



Challenges Facing Administrators in the use of ICT in Kuria District Secondary Schools in Kenya

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Abstract: *This study was an investigation on the challenges facing administrators in the use of ICT in Kuria district secondary schools in Kenya. The major concern was to examine the challenges they face as perceived by both educators. The study used a questionnaire to collect data from 89 teachers from 10 public and two private Schools. The data was collected and coded using Statistical Package for Social Sciences (SPSS) for analysis. Descriptive and inferential statistics analyzed were presented in form of tables which were integrated and findings highlighted. The major challenges facing administrators which might have contributed to limit the use of ICT included computer breakdown, inadequate staff training, limited computer hardware and software, dedicated to administrative tasks. The study therefore recommends that administrators conduct workshops on ICT management, be role models and mentors for ICT implementers, improve ICT infrastructure and equip schools with ICT resources.*

Key words: Information Communication Technology, Challenges; Administrators; Educators;

1. Introduction

Since 1980, integration of Information Communication Technology (ICT) in education has been compulsory in the developed nations, but in the developing nations like Kenya, ICT integration in education is considerably new, small scale and experimental in nature (MOE, 2005). The key objective of Kenya ICT policy was to promote the deployment and exploitation of information knowledge and technology within the economy and society as key drivers for socio-economic development (Ministry of Information & Communications, Kenya, 2006).

Furthermore, Parker (2009), on the same problem remarked that activities which may lead to the acquisition of information literacy are frequently undermined in schools by attitudes and practices, which give priority to other concerns. Fullan (2008) observes that inadequate implementation of an innovation has been the primary reason why educational innovations in educational organizations do not yield intended effects. It is unfortunate that not much work has been done on the

challenges that educators face in the use of the ICT in administration and management of secondary schools. Wood (2010) emphasized:

Whereas the Ministry of Education emphasizes on the importance of ICT and supports schools to avail and use computers in school operations and curriculum implementation; not much emphasis had been put in ICT use for administrative purposes. On the other hand, educators' attitude, perceptions of the importance and the level of ICT use pose a challenge to secondary school administration in both public and private schools in Kuria districts. Other challenges include: inadequate infrastructure, technology skills and ICT implementing policy. This situation called for investigation since these variables affect secondary school administration.

2. Literature Review and Related Studies

2.1 Challenges Facing the Use of ICT in Secondary School Administration

The National ICT Policy seemingly focused on teaching and learning and not administration thus; “the government will encourage...the use of ICT in schools, colleges, universities and other educational institutions in the country so as to improve the quality of teaching and learning.”(p.10), Ministry of Information and Communication, Kenya, 2006)

The ministry’s policy framework indicates that there are a number of challenges concerning access to and use of ICT in Kenya; these include high levels of poverty, limited rural electrification, and frequent power disruptions. Farrell (2007) reported that most secondary schools have some computer equipment; however, this could consist of one computer in the office of the school head. The core problem is that Kenya lacks adequate connectivity and network infrastructure. Although a few schools have direct access to high-speed connectivity through an Internet service provider, generally there is limited penetration of the national physical telecommunication infrastructure into rural and low-income areas. Consequently, there is limited access to dedicated phone lines and high-speed connectivity for e-mail and the Internet. Even where access to high-speed connectivity is possible, high costs remain a barrier to access. (ibid)

According to a study done by Menjo and Boit (2012), Nandi North District on ‘The challenges of using information communication technology (ICT) in school administration in Kenya’; it was revealed that major challenges faced were: lack of adequate training in ICT for teachers and administrators, limited computer hardware dedicated to administrative work, lack of time on computer and absence of appropriate administrative software. The challenges are discussed below.

2.2 Availability of Hardware and Software

According to Said (2007), lack of an overall technology plan, coupled with the short-term funding model and the absence of a clear acquisition and replacement plan, has led to ‘an inconsistent and unproductive approach to IT acquisition and implementation.(p.23). Laaria (2013) argues that the cost of possession of ICT including hardware, software, upgrading and maintenance remains high, this is in agreement with Farrell (2007) who concludes that the cost of acquisition and maintenance of ICT infrastructure is a challenge and has continued to hamper adoption and implementation of ICT in Schools in Kenya. Laaria (2013) further observes that standard software to use for teaching, learning, administration and support of curriculum delivery are not widely available. He suggests that tax waivers for hardware and software’s, lowering of licencing costs and having local assembly points for computers will alleviate some of the challenges. According to Omwenga (2015), on Principal’s staff motivation on ICT integration in teaching science in PTTCs in Nyanza region, observes that majority of teachers were ill equipped to effectively integrate ICT in the classroom. The main challenge faced by teachers interviewed were lack of adequate number of computers,

educational applications, training policy and strategy on how integration should be done.

In a study done by Makewa, Role, and Nyamboga (2011) on ‘Teacher evaluation of the Principal’s leadership characteristics related to computer studies implementation in Rongo District, Kenya’ it was revealed that out of forty-two (42) secondary schools, only thirteen (13) schools offered computer studies. This is an indication that most schools experience a number of challenges to avail both hardware and software in implementing ICT in schools.

2.3 Inadequate Basic Facilities and Technology Planning

This refers to the basic facilities and the mechanical and electrical installations found in schools. Many schools, especially in developing countries, are faced with this grave challenge, hence hindering the planning and implementation of effective technology use. These form the foundation for proposed technology upgrades, wiring of the physical plant, networking and telecommunication systems.

This being a very complicated and technical aspect, administrators should come up with defined project parameters that will involve all stakeholders for the realization of an effective technology plan. Some obstacles which have hindered effective technology planning and implementation in American schools and classroom which are even worse and typical characteristic facing developing countries as pointed out by Whitehead et al. (2003) are:

- i. The inability to properly finance a successful technology infrastructure to bring computers into the classroom.
- ii. Inability to provide line and internet services due to the distance from Internet service providers, poor networking capabilities, and cost of fibre-optic cables
- iii. Lack of up-to-date hardware, courseware, support materials and software, hence frustrating teachers and students.
- iv. The existence of multiple platform (Apples & PCs) makes transferring and coordinating technological efforts complicated.
- v. Lack of interchangeable parts of computer accessories and peripherals-difficult to upgrade and interchange components.
- vi. Rapid changing technology has created a backlog of out dated and un-recycled equipment [e-waste].
- vii. Leadership barrier to technology infrastructure development.
- viii. Lack of maintenance and service capability.
- ix. Traditional focus for technology toward school computer labs.
- x. Lack of staff training and in-service opportunities.

2.4 The Cost of ICT Equipment

As stated above, the cost of computers has been an invariably challenging aspect in various schools. This is due to different background, environment, economic status and accessibility. Kenya was among the 16 African countries that had been identified by the African E-commission to host a demonstration project for this initiative launched at Isiolo Girls Secondary school by former president Mwai Kibaki in 2005 (MOEST 2005). The identified schools were to be equipped with the necessary infrastructure, ICT equipment, teachers that are appropriately trained and have access to appropriate digital content.

The New Education Partnership for Africa's Development (NEPAD) initiated an ambitious project for African countries to develop primary and secondary school in terms of Information and Communication Technology (ICT) to become e-schools. It was estimated to require over 200 billion dollars to finance this project. However, participating countries were asked to set aside substantial budgets for their national roll-outs predictably by 2015, all schools in Africa should become e-schools. (Ministry of Education, 2008)

Maki (2008), observed that implementing ICT in educational administration and management costs a lot of money and time. As a result, many administrators might be discouraged to budget or purchase ICT equipments and some give up completely! It requires thorough innovative planning and empirical study -thinking outside the box to realize its use. She further affirms that, "ICT implementation in schools for both managerial and education reasons, presupposes the preparation of school context in order to easily accept and adopt the change."(Maki, 2008, p.19).

2.5 ICT Training/Staff Development

Effective Staff Development in Technology is -Not Necessarily an Oxymoron; Jakes (2004), online, said that creating effective staff development, especially in the area of technology integration, is an extremely complex and challenging task. Yet, the potential returns of a successful program and the importance of technology to the learning process mandate that such events must be carefully planned for, implemented, and evaluated. In most of our schools, especially in developing countries, staff development is not given a priority. Worse still in technology improvement which is either new to leaders and stakeholders or they have negative attitudes and perceptions.

In another study by Chakpram (2006), online, done in Manpur on 'the use of computers in school administration' it was revealed that in spite of having more number of computers in government schools, trained computer staffs/teachers are very rare. The private schools are harnessing the use of computer well as compared to government schools. Both government and private schools from the

study, however, do not use computers for school administration properly. He reiterated further that computers are neither used in the education process nor in school administration purpose. The school authorities think that the use of computer in school administration is only to type a few applications/letters; print it out and to store it in the computer.

The NCST (2010) baseline survey results of ICT in Education in National Secondary Schools in Kenya indicate that ICT coordinators are prime movers of ICT in schools and eager to adopt integration of ICT in education. They reported that for effective use of ICT in schools, there is need to: - 1. Foster the use of relevant and appropriate ICTs in creating opportunities responsive to promote and engage all students in focused learning experience 2. Better usage of ICT to enrich curriculum delivery; and 3. Provide support to advance ICT training and class-based equipment.

Further reiterates that, Educational Reform for the Knowledge Economy recognizes the importance of ICT in support of human resource for national needs and therefore initiate major step towards its use. The group focuses on two main tracks namely:

1. Meaningful use of ICT by administrators, teachers, and students to enhance quality and relevant teaching and learning;
2. Acquired skills and knowledge for further teaching and learning and, Employment. (p.20)

3. METHODOLOGY.

3.1 Research design

A descriptive – survey research design was used to get information about the challenges facing administrators in the use of ICT in Kuria district secondary schools. Descriptive analysis was done where the teachers and administrators respondents to items on a scale focusing on various challenges that administrators face.

3.2 Population

The study population comprised of educators from 35 secondary schools in both Kuria West and East Districts. The target population included principals and deputies from three categories of secondary schools: girls' secondary schools, mixed secondary schools and boys' secondary schools from both public and private as well as boarding, mixed and day schools.

3.3 Sample and Sampling Techniques

A sample of 12 secondary schools, out of 35 in Kuria Districts, was used in this study. The schools were stratified into categories as boarding/day, single sex/ co-educational schools; private or public as follows: girls' boarding (3), boys' boarding (3), mixed day & boarding (3), mixed day (2) and mixed boarding (1). The required number of

schools was chosen using random sampling techniques by picking any three from each category in the list of two districts to come up with the sub-sample for description and analysis. Salkind (2009) says, the goal is to have the sample resemble the population as much as possible. Cluster sampling technique was used to identify the research participants from teachers and administrators in both public and private schools to participate in the study. Although 150 questionnaires were distributed, only 120 responded and were collected for this study.

4. RESULTS AND DISCUSSION

The following research question guided the study

What are the challenges facing administrators in the use of ICT in Kuria District secondary schools?

In order to answer the research question, a descriptive analysis was done using 15 and 16 items which were responded to by teachers and administrators, respectively.

The researcher used the following interpretation scale:

3.5 – 4.0	Agree
2.5 – 3.49	Tend to agree
1.5 – 2.49	Tend to disagree

1 – 1.49 Disagree

Table 1 shows the challenges facing administrators in the use of ICT in secondary school administration in Kuria District. Most administrators tended to agree that: they have challenges in accessing the internet and select relevant information (3.06), computer breakdown interfere with students' tasks (3.22), staff inadequate training to use computers (3.03), most administrators are challenged in using ICT (3.03), computer programs (software) are expensive (3.19), infrastructure is hindering ICT implementation (3.09), and installing programs in a computer is a problem (3.00). They also tended to agree that staff receive adequate training to use computers (3.03) and schools have electricity supply or alternative source of power (3.25) hence strong point for ICT

In the baseline survey report for ICT in secondary schools in selected parts of Kenya by Oloo, (2009), all schools felt that they did not have adequate funding to purchase ICT equipment and would consider buying them for administrative purposes. School administrators recognized the need for the school administration and most of these computers would be used for booking, letter typing and examination processing. He further established that, in terms of actual courses offered using the computers training on basic computer skills remains the most popular among secondary schools and technical training college followed by Kenya National Examination Council (KNEC) curriculum.

Contrary, table 2, shows that 43 (48.3%) teachers have not attended ICT training in the last two years, only 24 (27%) attended once, 15 (16.9%) twice, 2 (2.2%) thrice and 5(5.6%) more than thrice. Administrators had only 14(45.2) who had attended ICT seminar at least once in two years. This might have contributed to low implementation of ICT even in secondary school administration. A good number of administrators tend to disagree with some items like: there is an ICT implementation policy (2.7), administrators support the use of ICT in school programs (2.8), E-waste (broken electronics) has no special room in school (2.4) and ICT implementation plan has a budget in school (2.7) which means they impact negatively the use of ICT in secondary school administration. On the other hand they tend to disagree that it is a challenge to create, store, analyse and retrieve students' records. They also accept that they use computer daily to process students' information which in most cases is done by secretaries and academic teachers. Although they disagreed that some elderly administrators have technophobia (2.83) and that internet services are expensive (2.93) still the extent of application in most of administrative tasks is somewhat or a little.

Therefore, staff development and empowerment in ICT is crucial and should be given priority in planning, budgeting and decision making processes. This will enhance effective administration in secondary schools.

Table 1
Administrators' Responses on Challenges

Items	N	Minimum	Maximum	Mean	Std. Deviation
Create, store, analyse and retrieve students' records	31	1.00	4.00	2.8065	1.07763
Access the internet and select relevant information	31	1.00	4.00	3.0645	1.03071
Using computer daily to process students' information	31	1.00	4.00	2.8710	1.11779
Computer breakdown interfere with students' tasks	31	1.00	4.00	3.2258	1.08657
Staff adequate training to use computers	31	1.00	4.00	3.0323	1.04830
Most elderly administrators have technophobia (ICT fear)	31	1.00	4.00	2.8387	1.09839
Internet services are expensive	31	1.00	4.00	2.9355	1.03071
Most administrators are challenged in using ICT	31	1.00	4.00	3.0323	.94812
There is ICT implementation policy in the school	31	1.00	4.00	2.7097	1.10132
Administrators support the use of ICT in school programs	31	1.00	4.00	2.8387	1.06761
E-waste (broken electronics) has a special room in school	31	1.00	4.00	2.4839	1.26151
ICT implementation plan has a budget in school	31	1.00	4.00	2.7742	1.14629
Computer programs (software) are expensive	31	1.00	4.00	3.1935	.98045
Infrastructure is hindering ICT implementation.	31	1.00	4.00	3.0968	1.01176
School has electricity supply or alternative source power	31	1.00	4.00	3.2581	1.03175
Installing a program in a computer is a problem	31	1.00	4.00	3.0000	.89443
Valid N (list wise)	31				

Table 2
ICT Seminar for Teachers- Attended for the Last Two Years

		Frequency	per cent	Valid per cent	Cumulative per cent
Valid	NONE	43	48.3	48.3	48.3
	ONCE	24	27.0	27.0	75.3
	TWICE	15	16.9	16.9	92.1
	THRICE	2	2.2	2.2	94.4
	OVER THRICE	5	5.6	5.6	100.0
	Total	89	100.0	100.0	

Menjo and Boit (2012) in their study on ‘The challenges of using information communication technology (ICT) in school administration in Kenya’, came up with findings which support the case above asserting that computer purchases were not given priority in the annual school budgets and teachers and administrators were not allocated time on the curriculum to use computers. Further, they argue that scarcity of computer hardware and software for school administrative purposes and access to computers were some of the greatest obstacles to the use of computers in the schools. Their study revealed that a high proportion of the teachers and administrators lacked training in essential ICT skills like in database applications and administrative software they needed for effective application of ICT to school administration. This led to limited use of computers for administrative purposes. Administrators should plan and endeavour to develop their staff in ICT.

Teachers’ responses on the challenges agreed that computer breakdown interfere with students’ tasks 3.00 (52.8%) as well as inadequate training of staff in using computers 3.24 (40.4%). They tended to disagree that it is difficult to create, store, analyse and retrieve students’ records (2.85); most of them use word processors, excel and internet programs. Their responses showed that they tend to disagree that internet is unavailable (2.8) which means the availability of the internet has enabled them to access different information through mobile phones. This was evidenced by the fact that as at the end of January 2010, the four licensed mobile phone operators (Safaricom, Zain, Orange and Yu) in Kenya had a combined subscriber base of 19.4 million (50% of the total population); with mobile data/Internet subscribers accounting for 1,981,048 out of the total estimated 3,995,664 number of Internet users, which is a 10% penetration rate [CCK, 2010].

This is encouraging because internet services are no longer expensive which enables teachers and administrators to learn some ICT skills through internet when employed; they make decisions and accomplishment of administrative tasks easier. Service providers through local area network (LAN) and wireless services through mobile phones and modems have made tremendous improvements in accessing information in even in rural areas. According to the teachers’ responses on ICT implementation policy in

school, they tend to agree that administrators don’t support the use of ICT in school programs and budget for ICT implementation. The software is affordable as well as the availability of alternative source of power. The dawn for the implementation and use of ICT should be a reality in secondary school administration in Kuria Districts. Most of the administrators are young (87.1%) between 20 – 40 years of age and an experience of up to 15 years (90.3%) relatively fitting in the new technology. The major problem here is their perception in ICT use in daily administrative tasks for best and easy implementation of their duties almost in all spheres of economic growth including education. Majority of the educators (teachers) implementing the curriculum of this country are rarely trained to cope up with the current technological needs in education. Yet most of them are young in age less than 40 (86.5%) and (95.5%) have up to 15 years of experience; who could be ICT natives and not orphans. Apparently, this is the situation in Kuria District as evidenced in this study and presented in table 4 and 5 below.

In a research conducted by the National Survey of Kenya (2009), apart from limitations in telecommunications infrastructure, the main obstacle to using the internet cited in the survey was a lack of knowledge about the internet: more than half said that they had not used the internet in the last year attributed this to not knowing how to use it, while 41 per cent of non-users (representing a third of all Kenyan adults) said they do not even know what the internet is. (p.25) although some studies reveal that introducing technology into schools is largely dependent upon the availability and accessibility of ICT resources; it was observed that schools are increasingly being equipped with computers for teaching, learning and administrative purposes. Connectivity is not improving in most of the schools in Kuria districts though teachers and students are enthusiastic about using computers for learning despite lack of some equipment. The study noted that if teachers and administrators could venture into administrative use of ICT with a positive perception and own the change, educators could feel that they benefit the learners, and also benefit from using ICT themselves. The processing of electronic waste in developing countries causes serious health and pollution problems because electronic equipment contains some very serious contaminants such as lead, cadmium, beryllium, and brominated flame retardants.

Table 3
Teachers' Responses on Challenges

Items	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Difficulty in creating, storing, analysing and retrieving students' records	89	1.00	5.00	2.8539	1.18274
Unavailability of internet	89	1.00	4.00	2.8427	1.08606
Using computer daily to process students' information	89	1.00	5.00	2.7416	1.10297
Computer breakdown interfere with students' tasks	89	1.00	4.00	3.0000	1.04447
Inadequate training of staff in using computers	89	1.00	4.00	3.2472	.98027
Most elderly administrators have technophobia (ICT fear)	89	1.00	4.00	2.9326	1.10575
Internet services are expensive	89	1.00	4.00	2.9888	1.10262
Absence of ICT implementation policy in the school	89	1.00	4.00	2.8764	1.12634
Lack of administrators' support in the use of ICT in school programs	89	1.00	4.00	2.4831	1.19765
E-waste (broken electronics) has a special room in school	89	1.00	5.00	2.2697	1.25013
The budget for ICT implementation plan is not available	89	1.00	5.00	2.6854	1.21164
Computer programs (software) are expensive	89	1.00	4.00	2.8539	1.17309
Infrastructure is hindering ICT implementation.	89	1.00	4.00	2.6404	1.28140
School has no electricity supply or alternative source of power	89	1.00	4.00	2.1798	1.22067
Lack of knowledge in the use and management of computers	89	1.00	4.00	2.8315	1.17004
Valid N (list wise)	89				

Table 4
Teachers' Age Group

	Frequency	per cent	Valid per cent	Cumulative per cent
Valid				
BELOW 20 YEARS	1	1.1	1.1	1.1
21-30 YEARS	40	44.9	44.9	46.1
31-40 YEARS	36	40.4	40.4	86.5
41-50 YEARS	10	11.2	11.2	97.8
51-60 YEARS	2	2.2	2.2	100.0
Total	89	100.0	100.0	

Table 5
Teachers' Work Experience

		Frequency	Per cent	Valid per cent	Cumulative per cent
Valid	BELOW 5 YRS	39	43.8	43.8	43.8
	5-10 YEARS	30	33.7	33.7	77.5
	11-15 YEARS	16	18.0	18.0	95.5
	16 YEARS AND ABOVE	4	4.5	4.5	100.0
	Total	89	100.0	100.0	

5. Conclusions and Recommendations

The following conclusions were drawn from the findings in this study:

1. School administrators as well as teachers have a high level of perception of the importance of ICT use in secondary school administration in Kuria Districts.
2. The administrators have an average perception towards the use of ICT in secondary school administration.
3. There was a tendency to practice ICT use in the schools under study. However, the practice is neither consistent nor adequate enough for the impact to be felt by both educators and other stakeholders in administrative framework.
4. Teachers had a lower rating on financial and personnel administration while administrators rated them high. An evaluation of the extent to which secondary school administrators use ICT and the relationship between their perceptions was also low.

5.1 Recommendations

The study made the following recommendations:

The school principals in Kenya secondary schools should:

- i). conduct seminars and workshops on ICT management.
- ii). work on strategies in which ICT can be availed and encourage its implementation in school set up for efficiency.
- iii). Be role models and mentors in ICT implementation.

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