

FACTORS AFFECTING IMPLEMENTATION OF ICT EDUCATION IN PUBLIC
PRIMARY SCHOOLS IN KAJIADO NORTH SUB- COUNTY, KENYA

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DECLARATION

This project is my original work and has not been presented for award of a degree in any other university.

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DEDICATION

I dedicate this project work to my family members Deborah and my father Samuel for their patience and encouragement that made me pursue and complete this course. I also dedicate this project work to my many Friends who have supported me throughout the years as I pursued this course. I will always remember you all. May God richly bless you.

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LIST OF ABBREVIATIONS

ICT	Information and communication technology
UNESCO	United Nations educational social and cultural organization.
I-Mlango-	an NGO that is running computer education programs in Kajiado North Sub County.
SCDE	Sub County Director of Education
UK	United Kingdom
USA	United States of America

ABSTRACT

The general purpose of this study was to examine factors affecting implementation of ICT education in public primary schools in Kajiado North sub- county, Kenya. The study was guided by the following specific research objectives: To establish how the teachers level of training affects implementation of ICT education at primary schools in Kajiado North sub county, To determine the effect of infrastructural facilities on implementation of ICT education at primary schools in Kajiado North sub county, To examine the influence of administrative support on implementation of ICT education at primary schools in Kajiado North sub county, and To assess how the school ICT policy affects implementation of ICT education at primary schools in Kajiado North sub county. The study adopted a descriptive survey research design for its appropriateness in reaching out to a large representative sample and generalization of the findings. The target population included three hundred and ninety teachers; fourteen public primary school and one thousand five hundred and forty five pupils. Random sampling techniques were used to select five schools, seventy eight teachers and one hundred and fifty five pupils. Questionnaires were the main data collection instruments. The collected data was analyzed with the help of Statistical Package for Social Science (SPSS). Descriptive statistics was used to analyse the quantitative data while qualitative data was analysed based on themes and merged in quantitative data. From the analysis, the study concluded that: majority (73%) of the respondents indicated that poor infrastructural facilities affected implementation ICT, (63.85%) of the respondents stated that administrative support had influenced ICT implementation, More than half (53.9%) of the respondents indicated that good match of training and skills are important to support ICT implementation in schools and poor school ICT policies have negatively affected implementation ICT education. The following recommendations are given: government should improve ICT infrastructural facilities will promote better ICT implementation in primary school, secondly, education stakeholders should try to organize for internal training which reinforces the ICT skills of the teachers and head-teachers, thirdly there is need by government for provision of all necessary material, conducive environment and financial injections for ICT implementation and lastly, government in collaboration with education institutions needs to sit down and formulate policies which are geared towards educational development on ICT trained pupils in primary schools.

CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND OF THE STUDY

The world is undergoing a sweeping change as the industrial society of the 20th century rapidly gives way to the information society of the 21st century. The new society is promising a fundamental change in the way we live, in terms of teaching and learning , social interaction, commerce and political engagement (National economic social council, 2007). This transformation has been catalyzed by the use of information technology in all sectors ranging from service industry, to business growth to the education sector. With these wide ranging changes, educational systems around the world are facing mounting pressure to make use of Information and Communication Technology in teaching students the knowledge and skills they need in the 21st century (Omwenga, 2007).

According to UNESCO (2002) ICT has become, within a few years, one of the cornerstones of modern society. Many countries now see grasping ICT and mastering the basic skills and concepts of ICT as one of the foundational education competences, alongside reading, writing and arithmetic. Globally, most of the countries identified the education sector as a frontline for the use of ICTs to widen access to education, improve standard of educational delivered and reduce cost in the administration of the educational system as a way of increasing efficiency in provision of education (Banks, 1999).

In the late 90s up to the 21st century, global countries started making use of computers as an instrument for pupil learning, this ended up making it a necessity for all countries (UNESCO, 2002).

ICT implementation is a reality to many developed countries moreover; its impact has not yet been felt by many developed countries in the world. For instance, According to UNESCO (2014) report on one to one laptop primary school in the USA, the report revealed that in the United States, the impact of the one-to-one laptop project in their primary schools could not be quantified in terms of both improved reading and writing skills or the decrease of these skills. This can therefore imply either the technology did not add anything to education, or the instrument used to assess this program failed to account for the skills acquired by use of technology.

However, this laptop program succeeded in making students more capable to deal with information and to work together. (Camfield, et. al., 2007). Despite of the pilot test and unexpected implementation outcome in USA, ICT remains important in the development of education system in the country. Just like we have seen that there are gaps and unexpected outcome of ICT pilot test and implementation in USA, other developed and developing countries are also facing the challenges which were never projected to come up.

In UK, education stake holder, have developed national guidelines to lead to increased use of ICT as a tool for learning in their primary schools. However, Bank (1999) argues that despite this great UK policies on education, the incorporation of Information and

Communications Technology in classrooms has been difficult for the education systems of all region in the UK that work towards being ready to put up with the needs and the demands of this century. Although ICT is now the key element of education change, this benefit of technological advancement in education is not being enjoyed by all countries (Kozma Anderson 2002). Barriers that are known as 'digital divide' hinder the ability of certain countries to make maximum gain of technological advancement (Kozma, Anderson, 2002).

Unlike in the developed world like UK and USA, African countries which host majority of developing countries lag behind in computer integration in the education system which widens the digital and knowledge divides between students in the regions (Farrell, 2007). The improvement and application of ICT in African schools is very important if the continent is to minimize the knowledge, technological and economic divide between itself and the rest of the world (Farrell and Shafika, 2007). However, most of African countries are affected by low investment in ICT from primary school all the way to colleges.

These gaps were noted in a study by Kiptalam et al, (2010), where he found that computer to student ratio in most African countries is 1:150 as compared to a ratio of 1:15 in developed countries. And this ration was attributed to poor ICT infrastructure among the primary schools in the continent (Omwenga, 2007). Furthermore, Low computer literacy among students in most African countries was further fueled by

infrastructure related challenges like: shortage of appropriate rooms\buildings, safety concerns and availability of electricity. It is therefore important that these factors be investigated to be able to come up with ways to overcome them.

Additionally there is need for administrative support to make implementation of computer education successful. Facilitation of ICT implementation through support from administration, motivation of users is very important to its success and in enhancing the level of use (Fullan, 1982; Dale and Habib, 1992; Pelgrum and Plomp, 1993 and Teare, 2004). This is further reinforced by the findings of a recent research by a Belgian university that noted that a successful implementation of ICT programs in schools that had vision, expertise, infrastructure and digital content and application depended on a sound school leadership.

Poor policy framework is also a notable challenge for the few African countries that have attempted to introduce ICT programs in their education system. These countries continue to experience numerous challenges. In Nigeria for example, where computer adoption was attempted in 1988, the plan did not go beyond distribution and installation of personal computers due to lack of a complete proper implementation formula (Okebukola, 1997).

Although Nigeria finalized the computer program in secondary schools in 2004, several challenges have led to low adoption rate of the program. These factors include:

limited/poor infrastructure, inadequate ICT facilities in the schools, frequent electricity interruptions, inadequate manpower and high cost of ICT facilities (Adomi, 2006). In Zimbabwe as another example, studies show that some computers have been lying idle in classrooms due to lack of trained personnel, electricity or proper facilities like computer laboratories (Kabanda, 2012).

In Kenya things are not any different, despite the continued increase in the numbers of computers installed by schools in Kenya, in the recent years and the lots of money allocated to acquire them, the actual statistics of their use is not encouraging.(Judson, 2010; Wims& Lawler, 2007). In most cases, computers are installed in schools in Kenya without a proper plan of how they will be integrated into the learning process (Hawkins, 2002). According to (Becta 2003), a number of factors influence the chances that a good ICT learning environment will be created in a school; availability of ICT infrastructure, support of ICT integration by administration, ICT teaching, sound school leadership and overall teaching.

The government has gone further and committed itself to give free laptops to all class one pupils and introduce ICT education to all other classes in primary school in the year 2018. However this will not be easily achieved as said. Schools that have attempted to introduce ICT education at primary school level have faced insurmountable challenges that some have had to drop it altogether. Actually, data show that of the government-

sponsored ICT initiatives in third world countries, 35% are considered to have totally failed, 50% to had partially failed and only 15% to have succeeded (Heeks, 2010).

The scope of the research was primary schools in Kajiado North sub- County. The sub-county is located in the northern part of the larger Kajiado County, which lies in the south western edge of the country. The county covers an area of approximately 14.8km². It is subdivided into two educational zones namely Ongata Rongai, and Ngong,

The sub- County is metropolitan with the rural areas occupied by the native Maasai community while peri- urban areas have a mixture of most communities in Kenya. There are a total of fourteen public schools with the rest being private schools. The main economic activity in the sub-county is livestock farming, which is practiced majorly in the rural areas where people mainly rear cattle, goats and sheep in large scale. Business is also another key economic activity in the region, especially in the urban setups of Rongai, Ngong and Kiserian.

The ICT education programs are being implemented in fourteen public primary schools by a non-governmental organization called I-Mlango. The rest are being implemented in most of the private primary schools at the cost of the parents (SCDE, 2017). Despite the huge financial commitment to the National ICT strategy for education and training, it's not clear why only a few public primary schools have functional ICT education programs in this Sub- County. Factors affecting implementation of ICT education are not well

established especially in Kajiado North Sub-County. Motivated by this background, this study investigated factors affecting implementation of ICT education in Kajiado North Sub-County.

1.2 STATEMENT OF THE PROBLEM

The issue of implementation of ICT education in primary school is very important especially in the overall academic performance of pupils, growth of education and to keep pace with the rapidly changing education and job market (Grace, 2012). Despite of the much hyped increased computer installation in public primary schools, many schools are yet to reap the dividends of their integration into the learning process was due to a myriad of obstacles that ranged from infrastructural challenges, lack of qualified teachers, and low administrative support among various schools in Kajiado North Sub County.

Kajiado North Sub-County being an arid and semi-arid land (ASAL), faces unique challenges especially in regards to the implementation of ICT education in public Primary school. The efforts from various global education stakeholders in context to improving education sector, have since been crippled by poor infrastructure to Support ICT, inadequate policy, low administrative support and low levels of teacher training to implement these programs (Surry and Ely, 2001).

Several interventions have been underway to leapfrog the incorporation of ICT education. Introduction of laptop per child and connecting schools to national power grid by the

government among other interventions have not effectively addressed the underlying key issues in the implementation of ICT education in public primary schools.

From the review of past literature, it was clear that studies that have been carried out on ICT education. Factors including, infrastructure, policy and levels of teacher training in relation to ICT in primary schools in other places (Grace, 2012, Farrell 2007, Omwenga, 2007). Nevertheless, none of these studies had answered the question of factors affecting implementation of ICT education in Kajiado North context. Therefore, this study intended to investigate factors affecting implementation of ICT education in Kajiado North Sub-County context.

1.3 PURPOSE OF THE STUDY

The purpose of this study was to examine factors affecting the implementation of ICT education in public primary schools in Kajiado North Sub-county in Kenya.

1.4 OBJECTIVES OF THE STUDY

The study was guided by the following specific objectives:

1. To establish how the level of teacher training affects implementation of ICT education in public primary schools in Kajiado North sub-county
2. To determine the effect of infrastructural facilities on implementation of ICT education at public primary schools in Kajiado North sub-county.
3. To examine the influence of administrative support on implementation of ICT education in public primary schools in Kajiado North sub-county.

4. To assess how school ICT policy affects implementation of ICT education in public primary schools in Kajiado North sub-county.

1.5 RESEARCH QUESTIONS

1. How does the of level teacher training affect implementation of ICT education in public primary schools in Kajiado North sub-county?
2. To what extent does the provision of ICT infrastructure affect implementation ICT education in public primary schools in Kajiado North sub-county?
3. How does administrative support affect implementation of ICT education at public primary schools in Kajiado North Sub-County?
4. To what extent does the school ICT policy affect implementation of ICT education at public primary schools in Kajiado North Sub- County?

1.6 SIGNIFICANCE OF STUDY

The outcome of this study will be beneficial to different stakeholders in the education sector. Education policy makers will benefit from the findings of this study because they will have sufficient information to help in decision-making regarding ways ICT education needs to be planned and implemented.

The policy makers in Sub-counties will also find the information provided in this study useful in planning for the project to be effective and sustainable, especially the laptop project for primary schools which is already overdue. Education administrators will find the recommendation of this project useful in preparations and overseeing the implementation of the laptop project in their counties.

The study will provide information on how the content developers can effectively adapt the existing content and in converting the print –based media to digital media. The study will provide information on the level of school preparedness for the anticipated roll out of the laptop program.

This will help them to reduce the apprehension among teachers of their position being taken over by technology or being unable to be in control of the class. Teachers will also be advised on the best approach to employ in introducing ICT education to children majority of who have never encountered computers in their lives.

The findings of this study will provide information to schools/learning institutions on how best to be prepared in-terms of computer infrastructure and security. This study will advice schools on the basic infrastructural requirements. Schools will also find

information on the technical support needed to sustain successful ICT education programs.

Parents and pupils will use the findings of this study to prepare themselves to welcome the laptop project once it is fully implemented in primary schools. The study will provide information on the importance of ICT modern day world. The parents will be informed about how ICT education will help their children to have an upper hand in developing new innovation to support development in the community. Lastly, the study will also provide adequate information about how pupils can get maximum benefits from ICT education in primary schools. This study will also provide information to head teachers on how their administrative support affects the effective implementation of ICT education in the school.

1.7 ASSUMPTIONS OF THE STUDY

For this study to be successful several assumptions were made. These are:

1. All the respondents were literate and are knowledgeable on issues affecting ICT education.
2. The schools sampled in this study gave accurate data.
3. The records found in the schools were correct and reliable

1.8 LIMITATIONS OF THE STUDY

There were a number of challenges which were faced in this study. Nonetheless, a major one among them was the inability of teachers to get adequate time to fill the questionnaire because of the having unbearable workload. To overcome this limitation, the researcher created more time and finances for research and visited schools over lunch hour breaks when pupils and teachers were free. The other limitation was the vastness of the target population (teachers and schools) which hindered effective representation. In order to get over this limitation, the researcher made use of questionnaires which could be administered simultaneously to different groups of respondents. Questionnaires worked out well since they helped the researcher to reach more respondents without taking a lot of time.

1.9 Delimitations of the study

Delimitation describes the population from which generalizations can be carefully made and are under the control of the researcher (Simon & Goes, 2013). This study will only examined factors affecting the implementation of pilot ICT education in public primary schools in Kajiado North Sub-county. Other factors may have been identified by other researchers however this research project only confined itself to the following factors: level of teacher training, availability of ICT infrastructure, administrative support and the school ICT policy. The target population was Sub-County Director of education, head teachers, teachers and pupils in the fourteen public primary schools in Kajiado North sub-county.

1.1 1 DEFINITION OF SIGNIFICANT TERMS

Computer – it is an electronic device that accepts user input (data) and processes its under the influence of a set of instructions referred to as programs to produce the desired output (information).

Desktop Computer- it is the ordinary personal computer which is usually placed on top of a desk while being used.

Laptop- This is a portable personal computer usually placed on the laps while being used.

Education –is the process in which the knowledge, character and behavior of human being is shaped or molded.

Information – it is the processed data which makes meaning to the user and which can form bases for decision making.

Primary School –The first formal obligatory school. In Kenya it begins with nursery school, and follows with class one to class eight.

Technology –An application in science to solve a problem. It can also be termed as knowledge made to work with an intention of solving problems or come up with something useful.

Implementation-To make that has officially been decided start to happen or be used without any hesitation through action.

ICT education- it is a non-examinable subject at primary school that teaches learners about computers and how to make use of them as learning tools.

Internet – it refers to the global interconnection of computer networks for the purpose of communication and resource sharing.

Sub- County –an administrative area that is sub divided from a county.

Hotspot- an internet plug-in spot that is shared by two or more users

Broad band – it is an internet plug- in spot that is dedicated to a specific user and has high internet speed

Infrastructure –the basic systems and services that are necessary for an organization to run smoothly.

Human resource- people skills and abilities that organizations can make use of.

1.10 ORGANIZATION OF THE STUDY

This study is arranged into five chapters. Chapter one starts by explaining the background of the problem being studied and is followed by a statement explaining the problem itself. The objectives of the study are then stated followed by research questions and explanations on the significance of the study. Assumptions made in the study are then stated followed a guideline on how the study is organized followed by limitations and delimitations of the study. Chapter one ends with explanation of significant terms.

Chapter two captures literature review for the study. Studies on importance of ICT education in primary schools are reviewed in details, followed by factors affecting the implementation of ICT education in public primary schools. The chapter ends with theoretical and conceptual frameworks. In chapter three, the research methodology for the study is explained, starting with a brief introduction and the study design. The target population is then stated followed by explanation sampling size and procedure. Research instruments are then explained followed by data collection procedures, analysis

techniques and ethical considerations. In chapter four, Data analysis and interpretation was undertaken and finding were captured based on the objectives. In chapter five, Summary, conclusion and recommendation was drawn based on the findings in chapter four. Referencing of all the study was done in APA style.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discusses the review of literature on the factors affecting the implementation of ICT education in public primary schools in Kajiado North Sub-county. The discussion of this chapter was based on the key objectives. The main sources of literature included books, journal articles, web articles and online digital libraries. The chapter is presented under the following sub-sections: an overview of importance of ICT education in primary schools, effects of the level of teacher training on implementation of ICT education in primary schools, effect of infrastructural facilities on implementation of ICT education in primary schools, influence of administrative support on implementation of ICT education in primary schools, influence of school ICT policy on implementation of ICT education in primary schools.

2.2 Importance of ICT Education in Primary Schools

Implementation of ICT education in primary schools would greatly enhance the achievement of primary schools objectives in Kenya, which are: To promote an all-round growth of the whole person by developing the mental, bodily and emotive abilities and attitudes; to pass on literacy and numeracy and cultivate scientific and social skills; promote social equity and prepare the learner for higher education (Kenya Government, 1998).

ICT education in primary schools offers essential skills needed for pupils to learn and live effectively in an information age. According to Yelland (2001), traditional educational environments do not seem suitable in preparing learners to be functional or productive in the workplaces in today's society. She observed that schools would not be preparing their students seriously for the live in the twenty first century if they do not incorporate use of new technologies in the schools in their systems.

This is also posited by Grimus (2000), who concurred that by teaching ICT education in primary schools, the pupils are prepared to face future changes with a better understanding. In their study, Bransford et al (2000) found out that “what is now known about learning provides an important guideline for uses of technology that can help students and teachers develop the competencies needed for the twenty-first century. ICT education is therefore viewed as the genesis of all technology.

ICT education in primary schools plays various roles in learning and teaching processes. Many researchers and theorist assert that the use of computers can help students to become knowledgeable, reduce the amount of direct instruction given to them, and give teachers an opportunity to help those students with particular needs (Iding, Crosby, & Speitel, 2002; Shamatha, Peressini, Meymaris 2004; Romeo, 2006). Computer education is profitable to the students since it has potential benefits such as tools for enhancing teaching and learning schools (Skinner & Preece, 2003).

These tools include those for data capture, multimedia software for simulation, publishing and presentations tools, digital recording equipment, computer projection, technology, and computer-controlled microscopes (Osborne & Hennesy, 2003).

2.3.1 Effect of the Level of Teacher Training on Implementation of ICT Education

According to Gakuo et al, 2010 Leadership plays a key role in ICT integration in education. Many teacher- or student-initiated ICT projects have been undermined by lack of support from above. For ICT integration programs to be effective and sustainable, administrators themselves must be competent in the use of the technology, and they must have a broad understanding of the technical, curricular, administrative, financial, and social dimensions of ICT use in education.

According Becta (2004), the issue of training is certainly complex because it involves several components to ensure the effectiveness of the training. Lack of training of teachers in information technology skills is one of the major challenges facing the implementation of ICT education in primary schools. Pelgrum (2001) observed that lack of adequate training of teachers on the use of computers in classrooms as one of the main challenges to smooth ICT integration in schools.

Mbulankende (2007) in his study, assessment of teacher training in ICT in selected universities in Uganda, reported that ICT like most innovations will not work without administrative support. The study suggested that continuous training should provide the support from which teachers can continue to keep and update with ICT and its application to subject pedagogy, in order to enhance their teaching skills. In all faculties, lecturers

should be introduced and trained on how to use various ICT tools common in the classroom such as projectors, computers, electronic white boards, digital cameras and trouble shoot minor problems common with these facilities. The Ministry of Basic Education should put in place appropriate strategies to ensure that integration of ICTs in teaching and learning process goes together with the recruitment, training and retention of staff.

Krysa, (1998) stated that ICT training should not be limited to teachers who teach computing but to all teachers on the use of computers. The need for ICT training is explained by the fact that most of the presently recruited teachers received little or no training in their formal education concerning use of computers in teaching. It could also be a reflection of the need to update teachers' knowledge in the world of fast moving technology of communication. Teachers need to know how to use computers first before they can integrate them in the curriculum. This could make ICT innovation simple to adopt and implement as the innovation becomes compatible with the current objectives of the users (Teare, 2004).

Malcolm and Godwyl (2008) on his study reported that lack of professional development programs for teachers to upgrade their skills on emerging technologies is a hindrance to ICT implementation. Low levels of skills and the need to train users influenced ICT implementation. ICT skills are required for empowerment to enhance value and create opportunity through new technologies. Human capital must be developed through training, research and capacity building.

Another study by Bauer and Kenton (2005) stated that although teachers were having sufficient skills, were innovative and easily overcame obstacles, they did not integrate technology consistently both as a teaching and learning tool. Reasons being outdated hardware, lack of appropriate software, technical difficulties and student skills levels. The study found that professional development has a significant influence on how well ICT is embraced in the classroom.

2.3.2 Influence of Provision of ICT Infrastructural Facilities and Implementation of ICT Education

Research carried out by Suit hwood (2004) found that more than 40 percent of the population in Africa is in areas that is not covered by telecommunication services. This means that basic requirements like accessible roads and electricity aren't available. Without power supply in schools to power computers, ICT education will be unattainable. Places where power is available are frequented by power interruptions meaning that any computer lesson taking place must temporarily stop. According to Adomi (2006), electricity failure is a persistent problem militating against ICT education in schools.

Aryatuha (2007) on his study noted that the availability of computer hardware and software should be accompanied with training of the users and constant technical support. Without this, even though high quality hardware and software are available, they could be wasted or remain underutilized by the users. This could suggest the minimal ICT implementation reported in public primary school in Kajiado.

In a study carried out by Nachmis et al, (2004), they found out that a crucial factor contributing to the promotion of the innovation is the availability of infrastructure resources: hardware, in terms of the number of computers in the school available for students and teachers for educational purposes, and the quality and functioning of equipment as well as available software. However, availability of ICT alone is insufficient and must be accompanied by technical as well as pedagogical support

Grace (2012) carried out a study Factors affecting implementation of ICT integration in education: a case of secondary schools in Westlands Sub-County, Nairobi County, Kenya. The study found out that the government has provided a process of facilitating availability of ICT equipment and their accessibility to teachers on demand. However, still the infrastructure support is not sustainable. Therefore, inadequate infrastructure affect the implementation of ICT either positively or negatively depending on their availability or lack of availability. Stakeholders needed to be sensitized on the need to apply them to ensure successful implementation of ICT in the primary schools.

Many schools in Kajiado North sub -county , and in Kenya at large are located in rural areas and have no access to electricity, some have dilapidated classrooms and other amenities, not to mention some extreme cases where learning does not even happen inside a classrooms (SCDE, 2017). Public primary schools have other more pressing needs than ICT programs. With the introduction of free primary education (FPE) by the

Kenyan government in 2002, this situation has moved from bad to worse (Evans et al., 2011; Somerset, 2011).

Though a necessary endeavor, enrolment is estimated to have increased from 5.9 to 8.6 million pupils since introduction of FPE, without any parallel increase in the capacity of the already over-burdened school system to handle the large influx of students, placing even greater burden on the aging physical classroom spaces, desks, number of teachers and other resources (UNESCO, 2006). In some schools, classes now have as many as 80-100 students, while the average student-teacher ratio is currently estimated to be 60 to 1 (Oketch & Rolleston, 2007).

2.3.3 Influence of Administrative support on implementation of ICT education

Administrative support in the context of ICT refers to the presence of encouraging ICT-using role models, such as the principal, and the presence of incentives for teachers to use technology (Priscilla et al, 2008). In this study, administrative support refers to the help and guidelines given out by administrators in basic education institutions to aid in computer training and integration of ICT into the curriculum. Sife et al (2007) reported that administrative support is critical to the successful integration of ICTs into teaching and learning processes. It can be argued that administrators can provide the conditions that are needed, such as putting in place an ICT policy, incentives and resources.

Hawkins (2002) reported that school administrators offer very little structural support and incentives to teachers to effectively use ICT in the classroom. Though teachers enthusiastically engage in collaborative projects and constructivist pedagogy,

administrative support given in reference to ICT is not adequate. Teachers use computers more often for their teaching-learning process if they perceived an adequate support from the school administration.

Kariuki (2004) argues teachers who receive adequate ICT support from the administrators are more likely to use ICTs in their teaching practice while those who do not get ICT support from the those above them in school are less passionate in using computer or do not incorporate technology in any way. School administrators, like the principal acts as a go-between to integrate ICT into the school system by playing an important role in encouraging, giving support, and making the teachers to adopt the use computers in their instruction process.

Sife et al (2007) argued that lack of technical, administrative and financial supports were problems that hinder teachers from making use of computers in their instruction. The support of the school head teacher or administrator can increase teachers' acceptance to use the computers in the teaching and learning process. Therefore, the role of the school leadership is critical in creating impetus, sustaining and an environment that enhances the use of computer in the teaching learning process. Administrative support positively influences the adoption of ICT in the school system.

Sife et al (2003) found out that for the adoption of ICTs to be successful and sustainable, head teachers as lead professionals should lead from the front in the use of the technology, as well as have broad mastery of the pedagogical, technical, administrative, social, and financial dimensions of ICTs in education. Administrators play a key role in

enhancing the adaption of new innovations and more so infusion of ICT in education (Tusubira and Mulira, 2004). Priscilla et al (2008) affirmed that guidance from a head of department is key in encouraging the preparation of electronic lesson materials which encourage computer use for a certain subject in the instruction process. The study established that the success of integrating ICT into the instruction process among school teachers depends on the support provided by the head of the school.

Another study by Yang (2008), in a research at Curtin University of technology found out that university lecturers who received support from their seniors had a high commitment to the integration of ICT for teaching and learning. Statistics from this study suggested that the adoption of ICT in teaching and learning would be enhanced by increased support of the ICT initiatives at the management level of the University. A major factor contributing to the enhancement of the innovation is the accessibility to ICT infrastructural facilities in terms of the number of computers in good working condition available for students and teachers for teaching learning purposes. Conversely, not just a good computer student ratio alone is sufficient to guarantee adoption but also availability of pedagogical and technical support (Nachmis et al, 2004). Aryatuha (2007) also stated that for a successful ICT adoption, adequate computer hardware and software must be accompanied with training of the users and continuous technical support. Without this, however high the quality of hardware and software deployed there will only be under-utilization and wastage of these resources.

2.3.4 Influence of school Policy on implementation of ICT education

A policy is a statement of commitment by an organization or the government to undertake specific program directed at the achievement of certain goals (Jansen 2000). UNESCO (2002), reports of a Malaysian government policy document known as “Education for Smart Schools” that was formulated to develop ICT and was to be implemented in stages. The “smart schools” project had five main goals: to develop individual child covering the intellectual, physical, emotional and spiritual domain; provide opportunities for the individual to develop their special strengths of abilities; to produce a thinking working force that is technically literate; demonstrate education to provide equal access to students to learn with computers and to involve parents of the children, private sector, and the community in ICT education process.

Another study was carried out by Heeks (2006) ICT policy in developing revealed that there is a lack of enthusiasm on the part of decision-makers to embark on ICT projects specifically in Kenyan education curriculum. Developing countries government has low Investment technology with “corporate-wide integration, corporate restructuring and technological innovation policies” among public and private sectors. Thus, inadequate policy affects implementation of educational goals.

Odera (2011) carried a study on Computer Education Policy and its Implementation in Kenyan Secondary Schools. The study revealed that most of the Principals 76% had a policy for the use of computers in teaching and learning but 24% were in the process of formulating computer education policy. The study suggested that all teachers, students

and the school community should be informed about the policy and the importance of its implementation. Thus, most of the policy statements were written documents and others were not documented for circulation to schools but were contained in the existing educational policies.

Kindiki, (2008) argues that Curriculum management in the school is based on how teachers and educational managers allocate time as a framework upon which the structure of the whole school is built. Kenya has made remarkable progress in promulgating an ICT policy framework and implementation strategy, complete with measurable outcomes and time frames. This should trickle down to each individual school to make implementation of ICT education effective.

2.4 Summary of the literature review

Based on the review of literature from various scholars and past researchers collected from secondary sources i.e. textbooks, magazines, internet and journals, it can be noted that there are a number of factors that affect implementation of ICT in primary school. Mutong'wa, and Farrell (2007) argue that high costs for acquisition and maintenance of ICT infrastructure is a challenge that has continued to hamper adoption and implementation of ICT in schools. Infrastructure is one of the greatest challenges in implementation of ICT in school is balancing educational goals with economic realities. For the case of skills development in ICT and administrative support, most scholars and past studies suggested that to a large extent these two variables positively affected ICT

implementation. For example, Farrell, Agaba and Mugisha and Holland were of the view that possessing ICT skills does not warrant use of computers in teaching.

From the review of literature, it is evident that there are a number of studies that have been conducted on infrastructure, teacher training, school ICT policy and administrative support in relation to ICT implementation in primary school. However, the context, scope and contribution of the previous studies do not contextually answer the question of factor affecting implementation of ICT in public primary school in Kajiado North. Therefore, there is need to examine the factor affecting implementation of ICT in public primary school in Kajiado North.

2.5 THEORETICAL FRAMEWORK

This study was guided by a theory developed in 2005 by French and Bell systems theory. The theory states that systems view investigates the components of the phenomena, the interaction between the components and the relation of the components to their larger environment. French and bell (2005) defined the theory of systems as an organized unitary whole composed of two or more independent parts, components or sub systems and delineated by identifiable boundaries from its environmental supra system.

In application to this study, open systems have inputs from the environment which include energy, information and raw materials. These inputs undergo through a transformation process. This gives out an output. The theory recognizes the inter dependence and interrelatedness of the different components of a system in that if there is

a desired change in the output then there must be a change in the input. In this context the school is viewed as a system with inputs like administrative support, provision of ICT infrastructural facilities, adequately teacher's level of training and a good school ICT policy which are taken through the process of teaching and learning to produce an output of computer literate graduates. As shown in the conceptual framework below.

The open system theory also attempt to explain how, effort and raw material play a key role in the implementation of a decisive component in the environment. Open system will help this study in understanding why ICT is facing various challenges in terms of support, availability of materials among other components

2.6 CONCEPTUAL FRAMEWORK

The conceptual framework on figure 1 shows how the variables under study in this research relate with and influence each other. As shown in the figure above implementation of ICT education is depends on the inputs of teacher's level training, provision of infrastructural facilities administrative support and the school ICT policy. These when they go through the process of teaching (implementation) produce the desired outcome of primary school graduates with ICT knowledge skill and attitudes towards its use and lay a foundation for further studies in ICT education.

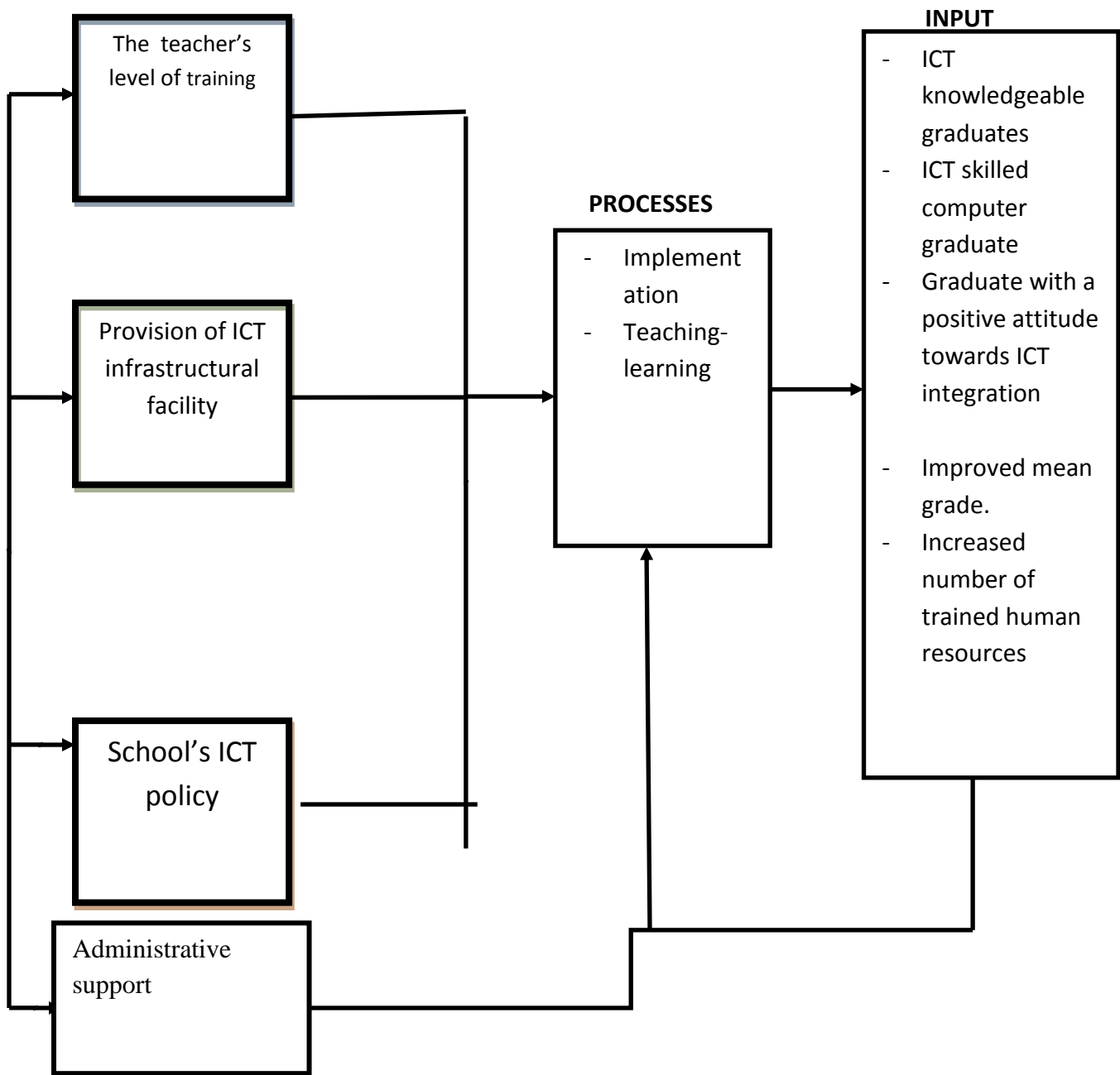


Figure 2.1 factors affecting implementation of ICT education in primary schools

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section covers the research design, target population, sample size and sampling techniques, research instruments, instruments validity, instruments reliability , data collection procedure and data analysis technique .

3.2 Research design

This study adopted a descriptive survey design. Descriptive survey is a method of collecting information by interviewing or administering a questionnaire for a sample of individuals (Orodho 2003). The descriptive survey was considered appropriate because it narrated facts and characteristics concerning factors affecting ICT implementation. Kothari (2004) maintains that descriptive research studies are concerned with describing the characteristics of a particular individual, or of a group. Descriptive survey design was appropriate since it enabled the researcher get information from those who have practical experience with the problem that was studied.

Further, the survey design allowed the researcher to cover a wide area using representative sample that was generalized to the entire population, which would otherwise be impossible to cover due to its intensiveness. This is in agreement with Krathwohl (1997) who argue that a survey design is used to gather data from a carefully selected sample of a population, all of whom are considered informants, and extrapolate

their responses to the population. The versatility of the survey being used in investigation of problems also prompts the researcher to use it in the current study.

3.3 Target population

A population can be referred to as a complete set of individuals, cases or objects with some common observable characteristics (Mugenda & Mugenda 1999). Any scientific research targets a given population through which various data collection methods are used so as to get the desired or the required data for analysis (Barton, 2001). Frankel and Wallen (2000) also indicate that the target population is the larger group to which one hopes to apply the findings. This study was conducted in Kajiado North sub-county. The sub county has a total of 14 public primary schools and 390 teachers and 1545 pupils (SCDE Kajiado North, 2017). Each of these schools have a computer education program run by I-Mlango.

3.4 Sample size and sampling procedure

Frankel & Wallen (2000) define sample as any group from which information is obtained or part of a selection of target population. The sample population is that aggregation of data from which the sample is collected (Cohen et al, 2000). The researcher used random sampling procedure to select five public primary schools in the sub-county. Thus, out of the 14 public primary schools 5 were selected to participate in this study. Further, this study employed simple random sampling procedure to arrive at 20% of all teachers and pupils from the purposively public primary schools. This is in accordance to Gay (2010) who observes that at least 20% of a given population is a representative sample. As such,

one hundred and fifty five (155) pupils and seventy eight (78) teachers were selected in this study.

Random sampling procedure was used to arrive at the number of head-teachers of the selected schools and sub-county education director. From each school at least, one Head teachers were picked to participate in the study, giving a total of five (5) and one sub-county education director (1) was selected in the study. These groups of respondents were selected since they were considered to be in a better position in providing concrete information regarding factors affecting the implementation of computer education in primary schools in Kajiado North Sub-county. Table 2 presents the summary of the respondents.

Table 2: Summary of the respondents

School category	Sample of Schools(10%)	Sample of teachers(10%)	Sample of pupil(10%)
Sub County Schools	14(5)	78	1550(155)
Teachers			
Total (N)	5	78	155

3.5 Research instruments

3.5.1 Questionnaire

The main instrument for data collection was questionnaires.

A questionnaire is a research instrument that gathers data of a large sample (Kombo & Tromp 2006). Questionnaires are cheap to administer to respondents scattered over a

large area and respondents feel free to give frank answers to sensitive questions (Mulusa 1998).

Three sets of questionnaire were developed for the headteacher, the computer education teachers and for pupils. The questionnaires had both closed and open ended questions. The head teachers questionnaire section A sought information on the background of the head teacher, section B will seek information on head teacher's ICT training level, section C sought information on availability of ICT infrastructural facilities, section D sought information on school policy issues in the implementation of ICT education and section E sought information on the administrative support on the implementation of ICT education.

3.6.2 Interview Schedule

According to Cohen, et al (2007) the interview guide is a flexible tool for data collection enabling multisensory channels to be used, verbal, non verbal spoken and heard. I booked for an interview with the sub-County director of Education. The interview guide was divided into two sections. Section background information and section which was based on the objectives of the study.

3.6.2 Instruments validity

As Kombo and Tromp (2006) postulates, validity is the measure of how well a test measures what it is supposed to measure. To enhance content validity, my supervisor went through the instrument and approved. Then a pilot study was conducted in three randomly selected schools with three head teachers, three ICT education teachers and

thirty pupils from three different schools in the neighbouring county. This helped the researcher to identify items in the research instrument that are ambiguous and inappropriate so as to improve on validity.

3.7 Instrument reliability

Validity refers to the extent to which a research instrument measures what it is designed to measure. There are content (face and sampling validity), construct and predictive validity (Ogula, 1998).

To ensure that the instruments are valid, content validity was used. Two experts in the field of research were consulted in order to verify whether the instruments are valid. After the construction of the questionnaires, the researcher reviewed each statement with the help of these experts and assesses the extent to which the items are related to the topic at hand. Where there is an agreement among the experts, the instrument was considered to be valid. Modifications were made in the instruments based on the experts' observations.

3.8 Data collection procedure

Data collection is the gathering of pieces of information that are necessary for the research process. This was done through the use of research instruments (Mugenda and Mugenda 1999). The researcher obtained all the essential documents to facilitate the process of data collection. An introduction letter was obtained from University of Nairobi to introduce the researcher in the field. After the approval of this proposal I obtained a permit from the national council of science and technology. I then got clearance from the

SCDE Kajiado North and head teachers so that I can administer the questionnaires in the two educational zones in Kajiado North Sub-County. I visited the sampled schools to book appointments with the head teacher's, teachers and permission to administer a questionnaire to the pupils. I then revisited the schools as per the appointments and administer the questionnaire. After administering questionnaires in all the sampled school and received the data needed I proceeded to data analysis.

3.9 Data analysis.

According to Mugenda & Mugenda 2003, data analysis is the process of bringing order, structure and meaning to the mass of the information collected. The collected data was analyzed using quantitative data analysis approaches. Quantitative approach involved descriptive, where simple frequencies and percentages were used. Data from questionnaire was coded with the help of Statistical Package for Social Science (SPSS). The processed data was summarized using tables and figures and presented in frequencies and percentages.

On the other hand, the qualitative data generated from interview guide was be categorized in themes in accordance with research objectives and reported in narrative form along with quantitative presentation. The qualitative data was used to reinforce the quantitative data.

3.10 Ethical Considerations

In this study, the rights of the research participants were ensured. This was done based on ensuring that the principles governing research participants were followed. The principle of voluntary participation which requires that people are not coerced into participating in research was followed. The informed consent of the participants was also ensured by explaining the aim of the study and the procedures involved. The participants' information was confidential. Further the principle of anonymity was also adhered to. The participant remained anonymous throughout the study.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the results and discussion of the findings of this study on the examination of factors affecting implementation of pilot ICT education in public primary schools in Kajiado North Sub-County, Kenya. The results are presented in frequencies, percentages, tables and figures. The chapter is presented based on the following subsections: response rate, background information, Teachers training and development on ICT implementation, Infrastructural facilities and ICT implementation, administrative support on ICT implementation and Policy and ICT implementation.

4.2 Response Rate

To obtain the data that was used in the analysis, a number of questionnaires were distributed to the various schools in the county. From each school, all the questionnaires that were distributed were responded to. Table 4.1 shows the number of questionnaires that were issued in the different school and the questionnaires that were returned and correctly fitted.

Table 4.1 Response Rate

Items	Issued Questionnaires	Returned Questionnaires	Percentage Response
Public primary schools	78	78	100%
Total	78	78	100%

As shown in Table 4.1, all questionnaire issued to the primary schools was fully filled and returned back. In total, there were seventy eight (78) questionnaires that were administered in the field. All seventy eight questionnaires were returned back and fully answered. This translated to a response rate of 100%. This was considered suitable as it surpassed 50%. As such, a study that gathers 50% data back from the respondents is a success as the data is perceived as accurate, informative and suitable for implementation.

4.3 Background Information

The background information of the respondents that were considered in this study included gender, age bracket, educational level, ICT experience.

4.3.1 Gender

The gender of the respondents who participated in this study was sought in order to ensure representativeness. Figure 4.1 shows the distribution of the respondents by gender.

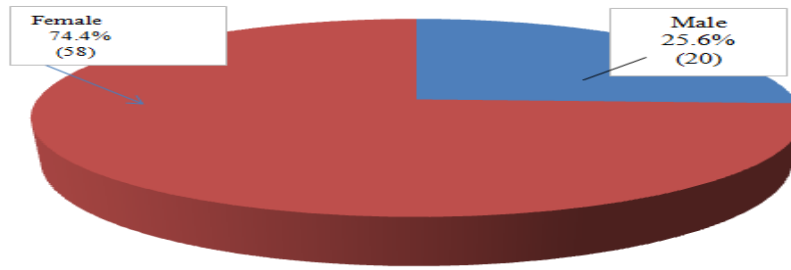


Figure 4.1: Distribution of Respondent by Gender

A vast majority of the respondents (74.4%) who participated in the study were female. The remaining 25.6% of them were male. This shows poor representation of the respondents when classified by gender. From the findings it was noted that women were willing to take part in the study. It was also noted that the rate of women getting education and more training on the area of ICT is increased as compared to men respondents.

4.3.2 Age bracket

The respondents were asked to indicate their age bracket. This was categorized into the following: below 30 years, 31-40 years, 41-50 years, and 51 and above.

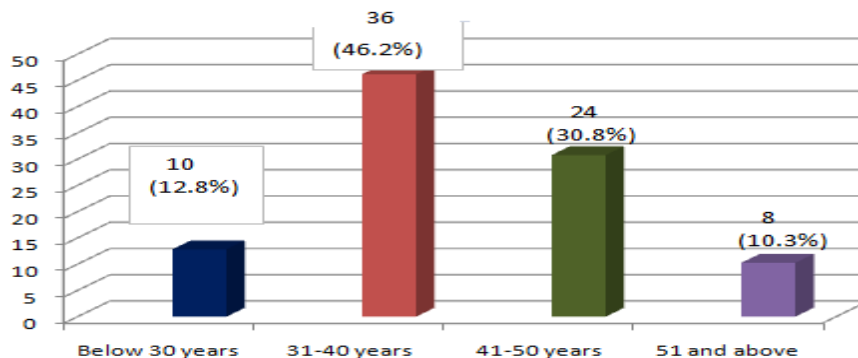


Figure 4.2: Age bracket of the respondents

When asked to indicate their age bracket, majority (87.3%) of the respondents were above 31 years of age. A small percentage of (10%) were below 30 years of age. From the findings it can be noted that the number of respondents that are training in the ICT is between the age of 31-40 years of age, then followed by between 41-50 years.

4.3.3 Education Level

The education level of the respondents was considered in the study in order to inform the training background. The categories included primary, college and university levels.

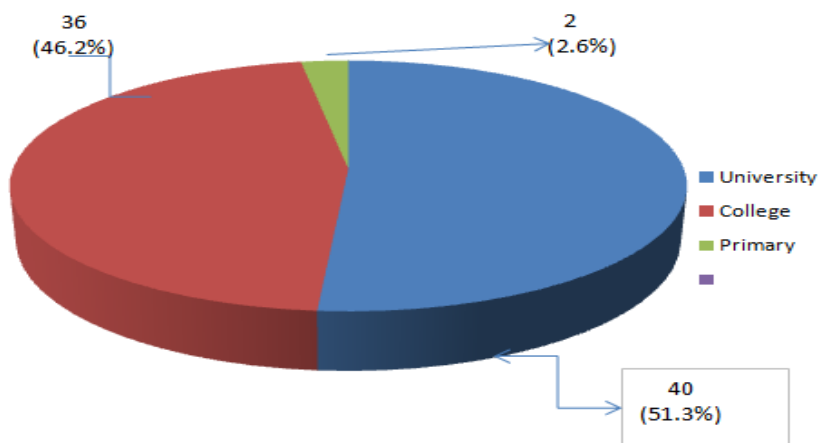


Figure 4.3: Education level of the respondents

Slightly more than a half (51.3%) of the respondents had University level of education; another 46.2% of them indicated that they had College level of education. Arguably, it can be deduced that a good percentage of the staff in the various school are adequately qualified. In line with this, Heathfield (2007) observed that college and university attendance and qualification enhances broadening of knowledge and capabilities of the staff.

4.3.4 ICT Experience in the school

The working experience of the respondents was categorized into the following: 1 year and below, 2-5 years, 6-10 years and 11 years and above. Figure 4.4 shows the distribution of the respondents by their working experience.

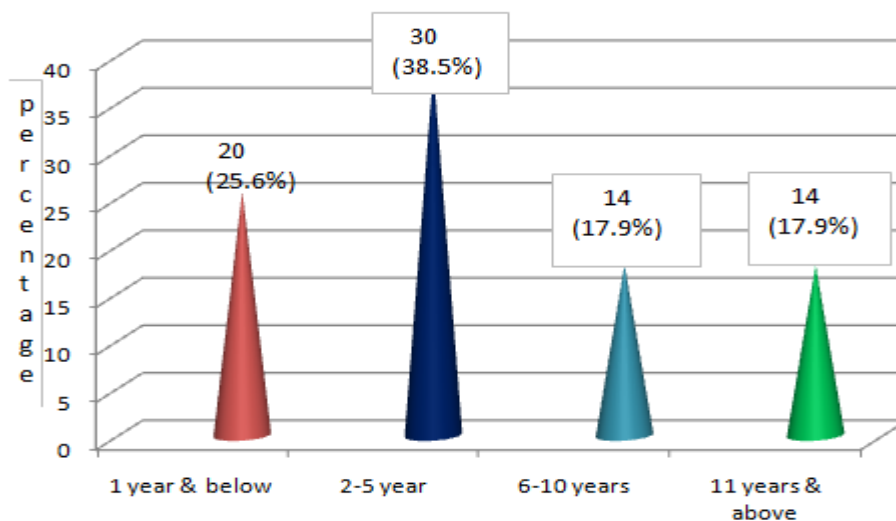


Figure 4.4: ICT in experience of the respondents

Slight over less than a two third (64.1%) of the respondents had a working experience of 5 years and below. The remaining 35.8% had had a working experience of 5 years and above. The results show that most of the respondents had a fair working experience, which is a positive aspect in terms of contribution on ICT implementation. However, even though experience is key in implementation, ICT training and development is decisive factor for ICT implementation.

4.4 Influence of teachers level of training on ICT implementation

Result on training and development is presented in Table 4.3. The study was interested in finding out the influence of training and development on ICT implementation. The key items included were the sound training and development policies, good match of training and skills, adequate training and development opportunities and motivation as an outcome of training programs.

Table 4.2: Teacher’s level of training and ICT implementation

Items	SA		A		N		D		SD	
	F	(%)	F	%	F	%	F	(%)	F	%
There are sound teacher training policies in school to support ICT implementation	4	5.1%	28	35.9%	2	2.6%	36	46.2%	8	10.3%
There is good match of training and skills required to support ICT implementation in my school	8	10.3%	30	38.5%	2	2.6%	36	46.2%	2	2.6%
There is availability of adequate training and development opportunities to enhance ICT implementation in the school	6	7.7%	20	25.6%	2	2.6%	44	56.4%	6	7.7%
I am well motivated at my school because my ICT skills are enhanced through training	18	23.1%	18	23.1%	2	2.6%	32	41%	4	5.1%

Key: SA: Strongly Agree; A: Agree; N: Neutral; D: Disagree, SD Strongly Disagree)

When asked whether there are sound teacher training policies in school to support ICT implementation, slightly more than half (56.5%) of the respondents disagreed and strongly disagreed with the statement. Less than a half (41%) of the respondents Agreed and Strongly agreed with the statement. From the findings it’s evident that that is no sound training policies to enhance ICT skills for better implementation.

Slightly less than a half (48.8%) of the respondents 'Disagreed' and 'Strongly disagreed' with there is good match of training and skills required to support ICT implementation in their school. However, slightly less than half (48.8%) of the respondents 'Agreed' and 'Strongly Agreed' with the statement. Only 2.6% of them were undecided.

In terms of availability of adequate training opportunities to enhance ICT implementation in the school, slightly less than two thirds (64.1%) of the respondents 'Disagreed' and 'Strongly disagreed' with the statement. A third (33.3%) of the respondents 'Agreed' and 'Strongly Agreed' with the statement.

Less than a half (46.2%) of the respondent 'Agreed and Strongly Agreed' that they are motivated at their school because their ICT skills are enhanced through training. However, 46.2% of the respondent 'Disagreed and 'Strongly disagreed' with the statement. Only 2.6% of them were undecided.

The respondents were further asked to indicate the rate on the quality of ICT training and development component and how it affected ICT implementation in their school. The ratings were based on whether the training is excellent, good, average or poor.

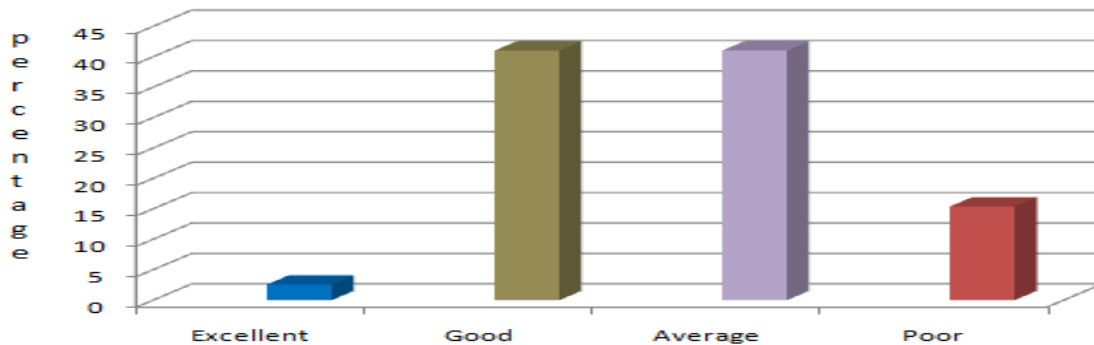


Figure 4.5: rating on teachers level of training on ICT implementation

Slightly less than a half (45%) of the respondents reported ICT training in their school to be Either Good or Excellent. Less than half (40%) of them reported ICT training in their school to Average. Only, 15% of them reported it to Poor. From the findings, it can be deduced, that despite of some ICT training programs that have been integrated in teachers training curriculum, still there are some gaps that have as not been adequately addressed to promote teachers skills for ICT implementation in schools. Although teachers were additionally taken though an induction course on this program it shows that quite a good number of them did not grasp the skill properly or some of their need were not met.

From the findings of the study, it is evident that training plays a significant role in ICT implementation. The findings obtained in this study concur with findings from previous body of knowledge. For instance, Krysa, (1998) stated that the need for computer training is informed by the fact that most of the presently recruited teachers received little or no training in their formal education concerning use of computers in teaching. Another study by Teare (2004) reported that teachers need to know how to use computers first before they can integrate them in the curriculum. This could make ICT innovation simple

to adopt and implement as the innovation becomes compatible with the current objectives of the users. Further, Becta (2004) observed that lack of adequate training of teachers on the use of computers in classrooms is one of the main challenges to smooth computer integration in schools. This is in line with the findings of this study which show that ICT training and development in schools affected on ICT Implementation.

4.5 Influence of availability of infrastructural facilities on ICT implementation

Result on remuneration of workers is presented in Table 4.2. Responses on questions related to infrastructural facilities showed in all cases agreed. To answer this objective, the respondents were asked to indicate whether they agreed with various statements on the influence of infrastructural facilities on ICT implementation.

Table 4.3: Infrastructural facilities and ICT implementation

Items	SA		A		N		D		SD	
	F	(%)	F	%	F	%	F	(%)	F	%
a) My school is connected to a national power grid	24	30.8%	42	53.8%	2	2.6%	10	12.8%	-	-
b) My school has a well equipped computer laboratory	20	25.6%	26	33.3%	2	2.6%	20	25.6%	10	12.8%
c) My school has relevant teaching computer software and manual to support ICT implementation	24	30.8%	30	38.5%	2	2.6%	20	25.6%	2	2.6%
d) The school has adequate ICT laboratories to support Pupil /computer-ratio	6	7.7%	6	7.7%	4	5.1%	50	64.1%	12	15.4%
Key: SA: Strongly Agree; A: Agree; N: Neutral; D: Disagree, SD Strongly Disagree)										

A vast majority (84.6%) of the respondents “agreed” and “strongly agreed” that there school was connected to a national power grid. A small percentage 2.8% were neutral. However, 12.8% of the respondents disagreed with the statement. This small percentage

gives a clear picture of the importance of electricity connection in the implementation of ICT in school.

When asked whether the school has a well-equipped computer laboratory, more than a half 58.9% of the respondents agreed and strongly agreed. However, a third 38.4% of the respondents refuted the statement. The results showed that the lack of well-equipped laboratory affected the implementation of ICT.

In terms of availability of teaching computer software and manual, More than two thirds (69%) of the respondents agreed and strongly agreed that there schools have relevant teaching computer software and manual to support ICT implementation. More than a quarter (28.2%) of the respondents disagreed with the statement.

When asked whether there school has adequate ICT laboratories to support Pupil computer-ratio, a vast majority (79.5%) of the respondents disagreed and strongly disagreed with the statement. However, 15.4% agreed and strongly agreed that there school has adequate ICT laboratories to support Pupil /computer-ratio.

The respondents were further asked to indicate the rating to which they felt that infrastructure facilities influenced ICT implementation. The ratings were based on whether the infrastructural facilities are excellent, good, average or poor.

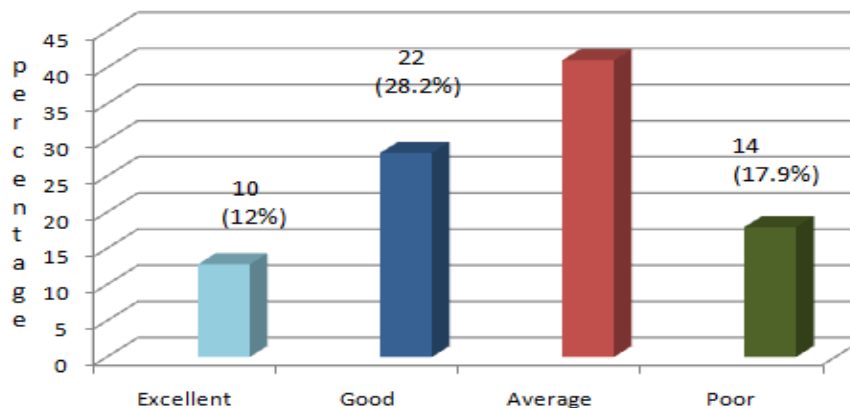


Figure 4.6: Rating of infrastructure facilities on ICT implementation

Slightly less than a half of (40.2%) of the respondents were of view that infrastructural facilities were of good condition. However, 41.9% were of view that the infrastructural facilities were of average state. From observation, each of these schools had a well-equipped computer laboratory with an average of forty computers in each school. There was also broad band internet connection. In most of these schools about half of the computers were not functional and the teacher complained that they did not get technical support to repair them. Though there was evidence that these schools were equipped in terms of hard ware and software without technical assistance about half of the computers remained idle thereby reducing the computer pupil ratio.

According to Nachmis et al, (2004) a crucial factor contributing to the promotion of the innovation is the availability of infrastructure resources. From the findings of the study, it is evident that infrastructural facilities play a significant role in ICT implementation. The findings obtained in this study concur with findings from previous body of knowledge. For instance, Aryatuha (2007) on his study noted that the availability of

computer hardware and software should be accompanied with training of the users and constant technical support. Without this, even though high quality hardware and software are available, they could be wasted or remain underutilized by the users. This could explain the minimal ICT implementation reported in primary school in Kajiado North sub-county.

According to Nachmis et al, (2004) a crucial factor contributing to the promotion of the innovation is the availability of infrastructure resources. They found out that a crucial factor contributing to the promotion of the innovation is the availability of infrastructure resources: hardware, in terms of the number of computers in the school available for students and teachers for educational purposes, and the quality and functioning of equipment as well as available software. This is in line with the findings of this study which show that infrastructural facilities ICT implementation at an average state. From the analysis of the objective of the study, it can be concluded that infrastructure is an issue of concern that is hindering ICT Implementation as such all stakeholders must play a key role in the ICT implementation.

4.6 Influence of administrative support on ICT implementation

Result on administrative support is presented in Table 4.3. The study was interested in findings out the influence of administrative support on ICT implementation. The key items included were the administrative support issues and rating of administrative supports towards ICT implementation in Primary schools.

Table 4.4: administrative support and ICT implementation

Items	SA		A		N		D		SD	
	F	(%)	F	%	F	%	F	(%)	F	%
My school supports me in ICT training with relevant and enough resources	2	2.6%	28	35.9%	4	5.1%	40	51.3%	4	4.1%
I have access to financial support from my school for ICT implementation	-	-	8	10.3%	4	5.1%	42	53.8%	24	30.8%
I seek technical support where i find challenging in ICT	14	17.9%	38	48.7%	4	5.1%	18	23.1%	4	5.1%
My school offers me all managerial support during hard times in teaching ICT	8	10.3%	30	38.5%	12	15.4%	26	33.3%	2	2.6%

Key: SA: Strongly Agree; A: Agree; N: Neutral; D: Disagree, SD Strongly Disagree)

When asked whether their school supports them relevant and enough resources in ICT training, more than a half (55.4%) of the respondents ‘Disagreed’ and ‘ Strongly Disagreed’ with the statement. However, 38.5% of the respondents ‘Agreed’ and ‘Strongly Agreed’ with the statement. Only 5.1% of them were Undecided or Neutral.

A vast majority (84.6%) of the respondents ‘Disagreed’ and ‘Strongly agreed’ to that have access to financial support from their school for ICT implementation. However, 10.3% ‘Agreed’ with the statement. This shows that lack of financial support from Administration has hugely affected the rate at which they ICT is being implemented in schools

More than two thirds (66.6%) of the respondents ‘Agreed’ and ‘Strongly Agreed’ that they sought technical support where they found challenging in ICT Implementation. However, more than quarter (28.2%) of the respondents ‘Disagreed’ and ‘Strongly disagreed’ with the statement.

In terms of access to school managerial support during hard times in teaching ICT, less than a half (48.8%) of the respondents reported they ‘Agreed’ and ‘Strongly Agreed’ with the statement. A small percentage (15.4%) of the respondents were undecided. However, more than a third (35.9%) of the respondents ‘Disagreed’ and ‘Strongly disagreed’ with the statement.

The respondents gave various ratings regarding the level of administrative support on ICT implementation. The ratings were based on whether the administrative support is excellent, good, average or poor.

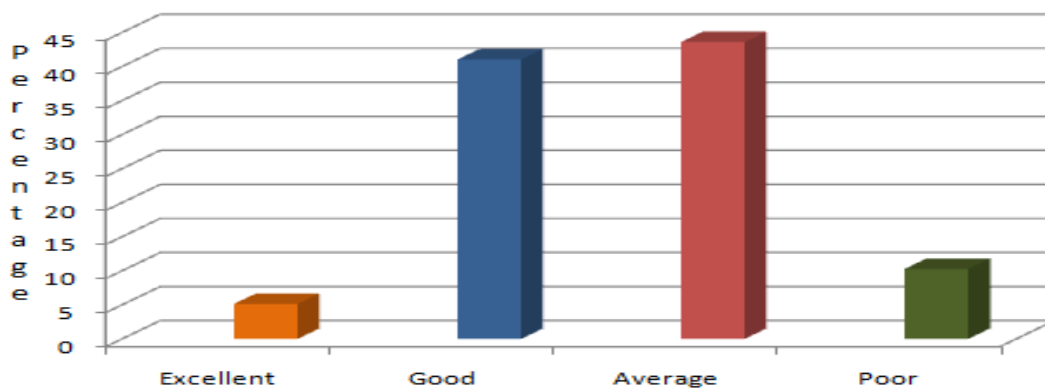


Figure 4.7: Rating on administrative support on ICT implementation

Nearly half (44%) of the respondents rated the administrative support in their school to Good and Excellent whereas 43% of them rated the administrative support as average. Only 13% who rated their administrative support as poor. Majority of the respondents were positive that administrative support did influence ICT implementation. This shows that there are other underlying factors which influence ICT implementation.

From the interview with the sub-county Director of education, it emerged that head teachers and teacher have been taken through workshop oh how to implement the ICT

programs in public schools. The director with the quality assurance team had visited each school at least one a term to oversee the progress of the implementation. The director seemed to have hands on information on the progress of the program in the Sub-County since he had received termly status reports of the progress of the program.

There are a number of researchers who have also been able to review the influence of administrative support on ICT implementation in school institutions. For instance, Kariuki (2004) argues teachers who receive adequate ICT support from the administrators are more likely to use ICTs in their teaching practice while those who don't receive ICT support from the higher authorities in school are less enthusiastic in using computer or do not integrate technology at all. Additionally, a study Sife et al (2007) established that lack of administrative, technical and financial support as problems that prevent teachers from using computers in their teaching. The support of the school principal or administrator can encourage and promote teachers' willingness to use the computer as a medium to deliver instruction.

Furthermore, Priscilla et al (2008) stated that guidance from a head of department is very important in encouraging the development of electronic lesson materials to encourage computer use for the specific subject in the teaching-learning environment. Therefore, the success of integrating ICT into the teaching-learning interaction among school teachers depends on the support provided by the principal of the school. This concurs with the finding of this study which established that administrative support influences ICT implementation in primary schools. From the analysis of the objective of the study, it can be concluded that support from administration (BOG, PTA) is an issue of concern that is

hindering ICT Implementation as such all stakeholders must play a key role in the ICT implementation.

4.7 Influence of school policy on ICT implementation

Result on Policy is presented in Table 4.5. The study sought to establish the influence of policy in ICT implementation in primary school. In order to establish the influence, the respondents were asked a number of questions. These related to whether Policy affected in ICT implementation and ratings of policy state on ICT implementation.

Table 4.5: Policy and ICT implementation

Items	SA		A		N		D		SD	
	F	(%)	F	%	F	%	F	(%)	F	%
There are no procedures for monitoring and evaluating teachers use of ICT in curriculum management	8	10.3%	18	23.1%	10	12.8%	38	48.7%	4	5.2%
Inadequate policy affects funding of the area of ICT	24	30.8%	28	35.9%	4	5.1%	18	23.1%	4	5.2%
The available program for ICT is not supportive of primary school curriculum	6	7.7%	16	20.5%	4	5.2%	46	59%	6	7.7%
There are adequate implemented government policy on the use of computer in school	10	12.8%	32	41%	6	7.7%	24	30.8%	6	7.7%

Key: SA: Strongly Agree; A: Agree; N: Neutral; D: Disagree, SD Strongly Disagree)

When asked whether there are no procedures for monitoring and evaluating teachers use of ICT in curriculum management, Slightly more than a third (33.4%) of the respondents ‘Agreed’ and ‘Strongly Agreed’ with the statement. However, more than a half (53.9%) of the respondents ‘Disagreed’ and ‘Strongly Disagreed’ with the statement. Only 12.3%

of them were undecided. Policy of school is critical in the success of program implementation, keys respondents who disagreed with the statement provide a proof of why most schools policy should be revisited to promote ICT implementation in primary schools.

Slightly more than two thirds (69.87%) of the respondents 'Agreed and Strongly Agreed' with the statement that poor school ICT policies affected funding in the area of ICT in schools. Additionally the element of policy was also seen in the making of the timetable where in most classes ICT education is not allocated a single lesson in a week but pupils study it either during physical education(PE) or during the ten oclock break or lunch break. A small percentage (5.1%) of them were undecided. However more than a quarter (28.3%) of the respondents 'Disagreed and 'Strongly Disagreed' with the statement, this shows that there are a number of gaps in the area of policies formulation to support ICT funding.

More than two thirds (66.7%) of the respondents 'Agreed' and 'Strongly Agreed' that the available program for ICT is not supportive of primary school curriculum. More than a quarter (28.2%) of respondents 'Disagreed' and 'Strongly Disagreed' that the available program for ICT is not supportive of primary school curriculum. Only 5.2% of them were Undecided.

When asked whether, there are adequate implemented government policies on the use of computer in school, Slightly more than a half (53.8%) of the respondents 'Agreed' and 'Strongly Agreed' with the statement. More than a half (38.5%) of the respondents

‘Disagreed and ‘Strongly Disagreed’ with the statement. A Small percentage 7.7% were undecided.

Rating of school policy on ICT implementation in school

In order to get an overall impression about the school policy component in the school, the respondents were asked to provide their ratings. Figure 4.9 summarizes the responses provided.

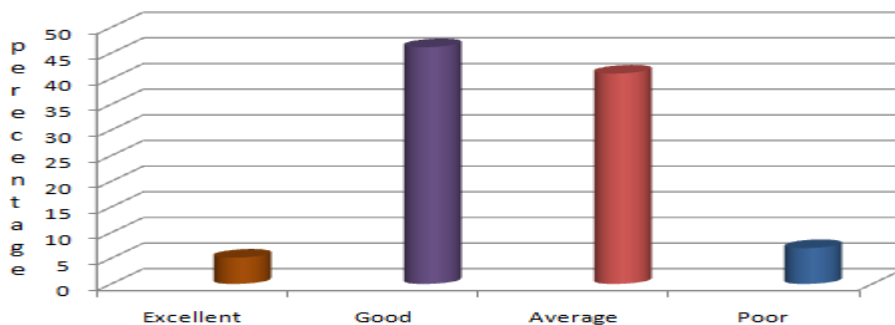


Figure 4.8: Rating on school Policy on ICT implementation

Almost half (48%) of the respondents provided the rating of policy in their school as Good and Average. Less than a half (40%) of them however rated the policy component in their school as ‘Average’. Additionally, a small percentage (12%) of the respondents indicated that policy in their school was Poor. This shows that there are still some gaps in relation to Policy framework on ICT implementation in schools.

The study by Kindiki (2008) highlighted that Curriculum management in the school is based on how teachers and educational managers allocate time as a framework upon which the structure of the whole school is built. Kenya has made remarkable progress by

promulgating a National ICT policy framework and implementation strategy, complete with measurable outcomes and time frames. However the implementation of this national ICT policy at school level is wanting though it has been there for the last ten years. This means there is great need for sensitization of head teachers and teachers on this strategy and the expected outcomes at the school level so that implantation of the policy at the school level matches the expectation of the national strategy. Another study by Heeks (2006) ICT policy in developing revealed that there is a lack of enthusiasm on the part of decision-makers to embark on ICT projects specifically in Kenyan education curriculum. This is in line with the findings of this study which revealed that policy framework influenced ICT implementation. This could be attributed to the fact that inadequate policy affected implementation of educational goals.

From the analysis of the objective of the study, it can be concluded that school policy is a major issue of concern that is hindering ICT Implementation as such all stakeholders must play a key role in the ICT implementation. Most primary schools and basically government schools don't have the goodwill for new policy implementation. This to a greater extent hinders ICT implementation in primary schools. Therefore, to make ICT the cornerstone of primary school education, massive effort through creation of good policy and the implementation must be undertaken with seriousness if at all ICT needs to be implementation.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the summary, conclusion and recommendations of this study on factors affecting implementation of pilot ICT education in public primary schools in Kajiado north sub- county, Kenya

5.2 Summary

The general purpose of this study was to examine factors affecting implementation of pilot ICT education in public primary schools in Kajiado north sub- county, Kenya. The study was guided by the following specific research objectives: To establish the teachers training and development needs that affect implementation of pilot ICT education at public primary schools, To determine the relationship between availability ICT of infrastructural facilities and implementation of pilot ICT education at public primary schools, To explore the influence of administrative support on implementation of pilot ICT education at public primary schools, and To investigate the effect of ICT policy on implementation of pilot ICT education at public primary schools in Kajiado North sub county.

The research design that was adopted in this study was descriptive survey research. The sample size of the study consisted of seventy eight respondents working in various public primary schools. The key data collection instrument that was used in the study was the questionnaire. The collected data were analyzed with the help of Statistical Package for

Social Science (SPSS). Descriptive statistics was used in data analysis. From the analysis, the following key findings were made:

5.3 Influence of availability of infrastructural facilities on ICT implementation

A vast majority (84.6%) of the respondents “agreed” and “strongly agreed” that there school was connected to a national power grid.

More than a half 58.9% of the respondents agreed and strongly agreed that there school has a well equipped computer laboratory.

More than two thirds (69%) of the respondents agreed and strongly agreed that there schools have relevant teaching computer software and manual to support ICT implementation.

A vast majority (79.5%) of the respondents disagreed and strongly disagreed that there school has adequate ICT laboratories to support Pupil /computer-ratio.

5.4 Influence of teacher training on ICT implementation

When asked whether there are sound inset teacher training programs in school to support ICT implementation, slightly more than half (56.5%) of the respondents disagreed and strongly disagreed with the statement.

Slightly less than a half (48.8%) of the respondents ‘Disagreed’ and ‘Strongly disagreed’ with there is good match of training and skills required to support ICT implementation in their school.

In terms of availability of adequate training opportunities, for enhancing ICT implementation in school, slightly less than two thirds (64.1%) of the respondents 'Disagreed' and 'Strongly disagreed' with the statement.

Less than a half (46.2%) of the respondent 'Agreed and Strongly Agreed' that they are motivated at their school because their ICT skills are enhanced through training.

5.5 Influence of administrative support on ICT implementation

When asked whether their school supports them relevant and enough resources in ICT training, more than a half (55.4%) of the respondents 'Disagreed' and 'Strongly Disagreed' with the statement.

A vast majority (84.6%) of the respondents 'Disagreed' and 'Strongly agreed' to that have access to financial support from their school for ICT implementation.

More than two thirds (66.6%) of the respondents 'Agreed' and 'Strongly Agreed' that they sought technical support where they found challenging in ICT Implementation.

In terms of access to school managerial support during hard times in teaching ICT, less than a half (48.8%) of the respondents reported they 'Agreed' and 'Strongly Agreed' with the statement.

5.6 Influence of school policy on ICT implementation

When asked whether there are no procedures for monitoring and evaluating teachers use of ICT in curriculum management, Slightly more than a third (33.4%) of the respondents 'Agreed' and 'Strongly Agreed' with the statement

Slightly more than two thirds (69.87%) of the respondents 'Agreed and Strongly Agreed' with the statement that inadequate policies affected funding in the area of ICT in schools.

More than two thirds (66.7%) of the respondents 'Agreed' and 'Strongly Agreed' that the available program for ICT is not supportive of primary strongly curriculum.

When asked whether, there are adequate implemented government policies on the use of computer in school, Slightly more than a half (53.8%) of the respondents 'Agreed' and 'Strongly Agreed' with the statement.

5.7 Conclusions

From the analysis, this study draws the following conclusions:

First and foremost, in terms of 0teacher training, it can be concluded that majority of teachers and head teachers in primary schools are well trained on ICT curriculum. However, the current number of teachers does not meet the Teachers-pupils ratio in primary schools to facilitate ICT implementation. Thus, it may be concluded that inadequate number of teachers trained in ICT affects ICT implementation in public primary schools in Kajiado North-County negatively to a greater extent.

In relations to primary school infrastructure, it may be concluded that the quality of infrastructure facilities among quite a number of public primary schools in Kajiado County is in poor state. This puts a reason for ICT implementation at jeopardy as only few schools can only be able to support the programs since they have at-least good computer lab, supply of electricity among other infrastructures. Infrastructure is basic necessity for ICT, and as we can observe in Kajiado not all primary schools are in good state, thus implementation ICT is a major issue as found from the analysis.

Administrative support has also been noted as a factor that affects ICT implementation in schools. Low administration support especially from school head teachers, school board have been noted as major contributing factor affecting ICT implementation in primary school. As such, it is concluded that policies administrative support affect ICT implementation in schools to a greater extent. Most of school that survey was undertaken, most respondents noted that some PTA members and BOG members were unwilling to go an extra mile in terms of providing financial assistance to teachers to undertake further ICT studies, thus hindered ICT implementation.

In terms of policies, it can be concluded that the educational policies on ICT implementation in public schools in Kajiado and Kenya at large are not effective. This may be due to the fact that these ICT policies are not clear and they have not been effectively addressed and integrated in the primary schools curriculum. Most school as noted from the findings had poor or even no school policies that supported ICT implementation. Therefore primary school in Kajiado had no cutting age to promote ICT implementation.

5.8 Recommendations

The recommendations of the study are based on the key findings of the study in relation to infrastructural facilities, the level of teacher training, administrative support and, school ICT Policies

5.8.1 Teacher Training and implementation of ICT education

The teachers and head-teachers needs also to be reinforced through training so as to increase their efficiency in promoting ICT implementation. The education stakeholders should organize for inset training which reinforces the ICT skills of the teachers and head-teachers. This is simply because the study found that there was a loophole in the ICT skills among head teachers and teachers and had affected ICT education Implementation in public primary schools negatively. Provision of good training manual and provision of financial assistance to support teachers training in the ICT will encourage teachers to think out of the box and come up with mechanism that can enable ICT success in primary school education.

5.8.2 Infrastructural facilities

It may be concluded that the quality of infrastructure in most public primary schools in Kajiado North Sub-County is in poor state. It is recommended that there is to need to seek funding from the national and county government to improve physical and ICT infrastructural facilities so as to promote better ICT implementation in public primary school in the sub-county. Additionally there is need for technical support in these schools to give teachers back up in repairing software and hardware that get damaged. Otherwise

even with infrastructural facilities with computer not being in functional state, very little ICT education will take place.

5.8.3 Administrative support and implementation of ICT education.

Education stakeholders and school administration needs to be more supportive towards implementation of ICT programs. This can be achieved through provision of all necessary material, conducive environment and financial injections for ICT implementation. Government must support ICT integration by sensitizing head teachers on the importance supporting ICT in education at school level as well as showing ICT leadership.

5.8.4 School ICT policies

The government needs to continually monitor the implementation of the national ICT policy and the nation ICT strategy in education at the school level with an aim of ensuring that they are translated at the school level. This will ensure that what happens at the school level is in conformity with these policy papers and the expected outcomes are achieved in a timely manner.

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APPENDICES

APPENDIX I

LETTER TO HEADTEACHERS

University of Nairobi,
School of education,
Department of education administration and planning,
P.O Box 92,
Kikuyu.
The headteacher,
_____ primary school,

Dear Sir/Madam,

REF: PERMISSION TO CONDUCT RESEARCH IN YOUR SCHOOL.

As a masters of education administration in the university of Nairobi am at the last part of my course which involves research work. My research is on **factors affecting the implementation of computer education in primary schools in Kajiado North Sub-County**. I hereby request you to allow me collect data from your school by involving you, the computer education teacher and some pupils. I assure you that information collected in this research will purely be used for research purpose only. The identities of the respondents and information collected will be treated with utmost confidence.

Thank you

Yours truly,

John Muriithi

APPENDIX II: DATA COLLECTION INSTRUMENTS

TEACHER'S QUESTIONNAIRE

I appreciate your acceptance to take part in this research whose intention is to investigate factors that affect the implementation of computer education in primary schools in Kajiado North Sub County. The information gathered through this questionnaire is for the purposes of research only and will be treated with utmost confidentiality. Kindly respond to the questions as truthfully as possible. Do not write your name on the questionnaire.

Section I: Background Information

1. Gender

- a) Male []
- b) Female []
- c)

2. Age bracket

a) Below 30 yrs	[]	c) 41-50 years	[]
b) 31-40 years	[]	d) 51 years and above	[]

3. Education Level

a) University	[]	c) Secondary	[]
b) College	[]	d) Primary	[]

4. Working experience as an ICT teacher

a) 1 year and below	[]	c) 6-10 years	[]
b) 2-5 years	[]	d) 11 years and above	[]

5. Specialization (specify) _____

SECTION II: INFRASTRUCTURAL FACILITIES

6. By use of a tick, indicate whether you agree with the following statements regarding the influence of availability of infrastructural facilities on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	My school is connected to a national power grid					
b)	My school has a well equipped computer laboratory					
c)	My school has relevant teaching computer software and manual to support ICT implementation					
d)	The school has adequate ICT laboratories to support Pupil /computer-ratio					

7. How would you rate the state of infrastructural facilities to support implementation in your school?

a) Excellent	[]	c) Average	[]
b) Good	[]	d) Poor	[]

SECTION III: TEACHER TRAINING AND ICT IMPLEMENTATIONS

8. By use of a tick, indicate whether you agree with the following statements regarding the influence of training and development on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	There are sound training and development policies in my school to support ICT implementation					
b)	There is good match of training and skills required to support ICT implementation in my school					
c)	Availability of adequate training and development opportunities to enhance ICT implementation in the school.					
d)	I am well motivated at my school because my ICT skills are enhanced through training					

9. How would you rate the quality of ICT training and development component in your school?

a) Excellent	[]	c) Average	[]
b) Good	[]	d) Poor	[]

SECTION IV: ADMINISTRATIVE SUPPORT AND ICT IMPLEMENTATION

10. By use of a tick, indicate whether you agree with the following statements regarding the influence of administrative support on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	My school supports me in ICT training with relevant and enough resources					
b)	I have Financial support from my school in ICT implementation					
c)	I seek technical support where i find challenging in ICT					
d)	My school offers me Managerial support where I go through hard times in teaching ICT					

11. How would you rate the level of administrative support on ICT implementation in your school?

a) Excellent	[]	c) Average	[]
b) Good	[]	d) Poor	[]

SECTION V: SCHOOL ICT POLICY AND ICT IMPLEMENTATION

12. By use of a tick, indicate whether you agree with the following statements regarding the influence of policy on ICT implementation. **Key:** SA: *Strongly Agree*; A: *Agree*; UD: *Undecided*; D: *Disagree*, SD *Strongly Disagree*)

	Statements	SA	A	UD	D	SD
a)	There are no procedures for monitoring and evaluating Teachers' use of ICT in curriculum management.					
b)	Inadequate policy affects funding of the area of ICT					
c)	The available program for ICT is not supportive of primary school curriculum					
d)	There are adequate implemented government policy on use of computer in school					

13. How would you rate the adherence of school policy on ICT implementation in your school?

a) Excellent	[]	c) Average	[]
b) Good	[]	d) Poor	[]

SECTION VI: Measures to improve ICT implementation in your School

14. What measures can be put in place to improve ICT implementation in the school? (Infrastructure, training and development, administrative support and policy)

APPENDIX III

HEAD TEACHER'S QUESTIONNAIRE

I appreciate your acceptance to take part in this research whose intention is to investigate factors that affect the implementation of computer education in primary schools in Kajiado North Sub County. The information gathered through this questionnaire is for the purposes of research only and will be treated with utmost confidentiality. Kindly respond to the questions as truthfully as possible. Do not write your name on the questionnaire.

Section I: Background Information

1. Gender

- a) Male []
- b) Female []

2. Age bracket

a) Below 30 yrs	[]	c) 41-50 years	[]
b) 31-40 years	[]	d) 51 years and above	[]

3. Education Level

a) University	[]	c) Secondary	[]
b) College	[]	d) Primary	[]

4. Working experience as a head teacher in a school

a) 1 year and below	[]	c) 6-10 years	[]
b) 2-5 years	[]	d) 11 years and above	[]

5. Specialization (specify) _____

SECTION II: INFRASTRUCTURAL FACILITIES

6. By use of a tick, indicate whether you agree with the following statements regarding the influence of availability of infrastructural facilities on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	My school is connected to a national power grid					
b)	My school has a well equipped computer laboratory					
c)	My school has relevant teaching computer software and manual to support ICT implementation					
d)	The school has adequate ICT laboratories to support Pupil /computer-ratio					

7. How would you rate the state of infrastructural facilities to support implementation in your school?

a) Excellent	[]	c) Average	[]
b) Good	[]	d) Poor	[]

SECTION III: TEACHER TRAINING AND ICT IMPLEMENTATION

8. By use of a tick, indicate whether you agree with the following statements regarding the influence of training and development on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	There are sound training and development policies in my school to support ICT implementation					
b)	There is good match of training and skills required to support ICT implementation in my school					
c)	Availability of adequate training and development opportunities to enhance ICT implementation in the school.					
d)	I am well motivated at my school because my ICT skills are enhanced through training					

9. How would you rate the quality of ICT training and development component in your school?

a) Excellent	[]	c) Average	[]
b) Good	[]	d) Poor	[]

SECTION IV: ADMINISTRATIVE SUPPORT AND ICT IMPLEMENTATION

10. By use of a tick, indicate whether you agree with the following statements regarding the influence of administrative support on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	My school supports ICT training with relevant and enough resources					
b)	I have Financial support from my school board in ICT implementation					
c)	I seek technical support from school stakeholder where i find challenging in ICT implementation					
d)	My school board offers me Managerial support where I go through hard times in ICT implementation					

11. How would you rate the level of administrative support on ICT implementation in your school?

a) Excellent	[]	c) Average	[]
b) Good	[]	d) Poor	[]

SECTION V: SCHOOL POLICY AND ICT IMPLEMENTATION

12. By use of a tick, indicate whether you agree with the following statements regarding the influence of policy on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	There are no procedures for monitoring and evaluating Teachers' use of ICT in curriculum management.					
b)	Inadequate policy affects funding of the area of ICT					
c)	The available program for ICT is not supportive of primary school curriculum in my school					
d)	There are adequate implemented government policy on use of computer in my school					

13. How would you rate the adherence of school policy on ICT implementation in your school?

a) Excellent	[]	c) Average	[]
b) Good	[]	d) Poor	[]

SECTION VI: Measures to improve ICT implementation in your School

14. What measures can be put in place to improve ICT implementation in the school? (Infrastructure, training and development, administrative support and policy)

APPENDIX IV

PUPIL'S QUESTIONNAIRE

Section I: Background Information

1. Gender

- a) Male []
- b) Female []

2. Age bracket

a) Below 7-9 yrs	[]	c) 9-11 years	[]
b) 11-13 years	[]	d) 13 years and above	[]

3. Which class are you now?

a) class 5	[]	c) class 6	[]
b) Class 7	[]	d) Class 8	[]

SECTION II: INFRASTRUCTURAL FACILITIES

4. By use of a tick, indicate whether you agree with the following statements regarding the influence of availability of infrastructural facilities on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	My school has lights for learning					
b)	My school has a computer laboratory					
c)	My school has a computer book for teaching computer studies					
d)	We share computer with many pupils when in computer class					

SECTION III: TEACHER TRAINING AND ICT IMPLEMENTATION

5. By use of a tick, indicate whether you agree with the following statements regarding the influence of training and development on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	My school trains me on use of computer					
b)	My teacher knows how to teach with the use of computer					
c)	Our school takes us out to visit other school to share on use of computer					
d)	I can computer to learn other subjects by myself					

SECTION IV: ADMINISTRATIVE SUPPORT AND ICT IMPLEMENTATION

6. By use of a tick, indicate whether you agree with the following statements regarding the influence of administrative support on ICT implementation. **Key:** SA: Strongly Agree; A: Agree; UD: Undecided; D: Disagree, SD Strongly Disagree)

	Statements	SA	A	UD	D	SD
a)	My school has allocated ICT lesson in the timetable					
b)	We are allowed access to the computer laboratory when we are free					
c)	Our school ensures that computer that are not working are repaired					
d)	Our pupils presidents shares the challenges we face in learning ICT with the school committee					

SECTION V: SCHOOL ICT POLICY AND ICT IMPLEMENTATION

7. By use of a tick, indicate whether you agree with the following statements regarding the influence of policy on ICT implementation. **Key:** SA: *Strongly Agree*; A: *Agree*; UD: *Undecided*; D: *Disagree*, SD *Strongly Disagree*)

	Statements	SA	A	UD	D	SD
a)	We sit for ICT exams just like we sit for other subjects in our school.					
b)	My parents pay extra fees for ICT lesson and exams in my school					
c)	What we learn in ICT lesson looks like the other subjects we do in class					
d)	Our school has received the laptops from the government					

SECTION VI: Measures to improve ICT implementation in your School

8. What measures can be put in place to improve ICT implementation in the school? (our has included ICT as a lesson, we are allowed to visit computer laboratory, our are allowed to play computer games)

APPENDIX V

INTERVIEW GUIDE

I appreciate your acceptance to take part in this research whose intention is to investigate factors that affect the implementation of computer education in primary schools in Kajiado North Sub County. The information gathered through this questionnaire is for the purposes of research only and will be treated with utmost confidentiality. Kindly respond to the questions as truthfully as possible. Do not write your name on the questionnaire.

Section I: Background Information

1. Gender

- a) Male []
- b) Female []

2. Age bracket

a) Below 30 yrs	[]	c) 41-50 years	[]
b) 31-40 years	[]	d) 51 years and above	[]

3. Education Level

a) University	[]	c) Secondary	[]
b) College	[]	d) Primary	[]

4. Working experience education officer in my county

a) 1 year and below	[]	c) 6-10 years	[]
b) 2-5 years	[]	d) 11 years and above	[]

5. Specialization (specify) _____

6. What is the influence of availability of infrastructural facilities on ICT implementation?

(Probes: are public school connected to power grid, are computer laboratories well equipped, are school adequately equipped with ICT training manuals, are public pupil-pc ratio good)

7. How does teacher training affect ICT implementation in public primary school

(Probes: are there sound inset training policies in the sub-county to support ICT implementation, is there a good match of training and skills required to support ICT implementation, are there adequate training and development opportunities to enhance ICT implementation)

8. How does administrative support from sub-county education office influence ICT implementation in public primary school?

(Probes: are there adequate provision for ICT training with relevant and enough resources, are there adequate financial support for the Implementation of ICT education, are there technical support services offered by education stakeholders to support ICT implementation, is there support from other education stakeholders in the implementation of ICT)

9. To what extent does school ICT policy influence ICT implementation in public primary school?

(Probes: are there monitoring and evaluation procedures for ICT implementation, are there adequate policy to support funding in the area of ICT, are the ICT programs in schools subjected integrated, are the government laptop program implemented in all public school)

10. What measures can be put in place to improve ICT implementation in your sub-county? (Infrastructure, training and development, administrative support and policy)

APPENDIX VI

OBSERVATION GUIDE

PRIMARY SCHOOL

ITEM	AVAILABLE OR NOT	NUMBER	ADDITIONAL INFORMATION
Laboratory			
Desk top			
Laptop			
Scanners			
Modems			
Printers			
National grid			
Solar power			
Generator			
Flash disks			
Compact disk			

APPENDIX VII

Research permit

