



Effect of Incorporation of Vision and ICT Policy Plan into Strategic Plans on ICT Integration in Secondary Schools in Eldoret Municipality, Kenya

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ABSTRACT

The current time is the digital age and hardly any aspect of human endeavour can be effectively carried out without Information communication technologies (ICTs) including education. ICTs are now at the centre of education reform in line with the technological development of the 21st century. The aim of this study was to establish Effect of Incorporation of Vision and ICT Policy Plan into Strategic Plans on ICT Integration in Secondary Schools in Eldoret Municipality, Kenya. This study used the systems theory developed by Pelgum and Plomp (1993) and adopted the mixed methodology. The target population included all the secondary schools in Eldoret municipality which were selected through stratified sampling method. The head teachers were purposively sampled; however, 5 subject teachers and 10 students were randomly selected in each of the 10 sampled schools. Structured questionnaires and interview schedules were used to collect data. Reliability and validity of the instruments were assured through carefully developed instruments and comprehensive sampling techniques. The data collected was qualitative and quantitative in nature hence analyzed by use of both descriptive and inferential statistics and presented using tables and charts. The study found out that for an effective integration of ICT in education to be realized, schools ought to have a clear vision, a well-developed ICT policy plan and schools' vision on ICT role in education being known and accepted fully by all teachers, teachers knowing the contents of the schools' ICT policy plan. This study would be useful to education policy makers in adopting effective ICT integration strategies.

Key words: Incorporation of Vision, ICT Policy Plan, Strategic Plans, ICT Integration, Secondary Schools.

1.0 Background Information

ICT is now at the centre of education reform efforts that involve its use in coordination with changes in secondary school curriculum, teacher training, pedagogy, and assessment (Kozma,

2000). Successful and effective integration of ICT is the main pillar of education training (Tomar & Kumari, 2005). The integration of IT into virtually all aspects of the economy and society is creating a digitally-enabled economy that is responsible for generating economic growth and prosperity (Bollou, 2006). Many schools are restructuring to accommodate ICTs as it is of great help in providing multimedia information and allow access to a broader range of instructional resources. Most teachers see ICT as an important tool for motivating students, providing excellent tools for supporting the teaching and learning processes. The schools also acknowledge that administrative functions have been enhanced by the computers (Oloo, 2009).

Like many other countries in the world, Kenya has developed National ICT Policy (2006). It sets out the nation's aims, principles and strategies for the delivery of Information and Communications Technology to improve the livelihoods of Kenyans. Ministry of Education (MoE) introduced the National ICT Strategy for Education and Training (Farrell 2007). The ICT policy gives an opportunity for establishment grass root based infrastructure for knowledge sharing (Mureithi & Munyua, 2006). The Sessional Paper No. 1 of 2005 in Kenya clearly indicates the overall goal for education as to achieve education for All (EFA) by 2015. Its short-term goal stated; to attain Universal Primary Education (UPE) by 2010 and to increase the transition rate from primary to secondary school from 40 percent to 70 percent. Moreover, it clearly spelt out an increased annual university enrolment to an average of 5000 students (Republic of Kenya 2005). The government is also committed to enhancing access, equity and quality delivery of education service to all. The policy provides commitment to ensure that comprehensive teaching and learning needs at all levels are met through appropriate training and acquisition of lifelong skills by 2015. It identifies ICT as one of the main strategies for realising these commitments (Republic of Kenya, 2005).

Despite the initiatives put in place to install ICTs in schools, most of the equipment lie in computer labs, unused or only used for literacy and teaching computer studies rather than being used as tools for curriculum management (Farrel & Shafika 2007). ICT spending is mostly on hardware, software, infrastructure and training. ICT integration in schools therefore requires investment in equipment, professional development and teacher training, technical support, connectivity and digital learning process (Aduda & Ohaga, 2004). According to Mureithi and Munyua (2006), Investments in custom-made digital materials with highly relevant content for Kenyan classrooms are important in order to tap into potential of ICTs for teaching and learning. Failure to take full advantage of the opportunities offered by technological advances to education for massive expansion represent a drastic lag in skilled innovative manpower narrowing the

possibilities for individual activities in areas of business, research, learning, health and welfare and many other aspects of daily (MHEST & NCST, 2010). The study sought to establish the factors that affect the integration and use of ICTs in secondary schools in Eldoret municipality.

1.2 Statement of the problem

Kenya, there has been a remarkable increase in the implementation of ICT in various sectors of the economy and a sizeable number of town schools or those within its vicinities have installed computers through various initiatives spear headed by the government, NGO's or other sponsors. However, although schools have had computers for almost two decades, ways to use them effectively have evolved slowly and patchily. Research findings across the country have revealed that there are ICT facilities in the secondary schools such as computers, computer laboratories, internet connections, alongside the traditional methods of telecommunication. Further research has revealed that teachers do not make real use of ICTs at their disposal hence weak integration and usage in classroom activities-teaching and learning. (USAID report 2005).

Previous researches including Mureithi and Munyua (2006) investigated other related parameters but have failed to identify the factors that affect the implementation of the ICT strategies in education. In addition, although substantive work has been done on ICT, it is still unclear to the education on the actual factors that hinder effective ICT use in the municipality. This is a serious omission particularly when put in consideration that the government has declared its commitment and total support the implementation process. Therefore, there is an urgent need for an insight into these strategies and their implementation process.

2.0 LITERATURE REVIEW

2.1 The Extent of Integration of ICT Policy plan into Schools' Strategic Plans

In the past two decades, many economies have endeavoured to invest in ICTs to build knowledge driven economies by coming up with ICT national policies and ICT guidelines in their education systems. The infusion of technology in education has been seen as a means to enhance and extend not only the instructional methods, but also the learning process in this 21st century (Tin, 2002). UNESCO report (2008) reveals that ICTs are engines for growth and tools for empowerment and they have profound implications for education change and improvement.

According to the African Information Society Initiative (AISII) studies sponsored by the Economic Commission for Africa (ECA), the ICT sector is seen as a gamut of industries and service activities. These include internet service provision, telecommunication equipment and

services, information technology (IT) equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network – based information services and other related information and communication activities (Wariga & Waema, 2006). ICT refers to a diverse set of information, communication and, technological tools and resources used to transmit, store, create, share or exchange information. These tools and resources include computers, the Internet (websites, blogs and emails), live broadcasting technologies (radio, television and web casting), recorded broadcasting technologies (pod casting, audio and video players, and storage devices), camera and telephony (fixed or mobile, satellite, Visio/video-conferencing, etc.). Whatever the definition, it is believed that ICTs generally refer to landline and cellular telephones, wireless technologies, computers, internet, computer software and hardware, as well as older communication technologies such as radio and television. According to Aduda and Ohanga (2004) ICTs are all hardware, software and relate to information processing and handling, communication, as well as well business activities that depend substantially on the above. The use of ICTs to supplement traditional pedagogical and school management practices is what is referred to as ICT integration in education.

ICTs have the potential to play a powerful role in enhancing the methods and environment of learning and preparing students acquire skills competencies social skill fundamental for competing in emerging global knowledge economy. Haddad and Wadi (2004) points out that; ICTs, if well utilized in the classroom, have the potential to enhance the learning process in the following ways:

- (i) Motivate and engage students in learning
- (ii) Foster inquiry and exploration
- (iii) Allow students to use information acquired to solve problems, formulate new problems and explain the world around them.
- (iv) Provide access to worldwide and local information sources.
- (v) Provide a means to communication, share research and join projects across geographical borders.

Alongside the enhancement of teaching and learning, ICT can also have an effective management tool to be used by head teachers to enhance school administration. Journal of Research on computing in Education (Patton, 1991) indicates that school Management Information Systems (MIS) are being designed and implemented to provide educational administrators with new tools to support them in a variety of activities such as grade and attendance placement in classes;

teachers' allocation to classes; construction of school time-tables and examination schedules, assessment and disbursement of resources; follow up on the implementation of discussions; analysis of teachers and school achievements, as well as automated office tools such as e-mail spreadsheets, automated follow up of decisions, digital telephones and desktop publishing.

In Kenya, there has been a remarkable increase in enrolment. The total enrollment between 2002 and 2008 expanded access to secondary schooling when the Government implemented the Free Primary Education (FPE) programme and later the Free Day Secondary Education (FSE). The trend has been attributed to the increased secondary education enrolment which has been noted with public secondary schools reported to reach 5,091 and 2,305 private secondary schools (Republic of Kenya, 2010)). Available statistics indicate enrollment rate (NER) have continued to increase at all levels of schooling; mostly at secondary school where net enrollment rate increased by 55 percent between 2003 and 2008. This means that transition from formal primary to secondary education continued to increase over time from 207,730 KCSE registered students in 2003 to 265,310 in 2007. While, the student teacher ratio in public secondary schools rose from 23:1 in 2007 to 28:1 in 2008. This is a challenge because the teacher capacity and capabilities are necessary for establishing class environment and preparing learning opportunities which facilitate the students' ability to learn and communicate. The potential for the students to acquire important technology capabilities also resides in the teacher.

According to Republic of Kenya (2010), ICT in Education is reflected in a range of multinational policy documents, being the engine of growth with potential to contribute significantly to sustained public welfare, to strengthen democracy, to increase transparency in governance, to nourish cultural diversity, and to foster international partnerships and stability in global economy. Vast ICT opportunities are generated not only amongst the top leaders of developed nations but dynamic economies of Philippines and Korea. United Nations and the World Bank reported that ICT can increase access to education network for students, train teachers and, broaden availability of quality education material for emerging global economies.

The African Heads of State further citing the potential for ICT emphasized that ICT can improve learning and no longer separable from improved health care and, enhance governance. The ministry of education strategic plan (2006-2011) places emphasis on the importance of integrating ICT in education since in the current global economy, a country requires an ICT literate workforce that will enhance its participation in the knowledge economy. ICT in education is therefore the platform for equipping nations with ICT skills for dynamic and sustainable

economic growth. Any country that fails to integrate ICT risks serious marginalization in the global scene.

According to the education Permanent Secretary, the government, citing the important role played by ICT had allocated Sh1 billion to construct ICT workshops in public secondary schools from the year 2010 to 2012. The ministry has given out computers to 1,050 secondary schools countrywide. They will all be connected to the internet in the first phase of the plan. With its new and dedicated research team, e-Learning Africa aspires to nurture African research and acknowledge in the field of ICTs in education.

3.0 METHODOLOGY

This study adopted the mixed method research design to explore the possible cause and effect relationship among variables that cannot be manipulated by the researcher. The study evaluated the independent variables of ICT integration and how it influenced curriculum delivery; teaching, learning, research, information storage and dissemination as the dependent variables. The survey design was employed to gather data from the sampled schools. It was used in collecting information by interviewing or administering a questionnaire to a sample of respondents. Survey design was used in explaining or exploring the existing status of two or more variables at a given point in time. Inferences were done using of inferential statistics. The study made discussions comments and analysis and then finally made necessary recommendations.

The study targeted head teachers, teachers and students in secondary schools in Eldoret municipality. According to the EMIS data obtained from the North Rift Director of Education. Eldoret municipality had of a total of 17 secondary schools each with an average of 16 teachers including the head teacher. The target population was all the 5780 students, 204 teachers and 17 head teachers in both private and public secondary schools in Eldoret municipality.

Census method was used in choosing the schools which participated in this study. The head teacher was purposively sampled, being the only head in the institution. Stratified sampling was used to divide the schools into two sapling frames (one comprising of private secondary schools) under which a sample of schools to be used for the survey was arrived at by simple random sampling. This procedure guaranteed adequate representation of all the Districts encompassed in the Municipality. Teachers were randomly selected from varied departments which included Mathematics, Languages, Sciences, Humanities and Technical's as respondents in the 10 sampled schools to give a total of 70 respondents. The sample was obtained as per the 30% of the population recommended by Mugenda and Mugenda (2003)

This study used questionnaires, interview schedules, observation schedules and document analysis to collect data. Validity was established through close consultation and expert judgment

of the supervisors; they verified the validity of the research instruments used in the study. Test-retest method was used to test the reliability of the instruments. Test-retest technique involved administrating the same instrument twice to the same group within two weeks in a pilot study conducted in three schools in Baringo central constituency. In this research a coefficient of 0.8331 was obtained and hence considered reliable. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 20.0. The collected data yielded both qualitative and quantitative data. Quantitative techniques such as inferential statistics were used to establish relationships between different variables. In quantitative techniques, the researcher used descriptive statistics such as frequencies, percentage ages and means to analyze the data. After analysis, data was presented in tabular form using frequencies and percentage alongside inferential statistics.



4.0 Results and Discussions

The aim of this study was to determine the extent to which the secondary schools in Eldoret Municipality had a strategic plan which had an ICT policy in it. To attain this, the researcher sought from the respondents view on the school strategic plan on ICT policy. Respondents were required to indicate their responses about their schools' ICT policy in their strategic plans. Their responses were summarized in the Figure 1.

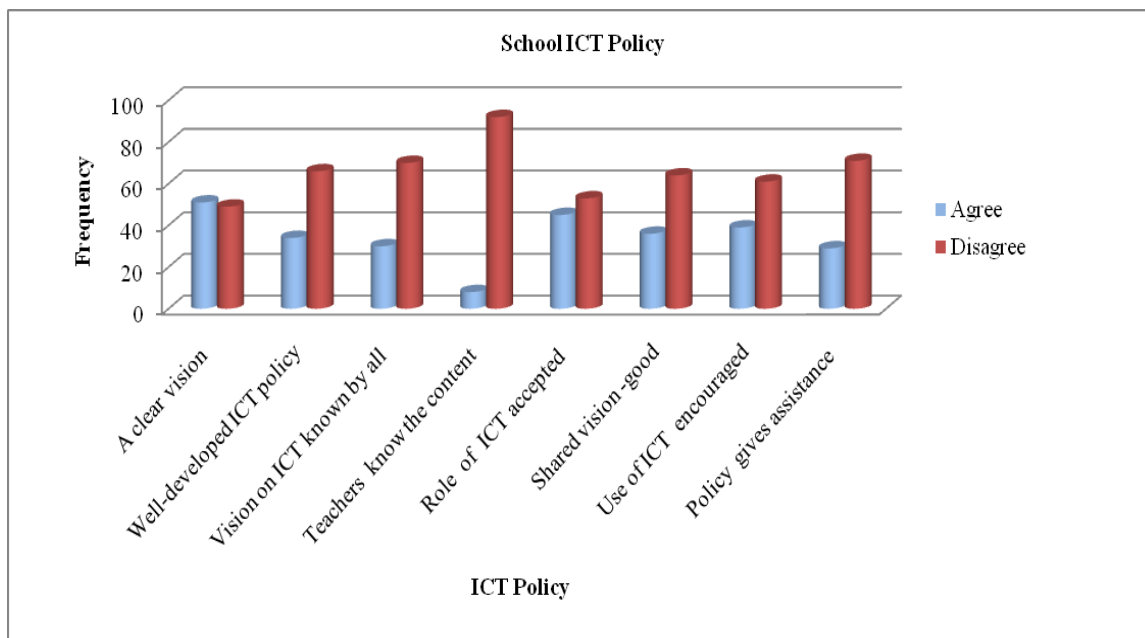


Figure 1. School’s ICT policy and integration in secondary schools.

From the study, most teachers (51%) agreed that their schools strategic plan had a clear vision on the role and place of ICT in education while 49% disagreed. This shows that in Eldoret Municipality most schools had a clear vision on the role and place of ICT in education. Although a good number indicated to have a clear vision on ICT this may have been there only theoretically and verbally but not practically in place.

Most teachers (66%) disagreed that their schools had a well-developed ICT policy plan. 34% of them agreed. This therefore, shows that; most schools in Eldoret municipality did not have a well-developed ICT policy plan. Apart from a school well-developed ICT policy plan, the plan ought to be made known by the concerned stake holders, in this case, the teachers. The teachers were therefore asked if they were aware of their schools' ICT policy plan. Most teachers (70%) in

Eldoret Municipality disagreed to the statement that their schools' vision on the role of ICT in education was well-known by all teachers. This forms the majority of the teachers. Therefore, the schools' vision on the role of ICT in education is not well-known by all teachers in Eldoret Municipality. This reflected a high level of neglect on the part of teachers since most of them earlier agreed to the fact that the schools had clear ICT policy. This was further confirmed when 92% of the respondents disagreed that they knew the contents of their schools' ICT policy plan.

This was made clearer from their earlier responses where most respondents disagreed that their schools had a well-developed ICT policy plan and indicated that the school's vision and ICT policy plan was not known by the teachers. With an ICT policy in place without the policy being well known by the teachers are efforts made in vain. There should be a continuous follow-up on the teachers to create awareness about the ICT policy. Apart from having a sound ICT policy (knowledge of the policy and its contents), for successful implementation of ICT; there ought to be a wide-spread acceptance of the vision on the role of ICT among the ultimate users who are the teachers in this case. Most of the of the teacher respondents (53%) disagreed, that the schools' vision on the role of ICT in education was accepted by the teachers while 45% agreed. This large number who disagreed is a reflection of those who were not aware of the policy and therefore could not agree to accept it. Those who agreed would have had a prior knowledge and hence willing to accept it. Therefore, the schools' vision on the role of ICT in education was not accepted by most teachers in Eldoret Municipality. This would hinder the implementation of the policy in education.

Since ICT integration is a corporate practice involving many people, the policy plans in the schools ought to start from a shared vision on 'good' education. When asked whether the ICT policy plans in their schools started from a shared vision on 'good' education, 64%, of the respondents disagreed while the other 36% agreed. Since a large percentage (total of 64%) disagreed; integration of ICT would be difficult to realize. As earlier discussed in this study; a school ICT policy plan should be grounded in a shared vision of teaching and learning, and of ICT integration. For successful integration of ICT to be realised, the whole integration process should be supported as much as possible by all the students, teachers and more so the administrative arm of the school. From the table, a total of 61% disagreed that in their schools, the use of ICT in teaching and learning was encouraged while 39% agreed. Therefore, in most schools in Eldoret Municipality (61%), the use of ICT in teaching and learning is not encouraged while in some schools (39%), it was encouraged. The reason for this may be attributed to the lack

of awareness of the vision and policy amongst the teachers in most schools. A brief analysis of the principals' responses indicated that 60% of the schools had made no efforts to ensure that computers were made accessible in their schools while 40% did so. This is a clear indication of how computer literacy and ICT have been ignored in most schools in Eldoret municipality.

The main purpose of a schools' ICT policy plan is to give teachers concrete assistance for working with ICT. If well articulated and implemented, like any other plan, an ICT plan would deliver the desired results. However, from the figure 1, a total of 71% of the teacher respondents disagreed that the schools' ICT policy plan gave them concrete assistance for working with ICT. However, 29% agreed. The reason why most teachers in Eldoret Municipality disagreed that the schools' ICT policy plan gave them concrete assistance for working with ICT may have been basically due to the fact that an ICT policy and vision was not in place or not well articulated in their schools.

From the study the teachers and head teachers views on School's strategic plan on ICT policy statement was summarized in table 1. From the study the teachers and headteachers rated the schools had a clear vision on the role and place of ICT in education and the role of ICT in education is accepted by the teachers to be high. However, on whether the school had a well-developed ICT policy plan, schools' vision on the role of ICT in education being well-known by all teachers and teacher's knowledge of content of the schools' ICT policy plan were rated to be average.

Research shows that institutions with ICT plans and targets are more likely to effectively use ICTs and that teachers belonging to schools that engaged in ICT planning are more likely to apply ICT in an innovative way (Kozma, 2000). Tondeur et al. (2008) found that successful ICT integration is clearly related to actions taken at the school or meso-level, such as the development of an ICT plan, ICT support, and ICT training. Recent research on ICT integration in education in other countries suggested that the one characteristic of the school as an entity which influences ICT integration in education is the existence of a school policy and plan to guide implementation (Tondeur et al., 2008). Lim and Khine (2006) found that a shared vision and technology integration plan was important for the realization of successful integration of ICT in education.

Table 1: Descriptive statistics on ICT policy on integration.

School's strategic plan	Teachers		Head teachers	
	Mean	Std. Error	Mean	Std. Error

The school has a clear vision on the role and place of ICT in education	3.2128	.21058	3.1000	.48189
The school has a well-developed ICT policy plan	2.6809	.19500	2.6000	.60000
The schools' vision on the role of ICT in education is well-known by all teachers	2.8723	.19144	2.9000	.50442
Teachers in this school know the content of the schools' ICT policy plan	2.5532	.15149	2.7000	.44845
The schools' vision on the role of ICT in education is accepted by the teachers	3.2128	.19930	3.0000	.57735
The ICT policy plan in this school starts from a shared vision on 'good' education	2.9787	.18119	3.0000	.57735
In this school the use of ICT in teaching and learning is encouraged	3.1064	.19531	2.5000	.50000
The schools' ICT policy plan gives teachers concrete assistance for working with ICT	2.7660	.18048	2.7000	.53852
Overall Mean	2.9229	.15038	2.8125	.46182

The school administration can either motivate or de-motivate teachers in the use of ICT in their schools. The entire process of introducing technology in an organization requires sound leadership (Bird, 1996). If the principal and the top management of a school are behind the ICT innovation, then the chances of its implementation will be high. Those who had a plan may have only had them in written and not practically implemented. A well-developed ICT policy plan is crucial in the success of any ICT integration. According to Makau (1990) a sound ICT policy in schools is necessary in order to ensure success of ICT integration. ICT policy plan details the steps necessary to translate the school ICT vision into practice (Hew & Brush, 2007). According to UNESCO (2004) successful integration of ICT in schools requires a clear vision that is shared by all members of the school; an ICT master plan that is formulated according to a school's vision and its socio-cultural setting; and supporting policies to promote ICT uptake in schools. In a study of four schools Lim and Khine (2006) found that a shared vision and technology integration plan gave school leaders and teachers an avenue to coherently communicate how technology can be used, as well as a place to begin, a goal to achieve, and a guide along the way. There are few teachers deployed to teach computer skills in schools as revealed by the principals interviewed. The lack of teacher who specializes in teaching computer related knowledge leaves the students unable to use the ICTs available in their schools appropriately. Teachers also lack familiarity with good practice rooted on understanding of how to use ICTs because of lack of ICT policy in their schools. This confirmed Mureithi and Munyua (2006) findings that ICT policy gives opportunity for establishment grass root infrastructure for knowledge sharing.

5.0 Conclusions

This study found out that for an effective integration of ICT in education to be realised, schools ought to have a clear vision, a well-developed ICT policy plan and schools' vision on ICT role in education being known and accepted fully by all teachers, teachers knowing the contents of the schools' ICT policy plan.

6.0 Recommendation

- (i) Schools should be guided in coming up and accepting a school's ICT policy, plan, importance of a shared vision on 'good education' and encouraged to support and assist teachers in ICT. This should be done through its agencies; i.e. the MOE, the PDE's or the County Directors of education, KESSHA, among others.

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