

# The impact of Information and Communication Technologies on the teaching and learning process in primary schools in Kumi Municipality.

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**Abstract:** *The teaching and learning process in primary schools is characterized by a lot of verbal narrations, too much note taking and rote learning despite the potential offered by ICT resources. In this regard, the study investigated the impact of Information and Communication Technologies on the teaching and learning process in primary schools in Kumi Municipality. The study was conducted using a cross-sectional survey design. 100 participants were selected across the selected primary schools. Questionnaire, interviews and an observation checklist were used in data collection. The findings of the study showed that the use of ICTs in teaching and learning process allows pupils to integrate evidence in their work; simplifies educational research by both teachers and pupils; improves retention academic concepts by pupils, promotes active participation of learners during lessons and enables pupils to develop understanding and interpretation skills. The study concluded that the adoption of ICT resources in teaching process positively impact on the teaching process in primary schools and must be adopted with immediate effect. The study recommended that government needs to subsidize internet fees; provide adequate infrastructure to support e-learning; schools need to subscribe to legit sources of historical information; schools need to provide funds for electricity, maintenance and repair of the systems and teachers need massive training.*

**Keywords:** ICT resources, teaching and learning process and digital divide

## Introduction

The rapid growth of the global economy and the information-based society in the brand name of Information and Communication Technology (ICT) has pressurized education systems round the world to use ICT resources to teach knowledge and skills they need in the 21st Century (World Bank, 2017). The growth of the ICT sector has challenged teachers to prepare for effective use of the new teaching and learning tools in their teaching profession, (Becta, 2011). Schools in developed countries like the United Kingdom, have embedded the use of ICT in the teaching and learning process (Organization for Economic Cooperation and Development, OECD, 2014). But even when resources are available, a report from the MasterCard Foundation, (2019) indicated that, 66% of the teachers in the OECD countries had not used computers in the teaching except for making presentations and personal use.

Many developing countries in Africa are living in a world of technological deficiency, that is, lack of access to knowledge that is learnt via the internet (OECD, 2014). Additionally, if Africa aims to better prepare its citizens for the challenges of the 21st century, it must also foster thorough integration of ICTs in to the teaching and learning process since these technologies play an important role in enabling pupils gain skills and knowledge, (Abubaker, 2016). Thus, many African countries have over the years invested heavily in the requisite ICT infrastructure.

East African countries, particularly in Kenya, the sessional paper No 1 of 2005 emphasizes that ICT skills play a key role in Promoting the economic development of a country Ministry of Education, Science and Technology, (MoEST, 2015). The policy framework was developed in 2006 but currently, MoEST indicates that there are a number of challenges concerning access to and use of ICT in education in the country, power disruption, insufficient Information and Communication Technologies or tools for teachers in teaching and learning process.

In recognition of the growing importance of technology and accepting the need to have a computer literate population for development, the Ministry of Education and Sports (MoES) in Uganda made a significant push to create computer labs and a computer curriculum in the schools, (Uganda Communications Commission, UCC, 2015). This effort was followed by the endorsement of a curriculum for ICT training for primary schools by MoES and recently the same ministry announced plans to equip primary schools with ICT facilities to enable them adopt ICT in teaching and learning, (Nasasira, 2014). However, he noted that, ambitious primary schools in urban places such as Kampala Parents School in Kampala; Global Junior School in Mukono; and others have fully developed ICT facilities for both teachers and pupils.

In Kumi Municipality despite these efforts, not many primary schools had yet embraced the use of ICT resources of ICT in teaching and learning process by 2019 as indicated in the District Education Report for the Financial Year 2019/20. This means that the traditional methods had dominated the teaching and learning process. This kind of model does not conform to the modern era where ICTs especially ICT resources have taken over the world and have been accepted as a new way of life in all sectors. It was for this reason that this study was conducted.

### Statement of the Problem

ICTs have the potential to play a powerful role in enhancing the teaching and learning process and preparing learners to acquire skills, knowledge and competencies to enable them compete in the emerging global 'knowledge' economy, (Becta, 2011). Despite the importance of ICTs resources as an educational technology, most primary schools in Kumi Municipality are yet to integrate these tools into the teaching and learning process, (Education Report FY 2020/21). Many of these teachers have phobia (resulting from digital divide) to use ICTs to make their teaching processes more captivating to learners. As a result, verbal narrations, too much note taking and rote learning continue to characterize the teaching process in primary schools. It is for this reason that this study was carried out.

### Objective of the Study

To assess the effect of ICT resources of ICT affect the teaching and learning process in primary schools in Kumi Municipality.

### Research Question

What is the effect of ICT resources of ICT on the teaching and learning process in primary schools in Kumi Municipality?

### Literature Review

According to Abubaker (2011) ICTs are enabling technologies (both hardware and software) necessary for delivering of information from providers to users which could be fixed or mobile. The use of ICT resources in teaching and learning process constitutes what Hennessy, *et al.*, (2010) termed as e-learning which is the electronic mode of the retrieval and storage of information and the sharing and transmission of knowledge.

Adesote and Fatoki (2013) investigated the role of ICT in the teaching and learning process in the 21<sup>st</sup> Century in Nigeria. The results of their study showed that ICTs have the potential to strengthen the teaching process, accelerate, enrich and deepen skills, to motivate and engage pupils during classes. Also, studies have shown that people can absorb knowledge by up to 40% with multimedia and improve retention by up to 500%, (Becta, 2011).

Becta, (2011) indicated that ICT and multimedia fit well with the multi-source nature process and this can give a 'total picture' which can allow pupils to integrate evidence into their work. Also, Adesote and Omojeje, (2011) reveals that the use of hypertexts to investigate sets of documents and sources can help develop pupils' understanding and interpretation skills, and allows pupils to see connections between issues. These are critical areas of research that appear to have been covered by different studies elsewhere but not particularly carried out in primary schools from Uganda's context.

Hennessy, *et al.*, (2010), assessed the impact of using ICT to enhance teaching and learning in East African schools. In this study, they indicated the universal presence and application of ICT skills in practically every human endeavours in a knowledge-driven world of today calls for acquisition of the skills by pupils, and teachers inclusive. They added that technology is in some ways changing the nature of academic historian's work. Networked information and online databases have made research process convenient and easy. In support, Abubaker, (2016) adds that ICT exposes both teachers and pupils to millions of gigabytes of data of value that is available on the internet and also be able to share their knowledge globally. Consequently, ICT has broadened the subject base process and expanded the horizon for inter and multi-disciplinary approach to the study and teaching of the subject which pupils need to be acquainted with. But how these apply to primary schools from a Ugandan context remains largely unstudied hence the need for this study.

Markon (2013) investigated the perspectives on the ICT adoption in Uganda schools with specific interest in Theresa Secondary School Okunguro in Bukedea district. This study highlighted that ICT resources has speeded up scholarly output, created and expanded networks of collaboration and generated enormous database which teachers and pupils should be able to access and put to good use. Teachers can take advantage of ICT to reach out to more readers and audience through the use of multimedia facilities like television and radio. Tele-education which is the narration or teaching process on television for a wide range of audience is one method that can be exploited fully, (Ghavifekr, *et al.*, 2014). Thus, television documentaries and radio programmes give the teachers the opportunity for wider out-reach and reviving and sustaining public interest in education.

In the classrooms teaching and learning process with audio-virtual technologies and internet can be very exciting. Using documentaries and films with value, using the internet directly during teaching/lectures by taking pupils through web sites, showing pictures and photographs of sites and events, maps, data and figures etc, (Abubaker, 2016). Thus, online teaching and learning process make pupils acquire more or less a practical character which will certainly catch the attention, excitement and imagination of the pupils. However, in most primary schools, teaching continues to be characterized by narrations and too much note taking during lessons and also no previous studies have shown how ICT has improved the teaching and learning process in primary schools in Kumi Municipality.

Lewis (2013), in his study, indicated that adoption of ICT by teachers can also influence excitement on the part of users. Pupils will be the direct beneficiaries of ICT resources. Handouts, lesson supplements, new teaching techniques and more visual approaches could support pupils. Sicilia, (2015) concurs that pupils are already eager to use computers and are excited by opportunities to participate in a class to gain more exposure to ICT. The researcher adds that ICTs arouse interest among pupils, encourage them to adopt a new way of acquiring knowledge and developing skills and promote more in-depth learning. This study sought to establish how the use of ICT impacts on the teaching and learning process in primary schools in Kumi Municipality.

Abubaker, (2011) noted that the use of Computer-Mediated Communications (CMC), including online discussion groups, enables pupils to better develop and communicate arguments, thinking and understanding, and these skills can be transferred to essay writing. Becta, (2011) concurs that ICT helps to alleviate the constraints of writing and allows pupils to concentrate on the specific topic of discussion which encourages reflection, analysis and understanding. For the teachers, Sicilia, (2015) argued that the use of CMC, including online discussion groups, allows teachers to identify misconceptions in pupils’ thinking, which might not otherwise have been apparent in more structured classroom discussions. These studies were conducted in technologically wealthy environments in the United Kingdom and as such the present study sought to fill this gap by conducting a similar study from a Ugandan context.

**Study site**

The study was conducted in four selected primary schools in Kumi Municipality. Kumi Municipality consists of two division, that is South and North Division. The Municipality is bordered by Kumi sub-county to the North, Ongino sub-county to the East, Atatur sub-county to the South and Nyero sub-county to the West. Kumi district Area Specific Profile from Uganda Bureau of Statistics, UBOS, (2017) spells that crop farming and animal husbandry are the major economic activities. The Kumi District Statistical Abstract FY 2016/17 indicated that trading of goods and services is increasingly being practiced in this area. The UBOS report, (2017) indicated that Ateso speaking people are the major occupants in the Municipality that is also occupied by Bagishu, Bagwere, Sabiny, Baganda and Luo speaking people.

**Methodology**

The study adopted cross sectional survey design. Cross-sectional surveys collect data at one point in time from a sample selected to represent a larger population. From 100 participants, 04 were head teachers, 28 were teachers, 28 were parents, and 40 pupils took part in the study. Questionnaires for directors and teachers. Interviews were conducted with parents and headteachers and observation checklist was used to conduct lesson observations. Data obtained was analyzed using descriptive statistics.

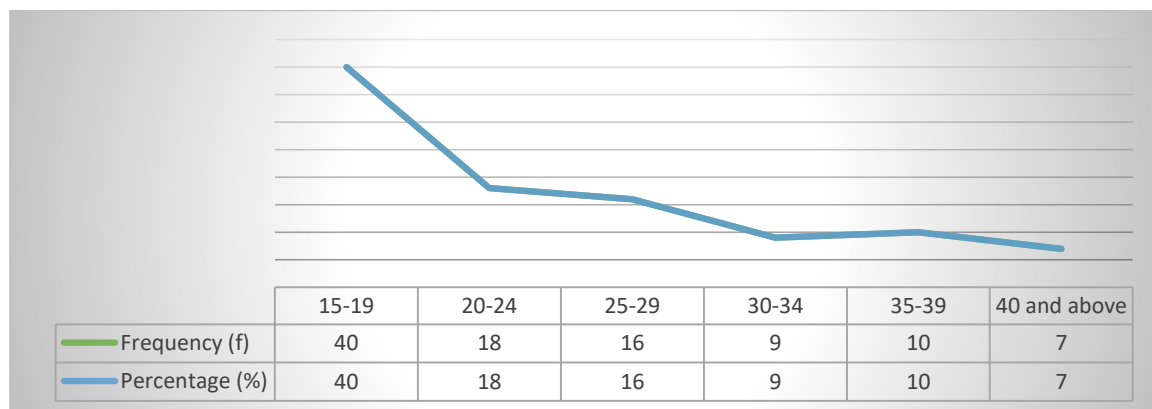
**Results**

**Demographic characteristics of the respondents**

This section presents sex and age of the respondents.

**Age of respondents**

Figure 1: The age of respondents

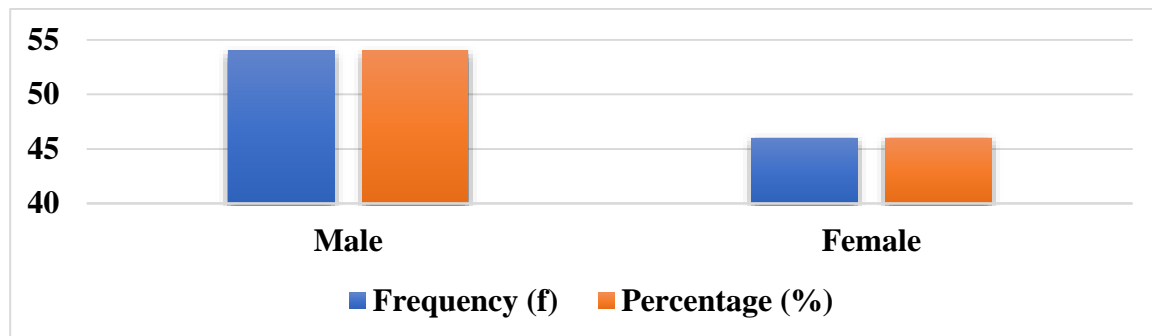


Source: Field Data, 2024

Figure 1 shows that a majority of the respondents, 40% were aged between 10 and 19 years. 18% of the respondents who were between 20 and 24 years and those between 25 and 29 tied at 16%; 16% were between 30 and 34 years; 10% were between 35 and 39 years while the least percentage, 7% of the respondents were above 40 years.

**Sex of the respondents**

Figure 2: Sex of the respondents



Source: Field Data, 2024

Figure 2 shows that a majority of the participants, 54% were male while the lowest, 46% were female.

**Effects of ICT resources on the teaching and learning process in primary schools in Kumi Municipality.**

The researcher developed six (06) items based on a five-point Likert scale where 5 represented strongly agree, 4 meant agree, 3 meant strongly disagree, 2 disagree and 1 represented uncertainty. However, for ease of data analysis, these were reduced to a three (3) Likert scale by adding 5 and 4 to Agree, 3 and 2 to Disagree agree and Uncertain in presentation in table 1.

Table 1: Effects of adopting of ICT resources on the teaching and learning process

Item	Response		3	2	1
01	Promotes active participation of learners during lessons	F	97	3	0
		%	97	3	0
02	It simplifies research by both teachers and pupils	F	95	3	2
		%	95	3	2
03	Improves retention of concepts by pupils	F	86	14	0
		%	86	14	0
04	Enables pupils to develop understanding and interpretation skills	F	84	16	0
		%	84	16	0
05	Allows pupils to integrate evidence in their work	F	75	10	17
		%	75	10	17
06	Provides opportunities for teaching inquiry	F	70	11	19
		%	70	11	19

Source: Field Data, 2024: F – Frequency and % - Percentage

Item 01 shows in table 1, shows that 97% of the participants agreed, 3% disagreed and 0% were uncertain that using ICT resources in teaching and learning process promotes active participation of pupils during lessons. During interviews it was pointed out that showing pupils pictures of scientific, geographical, historical evidence, historical photographs, documentaries in line with the topic being taught is more exciting and easily catches the attention and imagination of learners which makes lessons lively and more productive.

Item 02 indicates that, 95% of the participants agreed that using ICT resources in teaching and learning process simplifies educational research while 3% disagreed and 2% were uncertain. Interview results revealed that, ICT resources power research through the large databases of networked historical, scientific and geographical information found on the internet. The respondents held that ICTs

resources expose both teachers and pupils to millions of gigabytes of data of value available on the internet which helps to improve knowledge acquisition.

In addition, item 03 shows that 86% of the respondents agreed that, using ICT resources in teaching improves on the retention of academic facts and information by pupils while 14% of them did not agree and 0%. During interviews it was revealed that since research has shown that pupils retain more of what they see or watch and touch than what they hear, using ICTs in teaching would tremendously improve on the retention of academic facts and information being passed down to the learners during lessons. One of participants argued that,

*"[...] imagine these two teachers, one who theoretical teaches the effects of wars to pupils and another who uses multimedia in form of documentaries and videos to deliver the same content. Whose content would be retained by the pupils faster? Obviously, the multimedia teacher would have a cutting edge he remarked."*

Item 04 shows that, 84% of the participants agreed while 16% of them disagreed, 0% were uncertain whether using ICT resources in teaching enables pupils to develop and communicate academic arguments, thinking and interpretation skills which can be passed to their essays. It was reported that, use of multimedia sources of academic facts and information allow pupils to understand connections between academic issues being taught which in turn improves on their interpretational skills. This according to the respondents would enable pupils to easily grasp lesson content which makes teaching more interesting and very effective.

Item 05 reveals that, 75% indicated that integrating ICT resources in to the teaching and learning process allows pupils to assimilate evidence into their work while 10% disagreed and 17% were uncertain. It was reported that exposing learners to information obtained from internet sources such as websites, documentaries on You Tube, and videos expose pupils to different sources of information which enables them to obtain useful facts about what is taught in class. It was argued that using the internet directly in lessons by taking pupils through web sites, showing pictures and photographs of sites and events like wars, migrations and other documentaries and videos provides strong mind-blowing evidence for pupils.

Last but not least, item 06 shows that, 70% of the respondents indicated that using ICTs provides opportunities for teaching academic inquiry. On the contrary, 11% of the participants refuted it while 19% were not sure. During interviews, the respondents explained that using ICTs for teaching makes it simpler for teachers and pupils to carry out academic inquiry since they will be having vast information to enable them do so.

## **Discussion**

Using ICT resources in teaching and learning promotes active participation of pupils during lessons. Showing pupils pictures of evidence, photographs, documentaries in line the topic being taught is more exciting and easily catches the attention and imagination of pupils which makes lessons livelier and more productive. In terms of achieving lesson aims and objectives, a teacher who employs multimedia (e.g. tape recordings, DVDs or CDs) in teaching aspects such as political, economic, and social organisation of a tribal grouping yields better outcomes than his counter who uses the traditional approaches of achieving the same. This upholds the results of Abubaker (2011) whose studies held that in the classrooms, teaching and learning process with audio-virtual technologies and internet can be very exciting, and captivating to both the teachers and his pupils. Hennessey, *et al.* (2010) concurs that pupils are already eager to use computers and are excited by opportunities to participate in a class to gain more exposure to ICT. This makes teaching very effective and effective and using ICTs resources in the teaching and learning process is more valuable to both teachers and pupils in the process of learning than one might think.

The study revealed that using ICT resources in teaching and learning process in primary schools simplifies educational research. ICT resources power academic research through the large databases of networked information found on the internet. They also enable both pupils and teachers to share their knowledge globally. The findings agree with that of Markon (2013) who highlighted that ICT has speeded up scholarly output, created and expanded networks of collaboration and generated enormous database which teachers and pupils should be able to access and put to good use. Abubaker, (2016) also agrees that ICT exposes both teachers and pupils to millions of gigabytes of data of value that is available on the internet.

In addition, using ICT resources in teaching process improves on the retention of facts and information by pupils. Research has shown that pupils retain more of what they see or watch and touch than what they hear, using ICTs in teaching process would tremendously improve on the retention of facts and information being passed down to the learners during lessons. The use of ICT resources is hyped for enabling teachers pass down content to their pupils. For instance, a teacher who theoretically taught the effects of wars to pupils would not register better outcomes than that who employed multimedia in form of documentaries and videos to deliver the same content. The results are consistent with that made by Becta, (2011) that people can absorb knowledge by up to 40% with multimedia and improve retention by up to 500%. This provides concrete proof to support the relevance of ICTs in teaching in primary schools.

Last but not least, integrating ICT resources in to the teaching and learning process allows pupils to assimilate evidence into their academic work. Exposing learners to information obtained from internet sources such as websites, documentaries on You Tube, videos et cetera exposes pupils to different sources of information which enables them to obtain useful academic facts about a topic(s) under study. Also using the internet directly in lessons by taking pupils through web sites, showing pictures and photographs of historical sites and events like wars, migrations and other documentaries and videos provides strong mind-blowing evidence for pupils. This is consistent with Sicilia, (2015) whose study found that, ICT and multimedia fit well with the multi-source nature of education and this can give a ‘total picture’ which allow pupils to integrate evidence into their work. Thus, ICT resources like internet, televisions, tape recorded sources, and other historically or scientifically important electronic resources assist pupils in incorporating evidence into their work at school.

### **Conclusions**

The researcher concluded that, the use of ICTs resources in teaching and learning process allows pupils to integrate evidence in their work; simplifies educational research by both teachers and pupils; improves retention academic concepts by pupils, and promotes active participation of learners during lessons.

### **Recommendations**

The study recommended that, government needs to subsidize internet fees; provide adequate infrastructure to support e-learning; schools need to subscribe to legit sources of historical information; schools need to provide funds for electricity, maintenance and repair of the systems and teachers need massive training on the use of ICT resources.

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