forums in regard to e – learning instruction should be encouraged to have a lasting impression on their attitudes and behaviours. They would have high level of commitment to work which may increase their skills and content knowledge through sharing of information. Since this country is looking forward to realization of Vision 2030, implementation of ICT technology in primary schools would give this country a strong foundation. That is why the study sought to assess the preparedness of public primary schools.

Specific objectives

The study was guided by the following objectives,

- a) To determine teachers preparedness in terms of knowledge, attitudes and skills for implementation of e – learning in public primary schools in Emuhaya Sub-county.

- b) To identify challenges which implementers of e – learning are likely to face in public primary schools in Emuhaya Sub-county.

Teachers' characteristics and their effects on learners' achievements

Goldhaber (2003) asserts that teacher quality has the greatest impact on learners' achievement gains among all educational factors and school resources. For learners, good teaching lasts a lifetime and a bad teaching limits their dreams and opportunities. What teachers know and can do is the most important influence on what pupils learn. The quality of teachers is the critical element of an effective schooling and pupils' learning. School inputs have more effect on learners' achievement independent of family and societal backgrounds.

Schools could make a difference and a substantial portion of that difference is attributable to teachers. Something has to be done to help improve declining standards of learning in public primary schools. It is important to know the types of inputs that are relevant and how schools could source out funds from their own budgets or educational grants. Given the situation of economy in the country, the prices of educational inputs are likely to go up and that would be a burden to the tax payer if the government decides to finance them in total. Therefore, alternative sources have to be sought to supplement government efforts to finance educational projects. (Mbando 2003)

Coleman (1996) argues that qualification is the critical element of an effective schooling and pupil learning. Teacher qualification is expressed in terms of formal education and training. Different results have shown that teacher qualification correlates with learners' performance, hence it needs further investigation.

Teaching as a human labour is an important social factor that affects learning in schools. The quality of classroom teaching and learning depends greatly on how a teacher is qualified to handle learners. Formal education refers to the level of their academic qualification. Teachers have qualifications ranging from certificate to degree and are expected to help learners improve on learning and receive quality education. It has to be fundamentally established how the academic qualification influences the quality of classroom learning. The qualification of teachers is supported by formal training from teacher training colleges. This is to make sure teachers receive certificates which are authentic to reflect the skills acquired in colleges (Menjo 2008).

The teaching experience appears to be a major factor of concern in teacher quality in public primary schools. There are various comments both positive and negative given about teaching experience. It is believed that experience is the best teacher. However, that is to be correlated with the performance of learners in public primary schools. Older teachers have long teaching experience and are veterans in settings that emphasize continual learning. Goldhaber (2003) indicates that the teaching experience between old teachers and new teachers appears to level off after some time.

They are expected to strengthen their collaboration with other teachers who are still new in the teaching profession. The collaboration is very important because if it is made to continue it would improve pupils' learning performance. Very well prepared beginning teachers are highly effective. Consultative meetings need to be encouraged amongst teachers both at school level and in forums outside the school.

Goldhaber (2003) asserts that attitudes have a profound impact on teacher practices and behaviours. Teachers have the opportunity to leave a permanent impression on their learners' lives. School experiences influence how children view about themselves inside and outside school. Their school memories have the potential to last a life time which could determine their present and future decisions. The attitudes include being a genuine caring and kind teacher, willingness to share responsibility, being sincere to diversity of learners, ready to stimulate learners' creativity and motivation to provide meaningful learning experiences.

Osei (2006) argues that professional development increases the opportunity to interact with other teachers to get fresh instructional methods and new ways of assessing their learners. Teachers require continuous training on emerging issues in classroom management, curriculum implementation and for instructional implementation in their respective subject specialization.

Professional development could provide opportunities for teachers to grow personally and professionally to increase their capacity for effectiveness and efficiency. The professional development activities show the level of teachers' commitment to the school work which increases their skills and content knowledge through sharing of information.

Preparedness of public primary schools in implementing educational innovations

Kim (2002) argues that preparedness of schools lies within the provision of quality learning resources and facilities. Educationists acknowledge the complexity involved in the implementation of innovations and endeavour in search of different ways to realize success. Implementation of innovations takes place in social-economic, physical and political settings. Therefore, many factors intervene at all stages. Curriculum implementation is a process that the project staff and education authorities always look forward to with a lot of eagerness. The first thing to consider relates to the attitudes of teachers towards implementing the programme.

The attitude of teachers depends on their training capacity and how one is ready to receive the new programme. In addition, a lot of funds have to be spent on purchasing equipment and renovation of the existing physical facilities. Implementation also means the process of putting into practice a developed curriculum. Implementing a new system in curriculum is costly and more effort is required to be put into the process to ensure success is achieved. All stakeholders need to be prepared which involves training schedules and even public awareness through media, seminars and workshops (Kim 2002).

Given high poverty index in the country, public primary schools cannot be able to shoulder the cost of implementing an expensive programme such as e-learning. Implementation in curriculum could also be defined as a systematic process of ensuring that the new curriculum reaches its immediate beneficiaries, the learners. Planning of curriculum change is a very complicated process at every stage. For instance, financial and administrative policy cannot be divorced from it (Eicher 1984).

The task of curriculum implementation involves persuading the people to change their attitudes, policy makers, administrators and teachers, trainers of teachers, school supervisors, parents, lay public and learners. The ultimate purpose is to make the process possible. It can be done by informing the public through mass media and personal contact, seminars, public lectures, etc.

The other task involves obtaining the necessary professional personnel to perform various roles in the process carefully locating them based on accepted criteria. The process includes training

teachers through pre-service and in-service teacher education programmes, educating teacher trainers, educational administrators, inspectors and all those likely to take part in the process (Bajah 1998).

Challenges facing implementation of e - learning

MOEST (2005), The policy should be strengthened to provide integration of ICT programmes in primary curriculum. Together with institution's leadership, the IT managers are required to set IT objectives and targets to be achieved at the school level. Without doubt, the government would appreciate that as its part of performance management in vision 2030. Inappropriate quality of hardware and software in learning institutions could also be an indication of weak or lack of IT management staff. Stringent measures are needed to provide maintenance services to equipment and funds to run ICT instructional programmes. Before buying computers the hardware-software interface is required to be considered to avoid any chances of mismatch.

Various challenges have been cited that face implementation of e-learning. Lack of management support and commitment is a very big problem to implementation of e-learning programmes. Management is the hub of administration and if support is not forthcoming from it, then no substantial activity may be carried out in an institution. It ensures policies and guidelines of a system are enforced by implementers. Jackson (2004: 23) asserts that to remain competitive, part manufacturers often introduce new parts or products and discontinue older parts.

IT problems include workload, band width and internet speed that can affect efficiency of teachers. It is expensive to manage the high cost of broad bands on internet coupled with the workload disposal. Lack of strategic planning is a problem in implementation of e-learning. There is need to put in place strategic plans such as budgets, piloting to test feasibility and evaluation. There is fear of change which is a normal phenomenon with human beings. Some teachers are overcome with fear to have hands-on the equipment. It is a phobia an individual has over objects and it could take a long time to convince such a person to get basic training skills in ICT. They are so used with the conventional system that changing to a new innovation is not easy. Some people even would start feeling intimidated and resort to internal resistance (Osei 2006).

Goldhaber (2003), Technological accessibility, convenience and economical advantages of e-learning as key drives for integration cannot be met due to the resistance. Serious consideration of e-learning technology has not been taken. Time factor is very important in development of e-learning programmes. ICT technology is dynamic world over and institutions need to get prepared for any eventual changes. The cost of buying new equipment and maintenance, need to be well planned in the school budget. A good budget is a very effective instrument in the running of institutional programmes. E – learning centres and establishment of e – learning standards and specifications are not available.

Wentling (2000) says that the challenge of integrating e – learning with knowledge management depends on re-engineering of minds to facilitate the planning of strategies based on common objectives if an organization does not guarantee integration of e – learning in the national context, then objectives and the best e – learning products cannot be addressed. Educational and training initiatives supportive of new managerial mindset should be created. Lack of physical infrastructure such as computers, laboratories and guidelines pose a hindrance to teachers who have trained in ICT and cannot practise. Muindi (2010: 10) asserts that nearly

half of teachers in public schools are computer illiterate. Leadership of some schools has organized training sessions during school holidays but they have not made it compulsory for their staff to attend them. Hence, such trainings are attended by few staff as the rest remain illiterate in IT. There are demands of managerial education with a view of reinforcing a mentality of change, efficiency, hard work, sharing of knowledge and fostering of community practice.

FINDINGS AND DISCUSSIONS

The study sought to determine how teachers were prepared in terms of knowledge, attitudes and skills to present e-learning instructions and challenges implementers of e-learning are likely to face in public primary schools.

Teacher preparedness in terms of knowledge, attitude and skills

The data was presented and discussed in the following sub-topics:

- Number of ICT trained teachers
- Acquisition of computer skills by primary school teachers
- Teachers' attitude on e – learning method of instruction
- Attendance of primary teachers in e – learning seminars

Table 3.1 The number of ICT trained teachers in public primary schools

Table 3.1 below shows responses regarding the number of ICT trained teachers on staff.

Statement	Frequency		Total
	Yes	No	
ICT trained teachers in public primary schools	78 (46%)	91 (54%)	169 (100%)

Source: Survey data

The table 3.1 above indicates that 91 (54%) respondents said their schools did not have ICT trained teachers who could handle e – learning lessons. Only 46% of teachers in Emuhaya Sub-county can operate a computer. Effective implementation of the programme could not be achieved because the number of ICT teachers in schools is still low.

Their training skills in ICT cannot be put into practice because there are no computers in schools. Another factor which also slows down implementation of the programme is teachers' lack of commitment to e – learning. The commitment shown by teachers in the programme would help them improve their quality.

As it can be observed from Table 3.1 above training teachers in ICT is necessary and the government should take initiative to train them. This provides teachers with opportunity for professional development in knowledge-based e – learning. Coleman (1996) says that the critical element of an effective schooling and pupil learning is function of the quality of the teacher. Osei (2006) argues that teachers' professional development increases the opportunity to interact with other teachers to get fresh instructional methods.

Table: 3.2: Acquisition of computer skills by teachers in public primary schools

Table 3.2 below shows the mode of acquiring computer skills by primary school teachers in Emuhaya.

Mode of acquiring ICT skills	Number of respondents
Self- initiative	9 (5%)
Sponsored programmes	1 (1%)
TTC	15 (9%)
ICT College	35 (20%)
Through University	3 (2%)
Cyber	2 (1%)
Through High School	5 (3%)
Seminars	7 (4%)
Previous employment	1 (1%)
None	91 (54%)
Total	169 (100%)

Source: Survey data

From the table 3.2 above, it is evident that teachers have acquired ICT skills through various means. Out of 169 (100%) respondents, those who acquired the skills through self-initiative were 9 (5%). By attending ICT colleges 35 (20%) respondents indicated their participation. Teachers who acquired the skills by interacting with owners of cyber cafes were 2 (1%) respondents and previous employment, 1 (1%) respondent.

Through sponsored programme it was 1 (1%) respondent. It is also noted that teachers have been able to acquire the skills through high schools 5 (3%) respondents, at university 3 (2%) respondents and through TTC 15 (9%), through seminars 7 (4%) respondents. It is evident from the results in the table above that overall 78 (46%) respondents had ICT skills and 91 (54%) did not.

Teachers and learners in public schools do not have access to computers; hence creation of a phobia that affects their attitude is prevalent. The phobia could be eliminated if teachers are encouraged to attend nearby e – training institutions, seminars and workshops to improve on their manipulative skills. Communities can also start cyber cafes as Collaborative Development E – learning Technologies which depends on internet to help learners access ICT training. The system is able to create interpersonal communication and increase knowledge and skills.

The use of e – learning approach would not succeed without provision of computers and training of teachers. The study conducted by Goldhaber (2003) looks at training and familiarity with computers as very important because it helps the users to learn how to browse on the internet. It says that the training improves on the quality of the teacher and education of the learners. On other hand the study by Bajah (1998) indicates that the quality of any education is judged by the effect it has on learners and society which is broad based.

Table: 3.3 Teachers' attitude on e-learning programme

Table 3.3 below gives a picture of teachers' attitude on e – learning.

Statement	Yes	No	Total
Teachers in the school are ICT trained	58 (34%)	111 (66%)	169
Attendance in e – learning seminars	49 (29%)	120 (71%)	169
Ability to operate computer	54 (32%)	115 (68%)	169
Teachers interested in e – learning instruction	157 (93%)	12 (7%)	169

Source: Survey data

The results of study in table 3.3 above, indicate that 157 (93%) respondents said they were interested in e – learning against 12 (7%) who did not have interest. ICT trained teachers in public schools had 58 (34%) respondents against 111 (66%) not trained. A large proportion of teachers have not attended e – learning seminars as indicated by 120 (71%) against 49 (29%) respondents who attended. Those with ability to operate a computer were represented by 54 (32%) respondents and 115 (68%) could not. The responses indicate that there is still a wide gap in the provision of quality e-learning resources in public schools

Table: 3.4: Relationship between teachers' attitude on e-learning and acquisition of ICT skills

Table 3.4 below shows relationship between teachers' attitude on e-learning and acquisition of ICT skills.

Item	Frequency					Total
Teachers interested in e – learning	34	31	35	28	29	157
ICT trained teachers in schools	20	21	22	23	25	111
Total	54	52	57	51	54	268
$E_i = \frac{\text{Total } O_i \times \text{Total } O_j}{\text{Grand Total } O_{ij}}$	32	31	33	30	32	
	22	22	24	21	22	
$X^2 = \frac{(O_i - E_i)^2}{E_i}$	0.13	0	0.12	0.13	0.28	1.66
	0.18	0.05	0.17	0.19	0.41	

$$C = 5, r = 2$$

$$df = (c - 1)(r - 1) = 4$$

Source: Responses from sampled schools

Chi-square (X^2) computation was carried out on relationship between teachers interested in e-learning method of instruction and ICT trained teachers in school using table 3.4 above.

Calculated Value CV = 1.66 and Table Value TV = 9.488 at 5% level of significance. Since CV was less than TV, the null hypothesis was rejected meaning there was a difference.

There was no relationship between the variables because they were independent meaning that implementation was not taking place in public primary schools though 157 (93%) respondents in table 3.4 indicated they had interest in e – learning method of instruction.

The Computer Practice Framework (CPF) in primary schools should be initiated to provide a more expanded framework to holistically evaluate ICTs in teacher education. The framework

contributes to the theory, practice and policy regarding ICT integration in education. Teachers should have training that would enable them to integrate ICTs into their teaching programmes.

It would be important to adopt the UNESCO (2002) report on e – learning which explains that ICT teacher education can be organized around four competencies. The competencies are content and pedagogy, collaboration and networking, technical issues, social and emerging issues. The whole idea is to improve on teaching and learning practices. This information is underscored by Goldhaber (2003) who asserts that attitudes have profound impact on teacher practices and behaviours. However, a report by Santhanam (1992) argues that the approach mechanizes the process of teaching so that teachers are able to deal with more learners with less expenditure of time educating them. It means the approach makes learning more practical and scientific.

Challenges implementers of e-learning are likely to face in public primary schools

The challenges of implementing e-learning programmes in public primary schools are discussed under the following sub-topics: Security for e-learning equipment, financing of e-learning programmes, stakeholders' sensitization on e-learning, installation of electricity in public primary schools, management support for e – learning and implementation of e – learning.

Table 3.5: Security for e – learning equipment in public primary schools

Table 3.5 below shows availability of security in public schools which ensures the safety of computers.

Statement	Frequency		Total
	Yes	No	
School security	105 (62%)	64 (38%)	169 (100%)

Source: Survey data

From the table 3.5 above the results show that 105 (62%) respondents indicated security services in public primary schools were available in terms of human resources against 64 (38%) who did not agree.

Primary schools require computer laboratories to ensure that the equipment is safe. Computers are highly valuable and the risk involved in installing the equipment and other learning resources is high. Eicher (1984) asserts that school watchmen perform a very important responsibility and their employment could ensure e – learning equipment in public primary schools are secure. This information is true given the results of the study showing how teachers were satisfied with provision of security in schools.

Table 3.6: Financing of e – learning programmes in public primary schools

Table 3.6 below shows the need of financing e – learning programmes.

Statement	Frequency		Total
	Yes	No	
Financing of e – learning programmes	111 (66%)	58 (34%)	169 (100%)

Source: Survey data

From the results of study shown in table 3.6 above indicate that 111 (66%) respondents said schools require financing in order to run e – learning programmes effectively against 58 (34%) who did not agree. Implementation of the new programme depends on the training capacity of teachers and how they are readily prepared to receive the new programme. The preparedness also lies in the provision of quality learning resources and facilities. The process is costly and needs more effort to ensure funds are available.

Purchasing of equipment and renovation of the existing physical facilities require a lot of funds that the government should provide in the form of budget allocation or grants from donors in private sector. Eicher (1984) says that concerning quality of education it must be seen in the light of monetary indices such as expenditure per pupil focusing on teacher-pupil ratio in terms of learning and teaching resources.

Table 3.7: Stakeholders sensitization on e-learning programmes

Table 3.7 below shows responses from teachers about stakeholders' sensitization.

Group	Frequency		Total
	Yes	No	
Class teachers	74 (44%)	95 (56%)	169 (100%)

Source: Survey data

From the results in the table 3.7 above, the study reveals that 95 (56%) class teachers as respondents said sensitization to the stakeholders has not been done against 74 (44%) who agreed. It is evident that sensitization programmes should be carried out to the stakeholders because their participation in school development is crucial. All stakeholders are required to be involved in training schedules and public awareness through media, seminars and workshops which require financial consideration. MOEST (2005) report says that strengthening of delivery of education in primary schools needs an increase of financial expenditure on formal education. The task of implementation also involves persuading people to change their attitudes. Respondents were asked to state if public awareness had been done to school community.

Table 3.8: Installation of electricity in public primary schools

Table 3.8 below shows information on availability of power in public schools.

Statement	Frequency		Total
	Yes	No	
Installation of electricity in primary schools	36 (21%)	133 (79%)	169 (100%)

Source: Survey data

From the results of study in table 3.8 above, 133 (79%) respondents said that schools do not have electricity against 36 (21%) who agreed that public schools had electricity.

Implementation of e-learning programmes cannot be achieved without installing electricity to run the computers. Installation of electricity requires funds and given high poverty index in rural communities, public schools are not able to shoulder the cost. The government should provide funds to install power in public schools. Alternative sources such as Constituency Development Fund (CDF) should be used to supplement government effort. Osei (2006) argues

that clarity and achievement of an education programme can be done through the basic nature of the subject and a provision of appropriate facilities.

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