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## Effectiveness of Information Communication Technology Use in Enhancing Quality Management in Public Secondary Schools in Uasin Gishu County, Kenya

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### **Abstract:**

*This paper was guided by the following objectives; to examine the effectiveness of ICT in enhancing quality of financial Management in public Secondary Schools in Uasin Gishu County; to assess the effectiveness of ICT in enhancing quality record keeping in public secondary schools in Uasin Gishu County and to assess the effectiveness of ICT in enhancing effective communication in public secondary schools in Uasin Gishu County. There are 138 public secondary schools from which a sample was drawn. The sampling technique used was simple random sampling and purposive sampling. Descriptive survey research design was used in the study. The study concludes, that ICT has not been fully incorporated in public secondary schools in Uasin Gishu County. Therefore, there is need for schools to install computers, train the teachers and students on computer use and explore deeper on this pertinent issue. The study recommends that there is need for concerted efforts by all stakeholders (including teachers, parents, educational officers and other government officials) to make use of computers in order to run the schools better. Also, the school administrators should develop, implement and regularly review, in consultation with the school community and governing council, a school code which is consistent with ICT policies in education. The Ministry of Education should allocate funds for ICT assessments conducted for classrooms by introducing the concept of learning circles and projects base learning in educational management in primary, secondary, TTC and universities.*

**Keywords:** Communication, financial management, technology, quality

### **1. Introduction**

Information Communication Technology (ICT) is a term referring to technologies that are used for collecting, storing, editing and passing on information in various forms like mobiles, videos and televisions UNESCO (2011) the influence of Information Communication and technology (ICT) makes the world borderless. It has influences on business processes like banks, supermarkets, health institution and institution of learning. It is a standardized operation across the world and new innovations as a result of ICT are continuing to emerge. Globally information communication technologies have a great impact as it brings more knowledge from foreign countries to another and one company can outsource information from another company in another continent and also one can learn through online in another country Collis (2010).

Kenya has come a long way in enhancing its preparedness to harness and benefit from the increasing proliferation of technology while protecting its people from the risks that come with it through the development of the Information and Communications Act 21 years ago. This legislation made provisions for the establishment of a parastatal mandated with the responsibility to regulate and oversight all providers of communications, media and postage services. The Communications Authority also currently carries the mandate to develop the structures and systems necessary to encourage the transparency of upcoming e-commerce technologies. The agency also developed the National ICT Strategy for Education and Training (2010) to fast-track the adoption of technology in schools and education as part of the government's push to improve the efficiency of the administration of learning institutions and improve the learning outcomes of the process.

According to Seasonal Paper No. 1 of 2005, ICTs can significantly change the education sector in the country because of the ease of access to information that they create and the flexibility they bring to the delivery of content in a more target specific manner. Employing its tools makes it possible for teachers and learners to customize the learning experience to specific learner needs that increases learning outcomes significantly. It should also improve the adaptation and evolution of curriculum to accommodate more learners and their quirks making education more inclusive and achieving a higher rate of literacy. As a bonus, it also improves cooperation among teachers and students which further enhances the target-specific development and delivery of content and material to address specific learning deficiencies. As

such, not only does it foster an environment that encourages higher creativity and innovations, but it also creates the freedom to learn at a personalized pace that has been proven to improve learning outcomes significantly. However, for all these benefits to be realized in Kenya's education system, the government has to invest in increasing technology awareness and literacy among its school administrators and teachers before it can embark on students (Republic of Kenya, 2005).

It is within this background that the researcher wanted to understand the status and effectiveness of ICT application in enhancing quality of management in public secondary schools in Uasin Gishu county Kenya.

## 2. Statement of the Problem

The understanding of how to leverage ICTs plays a pivotal role in bringing about the realization of higher economic growth in a country in all sectors like Banks, Supermarkets, Health Institution and Educational Institution. Teachers have been directed to embrace ICT to enable them specialize in online exams registration, student records, in teaching, staff records, exams records, financial records and to communicate effectively. The effectiveness of ICT is seen when it transforms management of finances, record keeping, effective communication and learning in schools by giving both teachers and learners access to vast resources at fraction of traditional method. Republic of Kenya (2005) emphasizes on promotion and popularization of ICT by 2008. To achieve this, the Kenyan government provided infrastructure in all levels of education leading to the use of ICT in school management in Kenya.

Owing to the aforementioned, the researcher was motivated to find out the status and effectiveness of ICT application in enhancing quality of management in public secondary schools in Uasin Gishu County.

## 3. Literature Review

The low penetration of affordable ICTs is fueled by the lack of adequate frameworks on the continent, the underdevelopment of its ICT sectors and the poor development of its labor force to actively use these tools in the carrying out of their daily tasks. However, many countries have in recent years made significant steps to encourage higher investment in ICT harnessing and exploitation in all areas of their economic and social performance. Kenya, for example, has made significant strides in ICT growth and development since its inception of its undersea high-speed internet fibre connection. Be that as it may, Africa still lags behind its counterparts with regard to the development, harnessing and exploitation of technologies to create tools and improve operating models (NEPAD, 2002). Low adoption of technology poses significant negative implications on the growth of a country's socio-economic structures and systems and their performance because of the efficiency it brings to analysis, planning, communication and performance management (McCormick and Kinyanjui, 2002).

In Africa, we find multidimensional utilization of ICT, from grade schools to advanced education. ICTs are progressively utilized in grade schools including the pre-school and rudimentary dimensions. Other than amusement esteem, the best advantage of ICTs at this dimension is the freedom of the understudy's thoughts and yearnings, ICT additionally give significant and changing help to youngster learning as it encourages enthusiastic and social advancement, language securing, general information and intellectual aptitudes. ICT usage has all the earmarks of being all the more wide spread in African optional schools where educators and understudies use it to instruct and learn subjects. In like manner, ICT joining into learning exercises in auxiliary schools would appear to be increasingly critical since it goes past relational correspondence and coordinates a few measurements, for example, intuitive learning, collective learning and critical thinking.

The dynamism brought by ICT development creates basis for immediate changes in resource running and developing of the system. A study carried out in Queensland State, Australia shows that, aged teachers are more resistant to change compared to the young counterparts. This is so because the aged believe in maintaining a status quo regardless of the changing times, (Romina, 2006).

Kenya Education Management Institute (2011) contends that, for successful mix of ICT in instructing and learning, schools must secure fitting equipment and programming which is all around kept up. Such foundation incorporates PCs, network, projectors and workstations which are imperative for joining of ICT. Kenya Education Management Institute, (2011) further sees that, schools in Kenya are gradually coordinating ICT in instructing and learning. Procurement of ICT gear relies upon the vision and mission of the school where learning foundations are required to detail the important approaches that will help make ICT reconciliation a reality in the instructing and learning process.

## 4. Materials and Methods

The study was carried in public secondary schools in Uasin Gishu County. The study adopted descriptive survey design and in the case of this study the variables are the effectiveness of ICT use quality of Management in Public Secondary Schools in Uasin Gishu County. This design was chosen due to its advantages as identified by Sekaran (2007) these advantages are; it can put a problem on the map by showing that it is more widespread than previously thought; survey-based prevalence data are useful in demonstrating that a problem is distributed in a particular way through the population. The target population for this study entailed 138 public secondary schools in Uasin Gishu County, with 138 head teachers from the 138 public secondary schools, 138 Account clerks, 138 teachers and 138 ICT personnel. This study therefore targeted 552 respondents. Simple random sampling of 30% of the target population was used because it enabled each subject to have an equal opportunity to be sampled. There are 138 public secondary schools from which sample was drawn. In these schools the researcher sampled 42 public secondary schools from which 42 head teachers and 42 Account clerks, 42 teachers and 42 ICT personnel were purposively selected from entire schools with the computers. Therefore,

this study utilized 168 respondents. The study collected data through use of questionnaires and interview schedules which were issued to the respondents to fill and respond. Validity of the instrument was determined through the questions in the instrument which were subjected to face and content validity. The face validity of the instrument was determined by objective judgments of the supervisor. The content validity was determined by asking the ICT experts to assess the instrument. The split half technique was used to determine the reliability of study this was through administration of the questionnaires and interviews developed to the same group of subjects after a period of two weeks. The responses of the two tests was scored manually and the Pearson's product moment formula was employed to compute the correlation coefficient. A correlation coefficient of 0.8 was computed and considered high enough to judge the instruments reliable for the study. Data was analysed both quantitatively and qualitatively and was presented using tables and graphs.

## 5. Findings and Discussions

### 5.1. Effectiveness of ICT Use in Enhancing Quality of Teaching and Learning

The response of the teachers on the effectiveness of ICT use in enhancing quality of teaching and learning. On if computer is often used in teaching in class, 36(87.8%) stated no while 5(12.2%) stated yes, 37(90.2%) stated no when asked if students often use computers in taking notes in class while 4(9.8%) stated yes. On if the computers in the school have improved learning and teaching, 28(68.3%) stated no, 13(31.7%) stated yes, if teachers and students use internet to get in formations through e-books always in school, 33(80.5%) said no while 8(19.5%) said yes while on if use of computers in class has motivated both students and teachers 31(75.6%) stated no with 10(24.4%) stating yes and on if ICT in school has developed learners skills and improve collaboration 33(80.5%) stated no and 8(19.5%) stating yes.

Most of the interviewees stated that use of ICT is quite applicable. One respondent reported that:

"Since they started using ICT in exam setting and analysis, there is little room for errors and that the results are produced in time"

The results indicate that the schools tend to use ICT in exam setting and analysis despite it not being used in classroom for teaching and learning.

Statement	Yes	No
Computer is often used in teaching in class.	5(12.2%)	36(87.8%)
Students often use computers in taking notes in class	4(9.8%)	37(90.2%)
The computers in the school have improved learning and teaching	13(31.7%)	28(68.3%)
Teachers and Students use internet to get information through e-books	8(19.5%)	33(80.5%)
Use of computers in class have motivated both students and teachers	10(24.4%)	31(75.6%)
ICT in school has developed learners' skills and improve collaboration	8(19.5%)	33(80.5%)

Table 1: ICT Use in Enhancing Quality of Teaching and Learning

This study shows that ICT has not been fully embraced in teaching and learning in schools in Uasin Gishu County. This analysis is not in agreement with EFA Global monitoring Report, (2012) which recommends that ICT should be harnessed to sustain EFA goals at affordable cost. The report went further to note that these technologies have great potential for effective learning, knowledge and development of more efficient school services. Also, studies by Keengwe, & Onchwari, (2011) identified four different ways Kenyan schools can offer quality education supported by ICT. This include, real time conversation, learning by doing, directed instruction and delayed time conversation. This is further supported by Higgins & Moseley, (2011) who observed that use of ICT could improve teaching, learning, performance and management, improves impact on school as a whole, and develop significant skills in the marginalized communities (hence helping in liberation and their transformation).

#### 5.1.1. Effectiveness of ICT Use in Enhancing Quality of Financial Management

According to Table 2 below the study sought to know the responses from head teachers and account clerks on effectiveness of ICT use in enhancing quality of financial management. Most of the respondents 51(61.4%) stated yes that computer is often used in the accounts office, 45(54.2%) stated no when asked if student fees register are computerized, 55(66.3%) stated yes on being asked if the computers in the school have helped in financial monitoring and financial analysis while 54(65.1%) stated no when asked if all school finance are computerized to avoid misappropriation. On if payment of school's bills is done through ICT, 70(84.3%) stated yes and 49(59.0%) stated no when asked if internal audit of school finances is always done by computers.

From interviews on if use of ICT has helped them in financial management of records, it was gathered that it has made tracking of records easier and faster. It was further revealed that since they started using ICT, they have saved a lot of time. One Informant proposed that:

"Perhaps it is high time the ministry of education should also start thinking seriously of creating a centralized electronic database for all school records"

Statement	Yes	No
Computer is often used in the account's office.	51(61.4%)	32(38.6%)
Student fees register are computerized	38(45.8%)	45(54.25)
The computers in the school have helped in financial monitoring and financial analysis.	55(66.3%)	28(33.7%)
All school finance is computerized to avoid Misappropriation	29(34.9%)	54(65.1%)
Payment of school's bills are done through ICT.	70(84.3%)	13(15.7%)
Internal audit of school finances is always done by computers	34(41.0%)	49(59.0%)

Table 2: ICT Use in Enhancing Quality of Financial Management

This study is consistent with what Becta (2009) observed that there is some evidence that computers are most cost-effective in controlling school finances when placed in accountants' office. Levie (2011) also explained that ICT management systems have been developed in schools to assist in financial management and the general management of the school. It was further explained that Information experts have developed customized management information systems (MIS) which have been used to enhance financial transactions in schools; these include enterprise resource planning (ERP) systems, supply chain management systems, used in payment of bills and salaries in schools. Payment of school bills has been automated this concurs with Gbenga, (2010) who stated that the use of ICT, for accounting purposes, needs a standard software installed on interlinked computers where all transactions can be automatically logged on the computer to assist in fees payments, payrolls, bills payments in the schools.

### 5.1.2. Effectiveness of ICT Use IN Enhancing Quality of Records Keeping

The analysis of Table 3 on ICT use in enhancing quality records keeping show that 58(69.9%) said no when asked if in school computers are used to keep all records, 53(63.9%) said yes on being asked if computers in school help in on line registration on KCSE exams while 60(72.3%) said no that the curriculum and co-curriculum activities are time tabled using computers with 56(67.5%) stating yes that teachers use computers to set assessment test for students and use it to analysis performance. On being asked if teachers use computer in preparation of schemes of work, lesson plan preparing pupils report book and records of work 42(50.6%) said no with 71(85.5%) saying no to the notion that records of books bought are computerized and all the respondents 83(100%) said yes that they get their pay slip through online.

The interviews also revealed a number of issues in records management in public schools. It was revealed that apart from the account's office using computers for their records, teachers should also be encouraged to use ICT to keep records of their students. In relation to school records one informant quipped that:

"To begin with, we do not even have records of teachers teaching different classes; hence access to each other's records is not available. We do not know about each other's strengths".

Statement	Yes	No
In school computers are used to keep all records.	25(30.1%)	58(69.9%)
Computers in school help in on line registration on KCSE exams	53(63.9%)	30(36.1%)
Curriculum and co-curriculum activities are time tabled using computers.	23(27.7%)	60(72.3%)
Teachers use computers to set assessment test for students and use it to analysis performance.	56(67.5%)	27(32.5%)
Teachers use computer in preparation of schemes of work, lesson plan preparing pupils report book and records of work	41(49.4%)	42(50.6%)
Records of books bought are computerized.	12(14.5%)	71(85.5%)
I get my pay slip through online	83(100.0%)	

Table 3: ICT Use In Enhancing Quality Of Records Keeping

This result concurs with Look (2009) who noted that even when there are computers available for students and teachers; there are few or no incentives to use the computers in record keeping, online registration like student's record, timetabling and teachers' personal records, school library records, school year evaluation and resource administration. It also corresponds with Levie (2011) who examined that ICT competency, policy and support in secondary schools' program is lacking in sub-Sahara Africa. He further explained that although computers have been installed in most schools, it is seldom used by the teachers in administrative purposes due to the teachers not being adequately trained or not having enough time to incorporate the use of these new resources. He also noted that other schools have had their teachers attend an ICT training program but the school lacks any computers.

### 5.1.3. Effectiveness of ICT Use in Enhancing Quality of Communication

The study sought to find out ICT use in enhancing quality of communication and 79(95.2%) said yes that ICT use has helped them to communicate effectively and efficiently, 52(62.7%) said yes they always use ICT to convey to parents and teachers, 54(65.1%) said yes that they use internets to get current information from the ministry of education and TSC most of the times while 47(56.6%) said no they do not use email for communication to the ministry of education and to the TSC always and 49(59.0%) said yes that the communication experienced with the ICT has improved data management.

The interviewees were asked to state their opinions on what they felt if ICT has helped in effective communication, whether they use emails to communicate and whether they use the internet to source information, most stated that they ICT has indeed made communication easier especially through sending emails and that the internet has made information ready available. One respondent suggested that

"I think that there is need to come up with an institutional framework to guide resource sharing among schools in Kenya. This will in turn make running of schools easy as similar problems can be tackled easier through fast communication."

Statement	Yes	No
ICT use has helped me to communicate effectively and efficiently.	79(95.2%)	4(4.8%)
I always use ICT to convey to parents and teachers.	52(62.7%)	31(37.3%)
I use internet to get current information from the ministry of education and TSC most of the times	54(65.1%)	29(34.9%)
I use email for communication to the ministry of education and to the TSC always	36(43.4%)	47(56.6%)
The communication experienced with the ICT has improved data management.	49(59.0%)	34(41.0%)

Table 4: ICT Use in Enhancing Quality of Communications

This study is in agreement with a study done by Collin (2010) who noted that ICT facilities have caused vital changes in most secondary schools management. The predominance of these ICT uses is consistent with emails which have transformed communication between administrators and the staff in schools where they are used. Collins also said that schools can easily communicate with the parents using ICT and this can help the head teachers and school administrators to talk to the parents about the management issues of the school.

The study also concurs with Blandford (2010) who said that Information and Communication Technology is also used in school Management in the field of making databases both for students and for staff members. Blandford further explained that students' databases mainly comprise students' individual gender, age, discipline records, academic performance, while staff databases mainly record recruitment dates of individual teachers, salary scales, and attendance records.

## 6. Conclusion and Recommendation

From the findings of the study, the study concludes that ICT has not been fully incorporated in public secondary schools in Uasin Gishu County. Therefore, there is need for schools to install computers, train the teachers and students on computer use and explore deeper on this pertinent issue. This calls for concerted efforts by all stakeholders (including teachers, parents, educational officers and other government officials) to make use of computers in order to run the schools better.

Most secondary schools in Kenya should use ICT in admission of students, to print certificates of student's performance, recording of exams and online student exam registration.

The Ministry of Information and Communication policy (2006) came out with national ICT policy which guides the Ministry of Education in e-learning in schools and in management. The national policies are; Provide affordable infrastructure to facilitate dissemination of knowledge and skills through e-learning platforms, create awareness of the opportunities by ICT on educational tool on the education sector and to facilitate sharing of e-learning resources between institutions. Ministry of Information pointed out that when managers adopt ICT in teaching and management will improve the livelihood of Kenyans by ensuring the availability of accessible, efficiency, reliable and affordable ICT services.

The study recommends that; there is crucial need to ICT implementation in public secondary schools since in this age of technological advancement it will affect all the stakeholders.

The school administrators should develop, implement and regularly review, in consultation with the school community and governing council, a school code which is consistent with ICT policies in education.

The Ministry of Education should allocate funds for ICT assessments conducted for classrooms by introducing the concept of learning circles and projects base learning in educational management in primary, secondary, TTC and universities.

Secondary schools should emphasize a greater participation of educationists in the policy design promoting constructivist ICT at schools' model for both teachers and students. This is because without the infrastructure and training at school level there is likelihood that the incorporation of information technology and communication becomes an idle effort.

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