# An Evaluation of the Implementation of Information Technology in Secondary Schools in Kenya

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#### Doi:10.5901/mjss.2014.v5n5p

#### Abstract

Education is the best legacy a nation can give to her citizens especially the youth. This is because the development of any nation depends on the quality of education of such a nation. While ICT continues to advance in western Asia countries, African countries still experience a lag in its implementation and continues to widen the digital and knowledge divides. In a recent study by Kiptalam et .al (2010), observed that access to ICT facilities is against the ratio of 1:15 students in developed countries. This study was carried out to investigate the extent to which Information Technology has been implemented in secondary schools in Kenya. 30 teachers were sampled out from various counties. A questionnaire was administered to the sample. Descriptive statistics were used to analyze the data. The fidings indicated that most teachers appreciated the need to implement ICT in schools to enhance their effectiveness during the instructional processes. However, most of the teachers had limited ICT skills and rarely used ICT during their teaching.

Keywords: Education, Information Technology, Secondary Schools

### 1. Introduction

There has been research studies of the uptake of ICT in education. These include studies of the effects of teacher training (Cox, Rhodes & Hall 1988), levels of resources (Cox 1993), teachers' pedagogies and practices (Watson 1993) and teachers attitudes (Wood row 1990). Many of tehese studies have shown that inspite of teacher training programmes an increase in disappointingly slow uptake of ICT in schools by majority of teachers. Some of the reasons for this is lack of more widespread uptake of ICT. Consequently, this study was motivated by the need to find out the extent that ICT has been implemmented in secondary schools in Kenya.

### 2. Educating educators about technology

Whereas results indicate that ICT has penetrated many sectors including banking, transportation, communication and medical services, the Kenya education system still lags behind. Recent report by The National Council for Science and Technology (2010) indicated that computer use in Kenyan classrooms is still in its early phases and concluded that the perceptions and experiences of teachers and administrators do play an important role in the use of technology in Kenyan classrooms.

In order to use technology effectively, educators need to be trained in using technology and they need to develop a good understanding of it. Technology is used to enhance learning, therefore it is important for educators to be comfortable using it to ensure that students get the full advantages of educational technology. Teaching with technology is different than teaching within a typical classroom. Teachers must be trained in how to plan, create, and deliver instruction within a technological setting. It requires a different pedagogical approach. Teachers must find a way to assess students on what they take away from a class and meaningful, known knowledge, especially within an eLearning setting.

Technology training appears to focus mainly on technology knowledge and skills while overlooking the relationships between technology, pedagogy, and content. As a result, teachers learn about it but they still have difficulty applying it for their students' learning. Teacher candidates need opportunities to practice effective technology integration strategies in supportive contexts during technology courses, technology-integrated methods courses, and field experiences. Experienced teachers also need opportunities to learn about new technologies and ways to integrate them effectively in their classroom.

Teacher education programs can facilitate improvements not only in students' technology skills but also in their beliefs and intentions regarding integrating technology into instruction. Technology training directly affects preservice teachers' self-efficacy and value beliefs, which in turn influence their student-centered technology use.

Development initiatives affirm the critical importance of education and the role played by teachers (Taffeta and Sage 2008). Education is critical to many development initiatives. But at the same time there is widespread recognition that there are enormous global challenges facing the education sector including the use of technology and the severe shortage of teachers in countries where they are most needed; To meet the challenges of Education for all (EFA) goals; somewhere between 15 and 35 million new teachers are required globally by 2015 (UNESCO, 2007). In Africa, south of Sahara alone it is estimated that approximately 4 million additional teachers will be both new posts and vacancies to deliver a complete course of primary schooling for all children. This need is particular caused by the effect of HIV/AIDS and migration of trained teachers in to other sectors of the economy and other countries (UNESCO, 2008). Looking at these figures there is need for schools to embrace information technology to substitute the massive shortage of teachers through e-learning.

However, as Weber argues (2007). The job of teaching in poor countries is determined by the struggle to cope with the absence of the basic resources and the consequences of structural adjacent programmed, chronic underfunding, corruption and instability related to frequent political and policy changes. This has made the implementation of ICT difficult in most schools in the sub-Saharan Africa.

#### 3. Role of ICT in Education

ICT is increasingly becoming a more and more powerful tool for educational and economical development. Unwin (2009) contends that ICT can be a catalyst by providing tools which teachers use to improve teaching and by giving learners access to electronic media that make concepts more clearer and mlore accessible'. Thus, ICT is used for capacity development and citizen empowerment. ICT can also enhance educational opportunities and outcomes for students, including students with physical disabilities (Anderson, 2009). According to Gwang- Jo Kim (2009), ICT in education can serve the following purposes: Restructuring education systems, diversifying teaching- learning methods and practices, enganging all stakeholders and adapting rapidly to changes in the environment and enhancing education efficiency effectiveness and productivity. Esque (2009) cites three key investment components in long term economic growth. Investing in knowledge leads to sustained growth, knowledge economy frame work and education reforms to build relevant skills.

### 4. Objectives of the study

The specific objectives were;

- 1. To investigate the ICT skill level of teachers in secondary schools.
- 2. To investigate the implementation of ICT in secondary schools.
- 3. To find out the level of preparedness in terms of ICT teaching and learning resources.

### 5. Conceptual frame work

The conceptual frame work will consist of both dependent and independent variables. education



#### 6. Methodology

A cross- sectional descriptive sample survey was conducted on 30 secondary school teachers from randomly selected counties in Kenya. The survey design was preferred for this study because it enabled the researcher to reach out teachers from various regions using one questionnaire. Simple random technique was used to select the study sample.

The data collection procedures used questionnaires administered to secondary school teachers. The questionnaires consisted of both open- ended and closed questions which were structured in such a way that the respondents are provided with a list of responses to select the right answer. They were dropped and picked from the respondents. The researcher ensured that there is clarity of language, correct grammar, singleness of language and the questions are relevant to the study. The questionnaire was distributed to 30 respondents and 28 of them responded. Descriptive statistics was used to analyze the data. Percentages were used to analyze the information in form of pie charts and bar graphs.

#### 7. Data analysis

The researcher examined all the questionnaires for completeness and consistency and then categolize all the items before coding. The collected data were analyzed using SPSS (Statistical package for social sciences). It will be presented in pie charts, bar charts and graphs.





From the analysis above, only 5% of teachers with Bachalor of education compared with 0% of and Diploma in education and others had excellent computer skills.





From the table above teachers with Bachelor of education had higher skills compared to Masters and Diploma teachers.



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From the table above, teachers with Bachelor of educcation and teaching in mixed schools had a higher tendancy of sharing their e mail adresses with students compared to Maasters and Diploma teachers in mixed schools while only 2 teachers shared their emails in boys schools.



From the pie chart above, its clear that most teachers suggested that the students need to be exposed to computers much more. This indicates that there is need for ICT infrastructure to be enhanced in the schools to expose the students to do research.

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#### 8. Recommedations

Arising from the discussions above, this study outlined a number of recommedations.

- The schools should be equiped with adequate computers to enhance their access.
- The teachers should be trained on the use of computers at all levels.
- Students should be exposed to computers and research emphasized in schools.
- Teacher training colleges should be equiped with computers to allow teachers to be trained.
- Schools should outsource for donors to provide funding for ICT programmes.

#### 9. Conclusion

Minimum Standards for Teachers- Learning Technology. Available ICT in schools as well as training teachers in ICT skills to be able to deliver the content using technology. Majority of the teachers lacked excellent computer skills and hence ICT training is necessary in schools. In providing computer oppotunities to students, majority said that there is alot more to be done in schools. This will enhance computer skills in students hence improve the instructional processes. Majority of the respondents needed training opportunities in their schools to improve on their skills. There is need therefore for teachers to further their training skills though inservice training to bridge this gap.

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