

## **Influence of the School's Leadership on Integration of Information and Communication Technology in Teaching and Learning Process in Secondary Schools in Kirinyaga County; Kenya**

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### **Abstract**

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*School leadership is an important factor in the integration of Information and Communication Technology (ICT) for effective implementation of the technology in learning and teaching in the schools. Hence, this research was conducted in public secondary schools in Kirinyaga County with a focus on Kirinyaga East district in order to investigate the role school leaders play in the implementation of ICT in learning. The study employed descriptive survey design to collect data on the target population. It targeted the school leaders in education sector in the district who consisted of District Quality Assurance and Standards Officers (DQASO), District Education Officers (DEO), School Principals, Heads of Departments and Teachers from the 33 public secondary schools. About forty percent (40.0%) of respondents indicated that the school leaders support in integration of ICT in teaching and learning ranged between 50%-70%. There was a general consensus among teachers during group discussion that the integration of ICT in teaching and learning was poorly supported by the school Principals. About 70% of the respondents were of the opinion that School Leaders had a role to play in ICT integration in teaching and learning. The Government's Policy on ICT Integration too had an influence on ICT integration. This study found that since the majority of leaders in the selected schools did not use ICT facilities, they also provided minimal support towards the integration of ICT in their schools. This was due to their ignorance of the role ICT could play in learning and teaching. The researchers recommended that the Teachers Service Commission County Director should organize ongoing training for the Principals, Heads of Departments and teachers in order to build their capacity in use of ICT in teaching and learning. This should be done over a long duration but not an on and off one time workshops. The training would raise the levels of ICT Literacy among the leaders for purposes of effective implementation ICT integration in learning in secondary schools.*

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Key words: Technology leadership, ICT Integration, Information and communication technology, School leader.

### **Introduction**

In the past decades there has been an exponential growth in the use of Information and Communication Technology (ICT) in schools which has created a great change in management of teaching and learning in schools (Mutuma, 2005). The government of Kenya recognizes that implementation of ICT in schools will contribute to knowledge production, and information sharing among the schools and in community social lives. The importance of ICT in teaching and learning in schools has been emphasized by Manduku, Kosgey and Sang (2012,) and Keiyoro (2011).

The government of Kenya through sessional papers no. 1 of 2005 and 2013 noted that ICT has a direct role to play in the society and can be used to bring many benefits to learning process as well as to the community (also Taylor, 2000). For example, ICT could present new opportunities for teacher-to-learners, teacher-to-teacher and learner-to-learner in communication and cooperation. It allows teachers to utilize several technologies in addition to creating superior enthusiasm for learning among learners and presents access to a wider variety of learning opportunities (GOK, 2013). Improving school leadership is essential in view of the current education reforms in Kenya due to the changing realities of the information age, new global partnerships, constitutional changes and awareness of technological changes (GOK, 2013).

In order to accomplish the mission, goals and objectives of education in Kenya leaders in education need to integrate the three facets of administrative practice, which include management and technological leadership (Fullan, 1997; Fullan, 2001; Fullan, 2003) in the adoption of ICT. Educational leadership and its development is essential in improving school performance; hence raising educational standards (Wong, 2003; Fullan, 1999). Wong (2003) also observes that it is important to view leadership and management as the major determining factors of the quality of education changes and thus school performance.

School leaders are expected to spearhead all the changes including those that are technological in nature. They should therefore, execute this duty in their capacities as technological leaders. According to Januszewski and Molenda (2008), technological leadership is defined as ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources. In the developing technological capacities, school leaders should provide finances and necessary infrastructure, social and moral support to all the school stakeholders to realize the full potential of ICT implementation in education (Harris, 2004). Anderson and Dexter (2005), contend that technological leadership is a stronger predictor to technology outcomes as compared to expenditure and infrastructure. This means, therefore, technological leadership is considered very essential to Information Communication Technology (ICT) integration in learning and teaching due to the various roles school leaders are expected to play. This research provides insight into school leadership practice as a key factor that influences effective ICT use in teaching and learning in Kirinyaga East district, Kirinyaga County.

Previous studies by John (2005) report that the integration of ICT into the curriculum remains problematic in the school context. Some of the problems encountered in the process of integrating ICT into the curriculum are school leaders' perceptions of ICT. The leaders' perceptions of ICT in education are not only influenced by the contents of official documents and guidelines, but also by their own experiences of using ICT (Loveless, 2003). Some school leaders view ICT as a tool that increases or reduces their workload (Granger, Morbey, Lotherington, Owston and Wideman, 2002).

The attitudes of the school leaders in supporting the process of integration is also influential to teachers' use of ICT (Schiller, 2003). Mumtaz (2000) identifies some inhibiting factors in integration of ICT into the curriculum; among them being availability of ICT infrastructure, lack of financial support and insufficient knowledge possessed by leaders. It is worth noting that both the teachers as leaders have key roles in successful ICT integration in teaching and learning. All School leaders have an important place in influencing the teachers use of the technologies that improve teaching and learning. Appropriate use of ICT can catalyze the shift from teacher-centred pedagogy to a more effective learner-centred pedagogy (Gakuu and Kidombo, 2010; Omwenga et al., 2004). This study sought to find out the influence of the School's Leadership on ICT integration in teaching and learning secondary schools with a general objective of identifying their current role in ICT integration in schools. The study investigated the Leadership factors that determined integration of information and communication technology in teaching and learning in the public secondary schools.

The specific objectives of the study were to determine how technological leadership, level of support of the leaders, leaders capacity in ICT integration, Management commitment to ICT integration, possession of ICT strategic plan and comprehension of government policy in ICT influenced ICT use in learning and teaching in the schools.

Information and communication technology has a direct role to play in education. Its use could bring many benefits to the classroom as well as education and training process in general (Tondeur et. al, 2007). It may provide new opportunities for teaching and learning, including offering more students' centered teaching environments.

It can enhance teacher-teacher and student - student communication and collaboration and create greater opportunities for multiple technologies delivered by teachers. Thus, providing greater enthusiasm for learning amongst students and offering access to wide range of courses (GOK, Sessional Paper ,2013).Hence the need for school leaders to be well versed in the principles of ICT integration in teaching and learning.

Technology is developed to solve problems associated with human needs in more productive ways. If there is no problem to solve, the technology is not developed and /or not adopted. Applying this theory to educational technology would mean that educators should create technologies that address specific educational issues and problems such as equity, quality and access . Further, a technology will not be adopted by educators where there are no perceived needs or productivity gain. This according to Lankshear and Snyder (2000) is workability theory. When discussing applications of ICT in education by leaders in education , a main question should always be asked “What are the educational problem(s) ,issues or needs will the ICT address?” This question needs to be answered at all levels of decision making, from the teacher training programme, to a school leader purchasing hardware or software, to quality and standards assurance officer developing a policy and education strategic plans

The researchers identified the School leader as factor that influence integration of Information and Communication Technology (ICTs) in teaching and learning process in Secondary Schools. In the Study, the survey design was used to explain the relationship between the dependent variables and the independent variables and showed how independent variables influenced the dependent variables. The independent variables in this study were qualities of school's Leadership. The researcher also considered the government's Policy as a moderating variable; age and gender of the leader were deemed as intervening variables. The dependent variable for the study was integration of Information and Communication Technology into teaching and learning processes in Secondary Schools. Each of these variables had its indicators.

### **Methodology**

This study employed descriptive survey design which was appropriate for data collection about the target population. This research methodology was useful not only in securing evidence concerning the existing situation or current conditions but also enabled the researchers to identify standards or norms with which to compare present conditions( Mugenda and Mugenda, 2003).

The target population for this study consisted of leaders in education sector in all public secondary schools in Kirinyaga East District. These included in total one District Quality Assurance and Standard Officer (DQASO), one District education Officer (DEO) , 33 school principals, 132 Heads of Departments and 243 teachers from 33 secondary schools in Kirinyaga East District. Therefore , study had a total population of 410 potential respondents.

The researchers used purposive sampling to select the District Quality assurance Officers, the District Education Officers. Purposive sampling allowed the researchers to use cases that had the required information with respect to the objectives of the study .The researchers used simple random sampling procedure to select sample from 33 secondary schools to include ,Heads of departments, subject teachers and principals . Hence the target population was stratified as DQASO, DEO, Principals, HODs and the Subject teachers.

Questionnaires were used as the main instruments for data collection. The questionnaire consisted of structured and open ended items with the use of Likert scale to measure a range of opinions. The questionnaires were self-administered. Physical observation check list was used to assess availability of ICT infrastructure in the schools and their use in teaching and learning in the schools. Semi structured interviews guide and focus group discussion guide for the leaders of the selected were used.. Pretesting of the questionnaires was done to identify and change any ambiguous questions . This helped in the improvement of the content validity of the data that was collected.

The sample questionnaires were pre-tested using split half procedure by distributing them to respondents in schools that were not to be part of the main study. After pre-testing, the responses were scored. The scores of the two parts were then correlated using Spearman's correlation coefficient and the value of less than 1.0 was obtained. In this case the Spearman's correlation coefficient value was 0.83 which indicated a strong reliability of the instruments.

The data analysis involved grouping thereafter placing the data in common categories. The data collected were examined and edited, to correct errors and omissions. The responses to every question in the filled questionnaires from the respondents were edited, tabulated, analyzed and computed to percentages by use of a Statistical Package for Social Sciences (SPSS) version 20.0. Descriptive statistics such as mode, mean, percentages, standard deviations and correlation coefficients were computed.

### Results And Data Analysis

All the questionnaires administered to the DQASO and the DEO were returned. Out of the ten questionnaires administered to the principals, 8, accounting for 80% questionnaires were returned. There were 35 questionnaires returned from Heads of Departments accounting for 87.5% rate and 51 questionnaires from subject teaches accounting for 75% return rate. Therefore, a return rate of 88.5% was considered acceptable for this study.

#### School leaders and their support for ICT Integration programmes

This study found that the level of support offered by principals ranged between 50% to 70%. Forty seven point six (47.6% percent of the respondents indicated that the support offered by principals was luke-warm while 2.4% felt that there was no support as indicated in table 1. During focus group discussions with teachers, a general consensus was that principals contributed very little to integration of ICT in teaching and learning. Majority of the school leaders were ICT illiterate and did not use the Internet facilities for their daily operations. The reasons given for this poor support was due to ignorance of the role of ICT in learning and teaching. Lack of ICT resources, lack of funds and technical equipment, also contributed to principals' negative attitude towards ICT usage in teaching and learning.

**Table 1: Leadership support offered by school principals**

| Very supportive-75% to 100% |            | Supportive-50% to 75% |            | Luke warm support-25% to 50% |            | not supportive-0% to 25% |            |
|-----------------------------|------------|-----------------------|------------|------------------------------|------------|--------------------------|------------|
| Frequency                   | Percentage | Frequency             | Percentage | Frequency                    | Percentage | Frequency                | Percentage |
| 46                          | 47.6%      | 39                    | 40.5%      | 9                            | 9.5%       | 2                        | 2.4%       |

#### Influence of School Leadership capacity in ICT Integration

The study sought to find out a number of issues regarding the influence of school's leadership on the integration of ICT into teaching and learning. As shown in table 2, 70% of the respondents were of the view that School Leaders Capacity in ICT had an influence in ICT integration in teaching and learning, 78% felt that commitment to ICT Integration also had an influence and the Government's Policy on ICT Integration too had an influence on ICT integration in teaching and learning. Regarding possession of ICT strategic plan, there was only 33% who had a strong agreement that this had an influence on ICT integration in teaching and learning. Therefore, ICT strategic plan appeared to have little or no influence on ICT integration at 38%.

**Table 2 : Influence of School Leadership capacity in ICT Integration**

| Construct                                  | Strong Influence | Some Influence | Little Influence | No Influence |
|--------------------------------------------|------------------|----------------|------------------|--------------|
| School Leaders Capacity in ICT             | 30%              | 40%            | 20%              | 10%          |
| Management's commitment to ICT Integration | 46%              | 32%            | 13%              | 9%           |
| Possession of ICT strategic plan           | 33%              | 29%            | 20%              | 18%          |
| Governments Policy on ICT Integration      | 40%              | 34%            | 16%              | 10%          |

## **Discussion**

The school leadership ability can play a crucial role in ICT integration across education and could hinder or facilitate schools adoption of ICT in learning and teaching (Fink, 2005: Fullan, 2003:Taylor ,2000). This study found that majority of the school leaders did not use the Internet and also provided minimal support towards the integration of ICT in their schools. This was due to their ignorance of the role ICT could play in learning and teaching. Moreover, lack of funds to support ICT programmes also played a noteworthy part for the negative attitude mainly portrayed by principals towards ICT usage in teaching and learning . According to Roblyer et al., 2004, the powerful role of school leadership has significant influence on various school reforms. Fullan (1997) and Keiyoro *et.al.*,(2011) stress the crucial role that school leadership play in creating a climate for teachers to be more effective and efficient. Furthermore, according to Koehler and Mishra (2005), the quality of leadership makes a difference between the success and failure of school based reform programmes . Also Keiyoro *et. al.*, (2011) noted that the school leadership has a strong impact on the feelings and actions of school members as they implement pedagogical reforms in school environment. Therefore, teachers in the schools do not only influence individuals, but their powerful impact reaches the entire organizational system. In addition, principals can decide on how to steer organizational change and how to support teachers during their implementation of ICT integration (GOK, 2006). Therefore, continuous leadership commitment is one of the important factor for the adoption of ICT by teachers (Baylov and Ritchie,2002). School principals articulate visions for their schools and influence their staff to implement changes (Mulkeen, 2003; Pelgrum, 1993). Furthermore, a school leadership can create a vision that is shared by school members and makes them strive to achieve mutual goals. Knowledge and skills of school leaders can also play a major role in their support of and enthusiasm about ICT integration in schools. This study found that the main obstacles to the effective integration of ICT is the lack of engagement and confidence of school leaders in leading the development of ICT in their schools. Therefore, the importance of training school leaders in ICT skills in order to raise their “e-confidence” is very important .

In Kirinyaga East district the researchers found during group discussion that although the principals promoted an atmosphere of trust and sharing of resources they were not the resource providers. The study revealed that although the school leaders had their role clearly defined in terms strategic plan and provision of resources for ICT Integration, they did not effectively play their role. The findings of this study indicate that the development of ICT skills and knowledge among school principals was low and may explain why there was poor level of ICT integration in Schools . These findings are consistent with other studies such as Keiyoro *et.al.*, (2011); Afshari *et al.* ,(2008) and Bass et al. ,(2003) . The principals did not seem to have enthusiasm in their endeavor to integrate ICT in teaching and learning. According to Becta, (2002) supportive, enthusiastic and visionary leadership has a positive impact on teacher’s attitudes and behavior. Teachers need principal support in making use of new technologies to enhance their classroom (Lankshear and Snyder, 2000). From findings of the focus group discussions it was also noted that training on use of ICT was carried out mainly with those at management level. However there was no positive relationship between training in ICT and support teachers received during their implementation of ICT in teaching.

It should be noted ICT integration in the district has not realized its full potential since most of the respondents; even those at management level still lacked basic training in use of ICT this concurs with Kandiri (2006) . This has tremendous influence on ICT integration. As transformational leaders, principals should show that they also live the values they advocate. This consistency between words and deeds is believed by transformational leaders in order to build their credibility (Starcher, 2006 ; Moyle, 2006). An effective principal should be a learning leader, who can specifically, can impact multiple areas of the school setting such as ICT integration (Fullan ,2003). Effective leadership is essential when implementing school improvement initiatives (Flanagan , et al.,2003). Keiyoro et al .,(2011) showed that only 9.5% of teachers from both NEPAD schools and Cyber e-Schools in Kenya indicated that the school principals were supportive of ICT integration . Such support was linked to principals’ belief in the usefulness of ICT. Findings suggested that effective and supportive leaders were most likely to both increase and deepen ICT integration in schools. Principals are, therefore, likely to make the dream of ICT integration in teaching and learning possible through modeling and taking an active role in towards these efforts in Kenya. .

## **Conclusions and Recommendations**

In conclusion, ICT integration in schools play a major role in the teaching and learning . In practice ICT integration has not had much support by the school leaders in Kirinyaga county.

The study found training in ICT Integration was not a continuous process but a once occasion event. Therefore, the researcher recommends that the Teachers Service Commission - County Director should organize an ongoing in-service training sessions for the Principals, Heads of Departments and other teachers in order to have their capacity built over a long duration but not on one off workshops. The Counties, also, should consider acquiring ICT infrastructure for the school in their jurisdiction. It is important to carry out training needs assessment before carrying out training programmes the school leaders. Such training efforts could raise the levels of ICT Literacy among school leaders for purposes of ICT integration in teaching and learning in secondary schools. Since various types of training have different level of impact on the trainees performance, it is always important to rank trainings programmes in order to influence the highest performance among the principals and other school leaders.

The ICT integration in teaching and learning is of critical importance in a school set up. This study was conducted on a few secondary schools in Kirinyaga East district. The suggestion for further studies includes the following:

1. Similar study be carried out in the County involving Factors Influencing ICT Integration in primary Schools .
2. Similar study should be carried out in other Districts in the County for comparison purposes.

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