FACTORS INFLUENCING INTEGRATION OF INFORMATION COMMUNICATION TECHNOLOGY IN CURRICULUM IMPLEMENTATION IN PUBLIC SECONDARY SCHOOLS IN MOGOTIO SUB-COUNTY BARINGO COUNTY KENYA

BY

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DECLARATION

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

Signature é é é é é é é é é é é Date é é é é é é é é é é

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DEDICATION

I dedicate this work to my beloved husband Sammy Kibilioch who has encouraged, motivated and supported me throughout the development of this research project, to my dear children Gladys, Amos, Felix and Kelvin who have worked tirelessly printing the work for me.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

CCK: Communication Corporation of Kenya

DEO: District Education Officers

EFA: Education for All

ICT: Information Communication Technology

IT: Information Technology

OECD: Organization for Economic Co-operation and Development

KEBS: Kenya Bureau of Standards

KESSP: Kenya Education Sector Support Program

NGO: Non- Governmental Organization

MOE: Ministry of Education

MIC: Ministry of Information & Communication

UNESCO: United Nations Education Scientific and Cultural Organization

WWW: World Wide Web

CDE: County Director of Education

ABSTRACT

The purpose of the study was to establish the extent to which infrastructural, physical resources, availability of technical support influence integration of Information Communication Technology on curriculum implementation in public secondary schools in Mogotio Sub-County, Baringo County. The study objectives sought to establish to what extent infrastructural support influence integration of ICT in curriculum implementation; to what extent physical resources influence integration of ICT in curriculum implementation; and to what extent technical support influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County. The study adopted a descriptive survey design. A questionnaire was used to collect data from ICT teachers and/or HoD science or technical departments and principals. Data was analyzed using descriptive statistics mainly by use of frequency tables with the aid of Statistical Packages for Social Sciences (SPSS). Based on objective one, the study found that a majority felt that some schools have made efforts to supply computers for the various departments in the labs but there is still a problem with the accessibility and maintenance; a major hindrance being lack of internet connectivity. This has rendered the use of ICT for teaching almost impossible with a majority of the students using it (most probably their mobile phones) mainly to seek further knowledge. Some of the other hindrances to effective ICT integration in teaching (curriculum implementation) mentioned were lack of training and lack of a technician who would ensure servicing and maintenance of the computers available. As per the second objective the study revealed that most of the participants agreed that ICT is important in ICT teachers training. Some of the reasons given include it simplifies teaching, makes teaching enjoyable, helps ICT teachers save a lot of time amongst others. The last objective reveals that more than half of the ICT teachers have not received any training in ICT. Reasons given for not training include lack of opportunities for training and inadequate time to undergo training besides teaching. The study concludes that ICT infrastructure, physical resources, availability of technical support, poses major factors that could affect the integration of information communication technology in curriculum implementation in public secondary schools in Mogotio sub-county. This need to be addressed with the urgency it requires. The study recommends that the ICT teachers be trained on ICT use; the computers available be serviced and programmes installed get updated; the government should develop a policy on ICT integration at the school level; the schools should seek internet connectivity; the schools to network important offices within so as to promote ICT use; improve on staffing so as to curb work overload on some members of staff. This will create time for members of staff to train on ICT; and that the schools should employ a technician, who will concentrate on servicing and maintaining the computers available and not teaching. Suggestions for further research recommends for wider research across the country.

CHAPTER ONE:

INTRODUCTION

1.1Background to the study

The advent of computers has led to developments and changes not only in business sector but also in education. It is because of the technology revolution that many countries worldwide talk of integrating ICT into the learning curriculum in schools. In the 1980s we talked of computers and education, but this has advanced to ñintegration of ICT into the curriculumò. While there may not be a great difference between the two conceptually, the real difference is the manner by which computers were used in the past and the manner in which computers are used presently in respect of education.

The concept of ñintegrationò is understood differently by those who perceive themselves as ñintegratingò ICT into the curriculum. According to Morrison, Lowther, & DeMeulle (1999) ñintegrationò is successful when students use computers for their learning, thus giving them a chance to engage deeply and critically with computers. In this study, integration will be examined in its broadest sense as an ñumbrella termò or being at the heart of the curriculum

(Kennewell, Parkinson & Tanner 2000: 7). This means integration is examined not only with respect how it can benefit learners, but how it is integrated by teachers across the Learning Areas (LAs) or subjects in the secondary grades.

From the birth of the motion picture in 1922, to the advent of the computer in the mid-1970s, educators have been intrigued with the potential of technology to help transform education and improve student learning. Research studies in education demonstrate that the use of technology (e.g., computers) can help improve studentsô scores on standardized

tests (Bain & Ross, 1999), improve studentsô inventive thinking (e.g., problem solving) (Chief Executive Officer (CEO) Forum on Education and Technology, 2001), and improve studentsô self-concept and motivation (Sivin-Kachala & Bialo, 2000). Moreover, technology is also seen as being able to provide a number of opportunities that would otherwise be difficult to attain. The use of computer-mediated communication tools, for example, can help students from various geographical locations ótalkôô to one another facilitators conveniently. The increased ability to communicate with facilitators enhances studentsô learning process (Bransford, Brown, & Cocking, 2000).

The belief that technology can positively impact student learning has led many governments to create programs for the integration of technology in their schools. In the United States, school districts reportedly spent $7.87 billion on technology equipment during the 2003ï 2004 school years (Quality Education Data, 2004). The student-per-instructional computer ratio dropped to 3.8:1 in 2004, whereas the student-per-Internet-connected computer ratio dropped to 4.1:1 (Education Week, 2005).

In Singapore, the first Master plan for Information Technology in Education was launched in April 1997. This program cost approximately $1.2 billion. As part of this plan, all Singapore schools are expected to acquire and integrate technology in their curriculum in order to develop in students a culture of thinking, lifelong learning, and social responsibility. More recently, the Singapore government unveiled the second Master plan for Information Technology in July 2002 to continue to provide overall direction on how schools can harness the possibilities offered by information technology for teaching and learning.

According to Kenya Education Management Institute journal, August 2012, the government of Kenya recognizes the role of ICTs in the social and economic development of the Nation and has promulgated a National ICT policy based on Economic Recovery Strategy for Wealth and Employment Creation (ERSWEC 2003-2007). This policy seeks to facilitate sustained economic growth and poverty reduction; promote social justice and equity, mainstreaming gender in national development, empower the youth and disadvantaged groups, stimulate investment in ICT and achieve access. This policy is based on internationally accepted standards and best practices particularly the COMESA model adopted by the COMESA council of ministers in March 2004.

Kenya has witnessed significant growth in the ICT sector as demonstrated by the number of teachers who are trained to teach ICT. However this number cannot meet the demand. There are more students willing to be taught computing skills than there are teachers to transfer the skills. The National ICT policy sets out the objectives and strategies pertaining to ICT in education. One of the main objectives in this policy is to encourage integration of ICT in schools, colleges, universities and other educational institutions to improve quality of teaching and learning. Itôs with this reason that the study will therefore find out how much the secondary schools in Mogotio have tried to attain the above objective (KEMI, 2012).

This study focuses on Mogotio sub-county which is in Baringo County. The researcher has chosen schools in this area because the place is marginalized. Being an ASAL area other factors seem to be dwelt on going things like others among them information communication technology.

1.2 Statement of the Problem

The rapid growth in Information Communication Technologies (ICT) has increasingly become important not only in the business sector but also in education sector. Todayôs educational institutions try to restructure their educational curricula and classroom facilities, in order to bridge the existing technology gap in teaching and learning. This restructuring process requires effective adoption of technologies into existing environment in order to provide learners with knowledge of specific subject areas, to promote meaningful learning and to enhance professional productivity (Tomei, 2005).

Balaskat, Blantire and Kefalas (2006) explain that, although educators appear to acknowledge the value of ICT in schools, difficulties continue to be encountered during the implementation process. Although research studies in education show that use of technology can help student learning, its use is generally affected by certain barriers. These barriers are all too prevalent even among exemplary users of technology in schools (Becker, 2000).

ICT infrastructure, physical resources, availability of technical support, poses major factors that could affect the integration of information communication technology in public schools in Kenya, (Hawkins, 2003). Based on the foregoing, the aim of this study was to examine the extent to which these barriers affect the integration of information communication technology in curriculum implementation in public secondary schools in Mogotio Sub-County.

1.3Purpose of the Study

The purpose of this study was to ascertain the extent to which infrastructural, physical resources, availability of technical support influence integration of Information

Communication Technology in curriculum implementation in public secondary schools in Mogotio Sub-County, Baringo County.

1.4 Objectives of the Study

The specific objectives were:

a) To establish the extent infrastructural support influence integration of ICT in curriculum implementation in public secondary schools in Mogotio sub county.
b) To establish the extent physical resources influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County.
c) To establish the extent technical support influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County.

1.5 Research Questions

a) To what extent does infrastructural support influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County?
b) To what extent do physical resources influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County?
c) To what extent does technical support influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County?

1.6 Significance of the Study

The findings of this study will be significant to educational institution not only in Mogotio Sub County but also to the entire county. The findings will be beneficial to teachers. It will create awareness about the importance of ICT integration for educational activities. Teachers will seek to acquire ICT skills that they can use to improve their teaching activities.

Teachers will be able to design pedagogical approaches that promote active, independent, inquiry-based and collaborative classroom learning by exploiting the potential of ICT in education. The Kenya government will find the study beneficial and therefore infuse technology into entire teachers training programmes in the Ministry of Education and model interactive pedagogical approaches that includes, employing hands on workshops to develop awareness of the potential for ICT and offer ongoing collaborative and active learning opportunities for teachers.

1.7Assumptions of the Study

a) Information and communication technology has been integrated into learning in public schools following the government policy.
b) All secondary schools in Mogotio sub-county have ICT teachers and/or HoD science or technical departments
c) Principals, ICT teachers and/or HoD science or technical departments have personal reactions towards the integration of ICT into curriculum implementation.

1.8 Limitation of the study

The major anticipated challenge to this study was accessibility to the sample population due to poor roads that could only be used by foot especially during rainy seasons. This factor affected the sample size hence making it small due to the fact that the schools in the zone were far apart. The researcher faced financial constraints due to change of weather and this posed a threat too in data collection. There was also lack of cooperation from respondents, for example, not all questionnaires were returned on time and even some were not returned at all.

1.9 Delimitation of the study

The researcher was advantaged to the fact that she knew the area of study well. This scenario proved elusive as things went as planned. The researcher understood the language of the catchment area, a factor that eased the collection of data. Most schools appeared to be situated on flat areas and as such the researcher used motorbikes or even walking on foot to the sampled schools when transport costs were a challenge.

1.10 Definition of significant terms

Information Communication Technology: The applications of computers and telecommunication equipment to store, retrieve, transmit and manipulate data.

Integrate: to fuse into curriculum implementation

Technology: entities, both material and immaterial, created by the application of mental and physical event in order to achieve some value

Infrastructure is the basic foundation or underlying framework of an organization or system. In this context, the infrastructure is the system of computers

Physical resources are the resources that are made by man through his abilities and skill. Examples of physical resources include: buildings, technology, and products that are made by man. These resources help man's daily activities become easy.

Technical support: user-friendly assistance for individuals having technical problems with electronic devices. The technical support team is composed of individuals that are familiar with the ins and outs of a device. With this knowledge, they are able to troubleshoot most problems that a user experiences.

Curriculum implementation: Curriculum implementation entails putting into practice the officially prescribed courses of study, syllabuses and subjects. The process involves helping the learner acquire knowledge or experience.

1.11Summary of the Chapter

The chapter has discussed background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, limitations of the study, delimitations of the study and definition of significant terms, summary of the chapter and organization of the study.

1.12 Organization of the Study

This research work has highlighted on three different chapters. This study is conducted to establish and document the extent to which infrastructural, physical resources, availability of technical support influence integration of Information Communication Technology in curriculum implementation in public secondary schools in Mogotio Sub-County, Baringo County. The preliminary pages have been highlighted to give the cover page, declaration, dedication, acknowledgment, table of content, list of figures, abbreviations and acronyms and finally the abstract. The study has been introduced in

chapter one where issues on background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, limitations of the study, delimitations of the study, definition of significant terms, summary of the chapter and organization of the study, are highlighted.

Chapter two contains a review of related literature, discussing what has been done by others on different sub headings; theoretical and conceptual frameworks, knowledge gaps and summary of the reviewed literature while chapter three clarifies on methodological approaches appropriate to the study, focusing on target population, methods used to collect and analyze data, logistical and ethical considerations, operational definitions of variables and chapter summary.

Chapter four comprises of research findings and discussion while chapter five, summary, conclusion and recommendations.

CHAPTER TWO:

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature by other scholars regarding the ICT integration in curriculum implementation in public secondary schools. The theoretical frame work that guides the study is also included. In addition the chapter includes the conceptual framework that is derived from the theoretical framework.

2.2 Contribution of Information Communication Technology into curriculum implementation in secondary schools.

The use of ICT in the classroom is very important for providing opportunities for students to learn to operate in an information age. According to Zhang and Arkman (2001), information and communication technology ICT has become an important part of the most organizations and business these days. Computers begun to be placed in schools in the early 1980ǿs and several researchers suggest that ICT will be an important part of education for the next generation too, (Brown and cocking, 2000; Yelland, 2001). Modern technology offers many means of improving teaching and learning in the classroom, (Deanndelin and Loiselle, 2006).

Dawes (2001) is of the view that new technologies have the potential to support education across the curriculum and provide opportunities for effective communication between teachers and students in ways that have not been possible ICT in education has the potential to be influential in bringing about changes in ways of teaching. However, this potential may not be realized easily as Dawes (2001) underlined when he expected to implement changes in what may well be adverse circumstancesò (p. 61).

Due to ICT importance in society and possibly in the future of education, identifying the possible obstacles to the integration of these technologies in school would be an important step in improving the quality of teaching and learning.

Balanscat, Blamire and Kefala (2006), argues that although educators appears to acknowledge the value of ICT in schools, difficulties continue to be encountered during the process of adopting these technologies.

Several studies show that the use of new technologies in the classroom is essential for providing opportunities for student to learn to operate in an information use. It is evident as Yelland (2001) argued, that traditional educational environments do not seem to be suitable for preparing leanerôs to function or be productive in workplaces of todayôs society; he claimed that organizational that do not co-operate the use of new technologies in schools cannot seriously claim to prepare their students for life in the twenty first century. This argument is supported by Grimmis (2001), who pointed out that by teaching ICT skills in secondary schools, the students are prepared to face future developments based on proper understanding.

Similarly, Bransfold et al (2000) reported that what is known about learning provides important guidelines for uses of technology that can help students and teachers develop the competencies needed for the twenty centuryò. ICT can play various roles in learning and teaching process.According to Bransfold et al (2000), several studies have reviewed literature and have conducted that it has great potential to enhance student achievement and teacher learning. Wong et al (2006) points out that technology can play part in supporting face to face teaching and learning in the classroom. Many researchers and theorists 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 (Idling, Crosby and Speitel, 2002).

While new technologies can help teachers enhance the pedagogical practice, they can also assist students in their learning. According to Grabe and Grabe (2007) technologies can play a role in student skills motivation and knowledge. They claim that ICT can be used to present information to students and help them complete learning tasks.

According to Becta (2003), five factors influence the livelihood that good ICT learning opportunities will develop in schools; ICT resourcing ICT leadership, ICT teaching, school leadership and general teaching. Becta (2003) also indicated that the success of the integration of new technology into education varies from curriculum to curriculum, place to place and class to class, depending on the ways in which it is applied. In science education, there are some areas where ICT has been shown to have positive impact.

In the past few decades, science curriculum has changed to match the new chums of science education and it will continue to change, (Osborne and Hennesy (2003) emphasize that along with the changes in views on the nature of science and role of science education, the increase in the number of ICTs offers a challenge to science teaching and learning.

Potential benefits from the use of ICT for science learning have been reported in several research studies. One of their potential benefits is the encouragement of communication and collaboration in science research activities.

Gillespic (2006) posited that new technologies can be used in science education to enable students to collect science information and interact with resources such as images and videos and to encourage communication and collaboration. Murphy (2006) explained the

impact of ICT on teaching and learning of science in schools. The internet is used in science as a reference source and a means of communication. New technologies help to increase student motivation facilitate clear thinking and develop interpretation skills with data (Newton and Rodgers, 2003).

Another benefit from using ICT in science education is that it expands the pedagogical resources available to teachers. Pickers grill (2003) explored the effective ways of utilizing the internet in teaching science. He found that the ease of internet access allows teachers to help students to become experts in searching for information rather than receiving facts. The use of internet increases studentôs awareness of importance world around them, of citizenship and of a scientifically literate community. Kelleher (2000) reviewed recent developments in the use of ICT in science classrooms. While ICT cannot replace normal classroom teaching, the use of ICTôs could be positive forces in science classrooms for deeper understanding of the principles and concepts of science and could be used to provide new authentic, interesting, motivating and successful educational activities. According to Skinner and Preece (2003), the new ICTôs have other potential benefits as tools for enhancing sciences teaching and learning in schools. These tools include theses for data capture, multimedia. Software for simulation, publishing and presentation tools, digital recording equipment, computer projection technology and computer controlled microscopes (Osborne and Hennesy, 2003)

2.3. Implications of ICT integration to the general teaching and learning process.

According to Unwin (2005), significant process is being made in the endeavor to incorporate ICTôs into schooling in the five countries of East African community that is: Kenya, Uganda, Tanzania, Rwanda and Burundi. These countries now have clearly

formulated policies and strategies in place to promote ICT use in schools. These policies are wide ranging but tend focus on the curriculum and professional development in particular.

Encouragingly, there is growing awareness that providing equipment is insufficient to promote educational change. Governments are currently emphasizing the development of teacher skills and pedagogy as the key to effectively implementing curricula, to using ICT to enhance teaching and learning and to raising educational standards. The elaboration of policies on integrating ICT into education have led to increased government investment in ICT in all countries except Burundi and most prominently in Rwanda where pioneering use of ICT is ell established, (Hawkins, 2002).

Available data on ICT infrastructure and usage is limited, however and in many cases outdated, so the time picture is hard to assemble and trends cannot easily be chartered. It would be essential to carry out annual collection of information about pupil to computer ratios which would be more useful. Web ï based data management systems that allow users to directly upload data to control data bases in real time and most useful because they enable timely analysis of data and taking of remedial action when required.

Exposure to ICT public schools remains negligible, especially in poorer rural schools. Emphasis is on secondary school education in all countries except Tanzania where ICT has been introduced in the primary sector. While the policies and highly ambitious the limited evidence available of their implementation indicates that their status remains largely at the level of rhetoric in some countries in some aspects.

Equally ambitions are the aims of the wide variety of ICT initiatives now in place to support teaching and learning in schools. These projects are funded through many public

and private sources and partnerships including governments, commerce, philanthropic donors and other charities educational institutions and non- governmental organizations (NGOôs). They have recently initiated some success stories in terms of improved facilities stakeholders have equipped schools with computers for teaching learning and administration purposes and students are enthusiastic about using computers for learning despite the lack of equipment available (Korte et al,2007).

Access to ICT facilities in schools in Eastern Africa is growing and connectivity is improving especially in urban areas through wireless networks. There is also extensive use of mobile phone technology and some countries are developing digital content to use across the curriculum, (Unwin, 2005).

Nevertheless, access and usage remain sporadic and the claims made in reports of impact upon teaching learning are tricky to corroborate as evidence is often anecdotal. As with ICT policies a lack of tendency to systematically evaluate the outcomes makes it hard to be redressed as new schemes are planned.

According to Unwin (2005) sustainability of schemes and potential for further rollout are also highly uncertain once funding runs out and defense some attention. Further support may be required over the longer term, or ideally, the principle of self ï sustainability thoroughly development of local capacity should be considered. Forward thinking about the shelf life of equipment especially refurbished machines and building in financial support for technical assistance and maintenance or developing local technical expertise are needed.

Most of the countries have common features in their ICT policies, curricula and initiatives in schools in the form of promotion of computer sciences or information

technology as to discrete subjects, examined by the national examination boards. This is in addition to increasing integration of ICTS within school information and management systems. This is reinforced by the lack of technology in classrooms and its concentration instead in purpose build computer labs containing networked or standalone personal computers, a model that countries like united kingdom with penetration of ICT in schools, are now moving away from, especially a mobile or classrooms based technologies such as portable devices and interactive whiteboards increase in prevalence.

According to Hawkins (2002), location of equipment in a locked gate-keeper controlled lab some distance from the classroom is a deterrent to its use in the East African context especially with large classes that are not easily or quickly relocated. Where computers are set aside for use only on special occasions, they remain an object of curiosity, fear uncertainty, awe or mystery, rather than being seen as the helpful enabling tool that they can be.

There are many national initiatives such as NEPAD, Intel World Ahead, school net, one lap top per child, Pan African Research Agenda that span several countries in sub-Saharan Africa, albeit sometimes with limited participation in each. Most of the schemes to develop ICT use in African schools operate in isolation from each other, (Unwin).

There is considerable interest in delivering educational ICT initiatives across Africa. African governments are eager to use ICTôs so that they are at the fore front of technological change. Donors and international agencies are eager to provide resources to help bridge the digital divide. The private sector is keen to invest where companies see potential market growth possibilities in the future. Academics are interested in sharing the results of their research based on the subject and civil society groups are willing to

help facilitate delivery of schemes on the ground, (Unwin, 2005). However, this multiplicity of interest means that there is frequent duplication of effort, lessons are not sufficiently learnt and shared and there is wasteful lack co-ordination in the activities that actually take place. There are many small scale initiatives, embarked on with the best will in the world, but that only benefit a few for a short while. If all those involved would truly work together for the interests of the poor and marginalized in Africa, rather than primarily for their own agendas and targets it would be possible to achieve very much more than has hereto been achieved (Unwin, 2005)

The largely fragmented, regional, underfunded and inadequate nature of initiatives to build teachers ICT capabilities affects its integration and utilizations as pointed out by common wealth report of leaning (Col, 2004). Unwin (2005) explains that the ambitions supply- led and externally driven teacher training schemes are being discussed at a pan-African level, with far too little thought being paid to the ways in which they can be integrated into existing and ongoing initiatives in specific countries. In recent national initiatives have emerged that involve appropriate public private partnerships between relevant stakeholders, experiences of world links for development programme in connecting schools to the internet, training teachers and grappling with curriculum and education reform issues in developing countries indicates that this is the most successful partnership model, (Hawkins 2002).

Accordingly, there should be comprehensive framework in all the countries of east Africa for both development of ICT use in schools and for large scale professional development whereby experience is shared between and within borders.

This would be more cost-efficient and effective in exploiting g the potential that partnership between governments, the private sector and the society academic institutions and global organizations can provide (Unwin 2005). Formal evaluation of new policies and the aims and impacts of investment and initiatives is often lacking and needs to be culturally embedded so that lessons are learnt and wisdom is accumulated offering a much firmer foundations for future strategy and investments by government and donors. Hawkins, (2002) reports that wireless technology is cost effective for connected schools in developing countries although this may be more costly. The current study will explore the implications of ICT integration to the general teaching and learning process.

2.4. Challenges encountered by teachers and learners during integration of ICT to teaching and learning in public secondary schools.

While ICT continues to advance in western and as in countries, Africa countries still experience a lag in its implementation and that continues to widen the digital and knowledge divide. According to Kiptalam (2010) access to ICT faculties is a major challenge facing Africa countries with a ration of 1:5 students in facing implementation of computer education in Kenya. These are;

Many schools in Kenya are still not yet connected to electricity; Kenya being a developing country the government has not been able to connect all parts of the country to the national grid. Consequently, those schools that fall under such areas are left handicapped and may not be able to offer computer studies, (Dawes, 2001)

Broken down computers is also a major challenge facing Kenyan school. While a good number of schools have benefited from donated used computers, they have not been adequately equipped with the same on maintenance and repair and hence itôs common to

see schools computer laboratory full o f broken down computers. Some are repairable and other is not. This is actually been a major problem and the government has now put strict measures on any person, NGO or corporate bodies willing to donate second hand computers. In addition to burglary is also a problem facing ICT integration and utilization in Kenyan schools the fact that computers are still very expensive makes them a target for thieves who usually have less amount. This has made many schools incur extra expenses trying to install burglar proof computer rooms (Gillespie, 2006). The extra expense makes some schools shy away from purchasing computers for their students.

On the other hand, fear by the administration poses a great challenge towards integration and utilization of information communication and technology in schools. There is still a strong perception especially by the other generation that computers require highly skilled personal to operate them. While this may not be the case, some school administrators also fear that their students will be exposed to adultsô sites and other undesired sites, through the use of the internet. Some also fear the infection of viruses to their computers leading to data loss. While this may be true to some extent, piper education on the safe use of computers may help alleviate some of the fears.

Fear by the teachers is also a challenge that affects integration of ICT in school. Teachers may be afraid of being rendered irrelevant but the introduction of computers in their classes. They ñfeelò that the teacher still remains an authority and a ñknow it allò in class is something that most teachers cherish and for anything that makes otherwise is deemed an enemy of the classroom (Dawes,L 2001).

Another great challenge is lack of internet or slow connectivity. Most schools are not able to connect to the World Wide Web due to high cost involved in the connectivity. On

average it may cost approximately $ 120 per month to connect to about 15 computers on a bandwidth of 128/64. This is considered as very expensive for a very slow speed. Lack of initiative by the community leaders also poses a challenge. The community leaders, who are charged with looking at interests of a given community, do not see the need to purchase and subsequent installation of computers to their schools as a priority. They consider health care, provision of water and other amenities as more important than buying computers for their schools.

Internet pornography that leads to increased moral degradation, cyber bullying and other anti-social behaviors is a worrying emerging g problem. According to Zhao and Frank (2003), ICT has contributed significantly to educational management in schools worldwide; however, in Kenya schools hardly use ICTôs to manage the quality of output or to raise teacher productivity or to reduce costs through analyzing spending. This is attributed to myriad challenges facing most schools in Kenya with regard to adoption of ICT in education management in Kenyan schools.

Most schools in Kenya have adapted computer as a technical subject and integrated its use in the teaching and learning process. The use of ICT in educational management is greatly underemphasized. As such a more holistic approach requires that schools be receptive and open to the changes ICT may make, and to the ongoing evaluation o the changes for school purposes. Since there is evidence from countries such as Botswana, Namibia and South Africa that investment in ICT in education management in schools, some countries are now becoming sufficiently significant for systematic impact (Becta, 2004)

Educational managers need to have basic information on quality of teaching, student and teacher flows, probably also of school supplies and how much the school order to make the most basic resource allocation decisions. Another challenge in the integration and utilization of ICT in education is lack of time. Although some teachers may have some competence and confidence in using computers, they still make little use of technologies due to lack of time. Time limitations and the difficulty in scheduling enough computer time for classes is a major problem to teachers use of ICT have adequate time to plan technology lessons, explore the different interest sites and look at various aspects of educational software.

According to (Becta 2004), the problem of lack for time exists for teachers in many aspects of their works as it affects their ability to complete tasks. Teachers lack enough time to locate internet advice prepare technological problems and receive adequate training. Alalwani (2005) lack of time affects application of ICT in Saudi Arabia because of busy schedules. He indicated that Saudi teachers, work from 7.00am 2.00pm and the average number of class sessions taught by teachers have a limited number of hours during the day to work on integrating ICT into education.

Lack of effective training opportunities for teachers in the use of ICTôs is a challenge affecting ICT integration and utilization in schools. According to Becta (2004), the use of training is certainly complex because it is a vital to consider several components to ensure the effectiveness of the training. Correspondently, recent t research by Gomes (2005) conducted that lack of pedagogic and didactic training in how to use ICT in classroom and lack of training concerning use of technologies in science were obstacles to using new technologies in classroom practice. Some of the reasons for failures to use

educational technologies includes; weakness of teachers training in use of computers, the use of a ñdeliveryò teaching style instead of investment in modern technology as well as shortage of teachers who are qualified to use technology confidently, (Sager,2002).

Providing pedagogical training for teachers, rather simply training them to use ICT tools is an important issue (Becta, 2004). According to Cox et al (199), if teachers are to be convinced of the value of using ICT in their teaching, their training should focus on the pedagogical issues. This is because some teachers do.

Cot et al (2007) found out that in European schools. The infrastructure barriers such as broadband access not yet being available thus posing a major challenge in ICT integration insufficient number of computers, insufficient peripherals, insufficient number of copies of soft ware and insufficient simultaneous internet access are major challenges. Low numbers of computers, oldness or slowness of ICT systems and scarcity of educational software in the school are challenges experienced when integrating ICT in education. Insufficient computer resources are one of the greatest impediments to technology integration in schools. New-house (2002) ; ascents that poor choices of hardware and software and a lack of consideration of what is suitable for classroom teaching are problems facing many teachers. Osborne and Hennesy (2003) claim that the limitations on access to hardware and software resources influence teachersô motivation to use ICT in education.

Moreover, lack of technical support poses a major challenge in the integration and utilization of ICT in schools. Without both good and technical support in the classroom and whole school resources, teachers cannot be executed to overcome the barriers preventing them from one of the barriers to ICT use in secondary education was lack of

technical assistance. Technical barriers include, waiting for websites to open, failing to connect to the internet, printers not printing, malfunctioning computers and teachers having to work on old computers. Technical barriers impede the smooth delivery of lessons or the natural flow of classrooms processes.

Korte et al (2001) argued that ICT support of maintenance contracts in schools help teachers to use ICT in teaching without losing time through having to fix software not know to use ICT in their classrooms even after attending professional development courses in ICT. Instead they first learn how to run a computer and set up a printer. This is because the courses only focus on teachers acquiring basic ICT skills and do not often teach teachers how to develop pedagogical aspects of ICT. Balanskat et al (2006) argues that in appropriate teacher training is not helping teacher to use ICT in their classrooms and in preparing lessons. This is because training programmes do not focus on teachers pedagogical practices in relation to ICT but on the development ICT skills. Teachers require training in specific ICT skills. Schoep (2005) assert that when new technologies need to be integrated in the classroom, teachers have to be trained in the use of these particular ICTs. According to Newhouse (2002) some initial training is needed to develop appropriate skills and knowledge. According to Balskat et al (2006) inadequate or inappropriate training leads to teachers being neither sufficiently prepared nor sufficiently confident to carry out full integration of ICT in schools. Teachers need not only be computer literate but they also need to develop sills in integrating computer use in their teaching and learning programmes.

Lack of accessibility to resources including home access is a complex challenge that discourages teachers integrating new technologies into education. According to Becta

(2004), inaccessibility of ICT materials is not always merely due to non-availability of the hardware and software or ICT materials within the school. It may be the result of other factors such as poor organization of resources, poor quality hardware in appropriate software or lack of personal access for teachers and hardware problems. Becta (2004) claims that if there is lack of technical support available in schools, and then it is likely that technical maintenance will not be carried out regularly resulting in a higher risk of technical breakdowns. Technical faults discourage teachers from using ICT in their teaching because of fear of equipment breaking down during a lesson. ICT integration in sciences needs a technician support can be an obstacle. Although lack of technical support can prevent teachers from successfully integrating ICT into education, in some countries such as United Kingdom, Netherlands and Lastria, schools have recognized the importance of technical support to assist teachers to use ICT in classrooms, (Korte et al, 2007). The present study aims at finding out challenges encountered by teachers and learners during integration and utilization of information technology into teaching and learning.

2.5 Theoretical Framework

A theoretical frame work is important to any study because it promotes an understanding of factors that may influence or are related with an indentified problem (Mugenda and Mugenda, 1999). In view of the above the study will adopt two theories to explain the integration of information communication technologies. These are the psychological theories of self determination and self-efficacy by Di Maggio et al -, 2001, Van Disk and Hacker 2003).

2.5.1 The Self Determination Theory

Research on ICT acceptance indicates that psychological factors shape motivation, perceptions and attitudes towards technology and usage behavior, all of which, in turn predict, usage intention and usage among various user groups (Karahanna et al 1999; Taylor and Todd, 1995; Venkatesh et al, 2003) including social economically disadvantaged (Hsieh et al; 2008). Evidence from ICT training research suggests that perceptions towards ICT use are significantly shaped by training particularly for those who are in early stages of use (Venkatesh and Davis, 1996). Despite the early evidence from ICT acceptance in intrinsic and extrinsic motivation are important drivers of behavioral intention (Davis *etal* 1992) motivation to receive training. Its antecedents and consequences towards sustained usage behavior are under theorized Venkatesh 1999).

Self determination theory (SDT) is psychological theory aims at explaining psychological factors that promote well being and development across various life activities (Deli and Ryan, 1985; Ryan and Deli 2000 ;) SDT strongly emphasizes the influence of Self motivation on behavioral regulation process, in turn, affects behavioral outcomes. Since motivation is on of the important factors to understand ICT usage behavior SDT is an important appropriate theoretical foundation for this research. SDT identifying three essential psychological needs that, when satisfied, will facilitate individualsô constrictive growth and self development. These needs are:

1. Needs for competence
2. Needs for autonomy
3. Needs for relatedness

The need for competence refers to peopleôs inherent desires to be effective in dealing with the environment (white, 1959). The need for autonomy refers to peopleôs urge to be casual agents to experience validation and to act in accord with their integrated sense of self (de charms, 1968).

2.5.2 The Self Efficacy Theory

The theory is derived from social cognitive theory. The theory refers to an individualôs belief in his or her ability to successfully perform a specific behavior. ICT skill training (Compean and Higgins, 1956b; Johnson and Marakas, 2000; Olfman and mandiviwala, 1994) and ICT acceptance (Lewis et al, 2003, Venkatesh, 2000, Venkatesh et al 2003). Studies have shown that ICT skill training increases self efficacy which in turn influences ICT acceptance. This evidence suggests that incorporating self effication in the research will improve understanding of the flow of behaviors to subsequent acceptance of operating self effication in the research will improve understanding of the flow of behaviors to subsequent acceptance of Gallivan et al 2005 found that self efficacy was related to use and behavior. The new conceptualization of self efficacy to understand individualôs behaviour in specific applications or tasks for example excels word processing and internet. More over there is evidence to support that application of specific computer self-efficacy has stronger explanatory and productive power than the general constructs.

In the field of education using self determination theory and self efficiency theory the researcher shall be able to find out how peoples attitude and determination influences integration of information communication technology.

2.6 Conceptual Framework

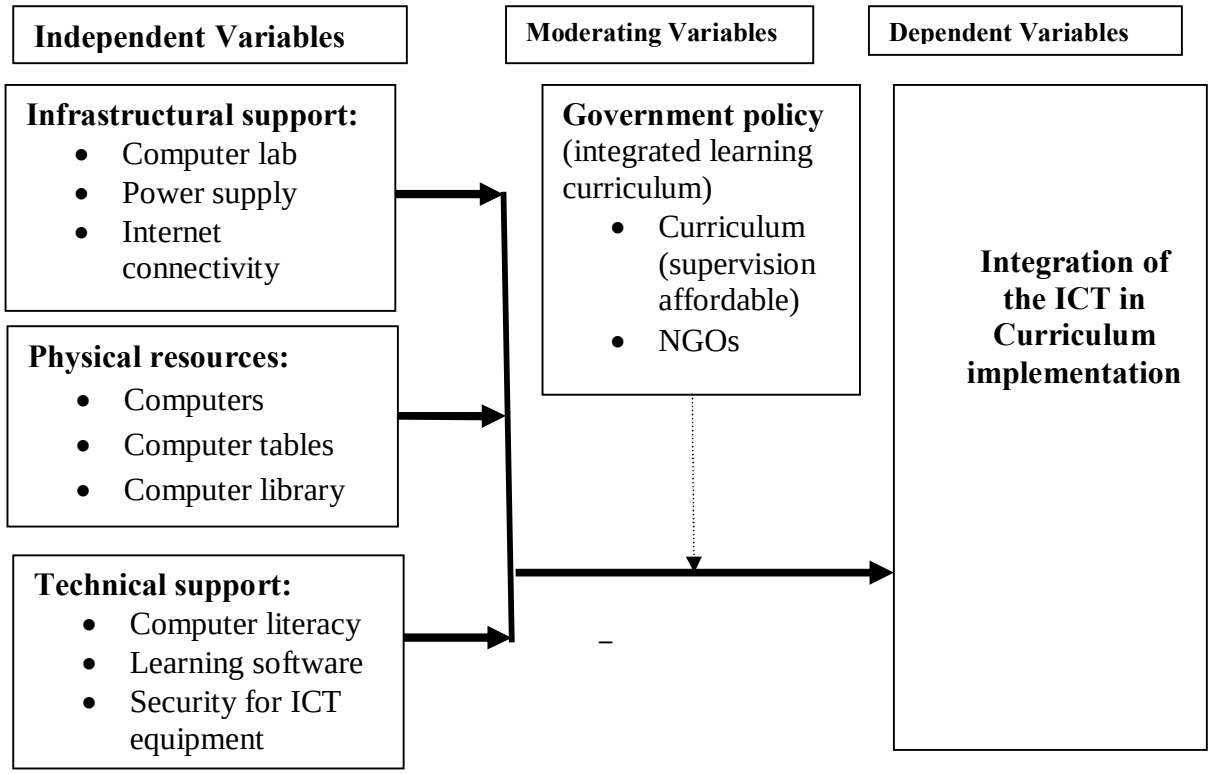

Figure 1: Conceptual Framework

A conceptual framework is viewed as a set of ideas and principals that form relevant field of inquiry and used to construct a subsequent presentation (Rahel 1987). In the above model, infrastructural support, physical resources and technical support is the independent variables while integration of the ICT in curriculum implementation is dependent variables. The model displays the possible relationship between independent variables and dependent variable. The independent variables are expected to affect the dependent variables negatively or positively.

2.7 Knowledge Gaps

There is universal recognition of the need to use Information Communication Technology in education as we enter globalization where the free flow of information via satellite and the internet holds way in global information dissemination of knowledge. The rapid growth in Information Communication Technologies (ICT) has increasingly become important not only in the business sector but also in education sector. Todayôs educational institutions try to restructure their educational curricula and classroom facilities, in order to bridge the existing technology gap in teaching and learning. From the literature review it is clear that various studies have been carried out though very little has been achieved on the extent to which infrastructural, physical resources, availability of technical support challenges integration of Information Communication Technology in curriculum implementation in public secondary schools in Mogotio Sub-County, Baringo County.

2.8 Summary of Literature Review

It is true that ICT is an expensive infrastructure for any learning institution. However, its advantages to the same institution out ways the expenses incurred to put up the ICT facilities. Hence it is important the teacher educators embrace ICT, learn about its use and practice it in their day to day lives besides integrating its aspects in the process of student education. This will in turn improve the quality of training in the learning institutions and in turn in the country.

CHAPTER THREE:
RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research design, study location, target population, sample size and sampling procedures, research instruments, data collection procedure and the data analysis to be used in this study.

3.2 Research design

This study employed descriptive survey research design. Descriptive survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2003). Descriptive survey design is advantageous to this study because it is simple to use; appropriate for educational fact finding and yields enormous accurate information on people feelings, attitudes, opinions, interests and problems. Similarly, descriptive survey design enabled the researcher to gather data at specified period of time and used it to describe the integration of information communication technology in public schools in Mogotio district, Baringo county; (Blunman, 2004) The use of descriptive survey design enabled the researcher to find out facts, adequately seek opinions, describe, analyze and interpret the information about the integration of information communication and technology in public secondary schools in Mogotio Sub-county of Baringo county, Kenya.

3.3. Target Population

Kothari (2004) target population refers to all the members of real or hypothetical set of people, events or subjects to which a researcher wishes to generalize the results of the study while Mugenda and Mugenda (2004), views target population as that population to

which the researcher wants to generalize the results of the study. Therefore target population refers to the respondents that a researcher focuses in the study based on the researchers view that this group will provide vital information required in the study.

In this study target population was twenty five ICT teachers and/or a HoD science or technical department and twenty five principals from all the twenty five public secondary schools, that is, one ICT teacher and a principal from each school; (n=50). This population was chosen because ICT teachers and/or a HoD science or technical department was better placed to provide information on ICT in public secondary schools in Mogotio sub-county.

3.4. Sampling Procedures and Sampling Size

Sampling is the act, process or technique of selecting a suitable sample; it has represented a part of a population for determining its parameters and its characteristics as a whole population (Patron, 1990). A sample is a finite part of a statistical population whose properties are studied to gain information about a given population. The study took the entire population of 25 ICT teachers and/or a HoD science or technical department and 25 principals in the 25 schools making a total of fifty respondents (N=50). This was therefore census.

3.5. Data Collection Instruments

This study used questionnaires for ICT teachers and/or a HoD science or technical department and the principals.

3.5.1 Questionnaires

The questionnaires were used because of ease of administration, scoring of items and analysis (Aryl, Jacobs and Razerich, 1979). The items in the questionnaire were developed based on the objectives of the study.

3.6. Validity of Instruments

Validity is the degree to which a test measures. What it purports to the measuring (Orodho, 2004). Kothari (2004) defines validity as the extent to which a test measures what the researcher actually wishes to measure to ensure that the instruments used is valid, that is, whether they measure what they ought to measure. The researcher used criteria related evidence to determine the degree of relationship between values obtained and as such predictive validity was used. Predictive validity involves a time interval lapse between the administrators of instruments and obtaining centre on scores (Frankel and Wallen, 2000). Validity of data collected was enhanced by source and instruments triangulation where questionnaires for ICT teachers were utilized.

3.7 Reliability of Instruments

Franken and Wallen (2000) define reliability as the consistency of the scores obtained ï how consistent they are for each individual from one administrator to another and from one set to another. Kothari (2004) asserts that a research instruments is reliable when it provides consistent results. In order to determine reliability instruments triangulation was used similarly; the questionnaires were subjected to test and re-test method to estimate if similar results could be obtained on administration for accuracy of the same concept after a period of two weeks (Bluman, (2004). The researcher confirmed and accepted this during piloting in neighbouring schools.

3.8. Data Collection Procedure

The researcher sought a permit from the Ministry of Education as was required by the law before proceeding to the field to collect data. The researcher made a courtesy call into the County Director of Education (CDE) office, Baringo County, the second courtesy call was paid to District Education Officer (DEO) of Mogotio district. Later the principals of the schools were contacted. Later on, the researcher visited the schools to distribute questionnaires. The questionnaires were collected after three days to give respondents enough time to fill in the questionnaires.

3.9. Data Analysis and Presentation

Crewel (2003) explains that the process of data analysis involves making sense out of text and image data. In this study the descriptive statistical methods were used. To analyze quantitative data, the researcher read through the raw data in questionnaires and edited all the response before defining them into variables using the Statistical Package for Social Sciences (SPSS) version.

3.10. Logistical and Ethical Considerations

Logistical considerations included pre-field logistics and post field activities, preferred activities included preparation of research tools, seeking permission from university authorities, Ministry of Education, District Education Officer of the area understanding, organizing research work plan timetable and making research budget in the field logistics; the researcher predicted constraints likely to occur while in the field.

Ethical consideration demanded the researcher to honestly explain to respondents the purposes of the study and request for their willingness to participate in it. Confidentiality of respondentsô responses was guaranteed to all in order for them to feel free during the

exercise and in any case, if the respondent opted to withdraw from participation, his or her decision would be respected.

3.11 Operational Definitions of Variables

This section defines variables in terms of measurable indicators with association to measuring scale and data analysis processes.

3.12 Operational definitions of variables the researcher will use to investigate the variables in the study

Objectives	Type of variable (independent)	Indicators	Measurement	Measurement scale	Data collection	Tools of analysis
To establish the extent to which infrastructural support influence integration of learning in public secondary schools in Mogotio sub county.	Infrastructure	Computer laboratories , cyber café etc	Ability of students accessing computers with ease	Nominal	Questionnaire	Frequency percentage
To establish the extent to which physical resources influence integration of learning in public secondary schools in Mogotio Sub County.	Physical resources	Computers, enough classrooms, well equipped comp. labs etc	enough computers, computer labs, cyber café	Nominal	Questionnaire	Frequency Percentage
To establish the extent to which technical support influence integration of learning in public secondary schools in Mogotio sub county.	Technical support	Technolog y skills	computer technicians, skilled personnel, qualified staff teaching computer	Nominal	Questionnaire	Frequency Percentage

The chapter covered the methodology that was used to conduct the research on the extent to which infrastructural, physical resources, availability of technical support influence

integration of Information Communication Technology in curriculum implementation in the public secondary schools in Mogotio sub-county. A descriptive survey design was adopted for this study. The target population of the study was identified and the data collected from respondents in Mogotio sub-county. Self administered questionnaires were used as data collection instruments.

3.13 Chapter Summary

The chapter has discussed the research design that was used by this study, the location of the study, target population, sampling procedure and sample size, research instruments, data collection procedures and data analysis. The data collection instrument in the study involved questionnaires.

CHAPTER FOUR:
DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter presents the results and discussions of the study. Data collected from the questionnaires was analyzed using SPSS, interpreted and inferences deduced. Of the total questionnaires issued, 92% were returned. The results were interpreted based on the research questions which were: -

a) To establish to what extent infrastructural support influence integration of ICT in curriculum implementation in public secondary schools in Mogotio sub county.
b) To establish to what extent physical resources influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County.
c) To establish to what extent technical support influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County.

4.2 Response Return Rate

A total of 25 questionnaires were distributed to the ICT teachers/ HoD Science or Technical Department in the schools in the study area. There was a response from 22 respondents out of the 25 questionnaires distributed to the ICT teachers; that is a response return rate of 92%. The researcher personally administered the questionnaires which contributed positively towards this high rate of return. The reason cited in the cases of non-response was misplacement of the questionnaires.

4.3 Characteristics of Respondents

The study sought to get the characteristics of respondents in terms of age, gender, level of education and professional experience.

4.3.1 Distribution of Respondents by gender

The study sought to find out the respondentsô gender and the result is shown in table 4.1;

Table 4.1: Distribution of respondents by gender

Response	Frequency	Percent
Male	17	77
Female	05	23
Total	**22**	**100**

Information in Table 4.1 shows the distribution of respondents in terms of gender. Based on the sample (N = 22) of the ICT teacher / HoD Science or Technical Department, 77% (n = 17) were male and 23% (n = 5) were female.

4.3.2 Distribution of Respondents by age

In regard to the respondentsô ages the results are as given in table 4.2;

Table 4.2: Distribution of Respondents by age

Response	Frequency	Percentage
Between 30 - 39 years	07	32
Between 40 - 49 years	08	36
Above 50 years	07	32
Total	**22**	**100**

The findings showed that thirty one (31) percent were aged between 30 and 39 years, 36% aged between 40 and 49 while the other 32% were aged above 50 years.

4.3.3 Distribution of Respondents by level of education

The respondentsô level of education is as shown in table 4.3;

Table 4.3: Distribution of Respondents by level of education

Response	Frequency	Percentage
Diploma	04	18
Bachelors	11	50
Masters	06	27
No answer	01	05
Total	**22**	**100**

The findings revealed that 50% have a bachelorôs degree, 18% have a diploma and 27% have masterôs degree while 5% did not respond to this item of the questionnaire.

4.3.4 Distribution of Respondents by professional experience

The respondents professional experience is given in table 4.4;

Table 4.4: Distribution of respondents by professional experience

Response	Frequency	Percentage
Below 10 years	02	09
Between 10 and 20	11	50
Between 20 and 30 years	07	32
Over 30 years	02	09
Total	**22**	**100**

The findings revealed that 50% of the participants have been teaching for between 10 and 20 years with only 9% having taught for below 10 years. However 32% have taught between 20 and 30 years and a further 9% over 30 years.

4.4.0 Factors influencing integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub-county of Baringo County

This section presents the descriptive statistics from the study findings. It further stipulates the responses as per the study objectives

4.4.1 Extent to which infrastructural support influence integration of ICT in curriculum implementation:

This section presents objective one to show perceptions of respondents towards the infrastructural support in the integration of ICT in curriculum implementation.

Table 4.5: Perceptions of respondents towards the infrastructural support in the integration of ICT in curriculum implementation

	Responses					
Item	**SD**	**D**	**UD**	**A**	**SA**	**Total**
Well established computer labs	00	00	00	27	73	100
Well equipped computer labs	00	20	00	16	64	100
Computers in good condition	00	64	18	08	10	100
Adequate computers	00	00	00	36	64	100
High internet connectivity	00	50	14	16	20	100

N=22: SD=Strongly Disagree; D=Disagree; A=Agree and SA=Strongly Agree UD=Undecided

From the results presented in Table 2, it is apparent that a good percentage of 50% strongly agree that they may have enough computers in the various departments. A further response of 73% strongly supports that their schools have well established computer labs. The remaining 23% agrees to this fact. This implies that the schools may have availed adequate computers for use by the staff. However there seems to be other problems that have hindered the use of these computers in teaching/learning. 64% of teachers feel that computers are not easily accessible to them for use while another 64% feel that the computers are not always in good working condition. Other obstacles include lack of internet connectivity and the fact that offices are not interconnected.

4.4.2 Extent to which physical support influence integration of ICT in curriculum implementation:

This section presents objective two to show the perceptions of respondents towards the physical support in the integration of ICT in curriculum implementation.

Table 4.6: Perceptions towards the physical support in the integration of ICT in curriculum implementation

Item for responses	(%) Distribution of respondents					
	SD	D	UD	A	SA	Total
Enough computer tables	00	00	00	27	73	100
Presence of computer library	10	10	06	40	34	100
Provision of computer books	00	20	15	21	44	100
All teachers are provided with computers	00	56	09	16	36	100
There are enough printers for both teachers and students	36	00	14	28	22	100

N=22: SD=Strongly Disagree; D=Disagree; A=Agree and SA=Strongly Agree UD=Undecided

Results presented in Table 4.6 indicates that 56% teachers are not provided with computers while 36% cited that there were not enough printers for both teachers and students. Interestingly majority (73%) cited that there are enough computer tables and that there were computer libraries (40%). This implies that though much emphasis was put on physical resources such as computer tables and library, still there was need to do the same to computer trainings.

4.4.3 Extent to which technical support influence integration of ICT in curriculum implementation:

This section presents the last objective to show perceptions of respondents towards the technical support in the integration of ICT in curriculum implementation.

Table 4.7: Perceptions of respondents on the extent to which technical support influence integration of ICT in curriculum implementation

Item for responses	(%) Distribution of respondents					
	SD	D	UD	A	SA	Total
High reliable internet connectivity	00	40	00	27	33	100
All teachers are computer literate	10	34	10	26	20	100
Students are given adequate time to use computers	00	44	15	21	20	100
Teachers are regularly trained or upgraded in ICT	00	56	09	16	36	100
There is adequate and relevant learning software	36	00	14	28	22	100
The school has enough security for ICT equipment	00	00	02	51	47	100

N=22: SD=Strongly Disagree; D=Disagree; A=Agree and SA=Strongly Agree UD=Undecided

Results presented in Table 4.7, shows that 56% gave lack training as the main hindrance to effective integration of ICT in curriculum implementation. Inadequate time (44% response) and lack of internet connectivity (40%) were rated as second and third hindrances respectively. This means that ICT teachers need to be trained and as such realize the gains accrued to the knowledge of ICT and hence realization of curriculum implementation. However schools that expect effective training of computers, need to have relevant materials. Inadequate learning software as evidenced by 36% would prove a disgrace to this fact. It is also evident that the school has enough security with majority agreeing (57%) to this fact while 47% echoed the same.

4.5 DISCUSSIONS

ICT is a relatively new phenomenon in the developing world. Several studies show that the use of new technologies in the classroom is essential for providing opportunities for student to learn to operate in an information use. The researcher agrees with Yelland (2001) who argued, that traditional educational environments do not seem to be suitable for preparing leanerôs to function or be productive in workplaces of todayôs society. This is so because organizations that do not co-operate the use of new technologies in schools cannot seriously claim to prepare their students for life in the twenty first century. By teaching ICT skills in secondary schools in Mogotio sub-county, the students are prepared to face future developments based on proper understanding. It is my view that such efforts need to be realized on condition that infrastructural, physical resources and technical support issues be addressed.

There is universal recognition of the need to use Information Communication Technology in education as we enter globalization where the free flow of information via

satellite and the internet holds way in global information dissemination of knowledge. The rapid growth in Information Communication Technologies (ICT) has increasingly become important not only in the business sector but also in education sector. Todayôs educational institutions try to restructure their educational curricula and classroom facilities, in order to bridge the existing technology gap in teaching and learning. This restructuring process requires effective adoption of technologies into existing environment in order to provide learners with knowledge of specific subject areas, to promote meaningful learning and to enhance professional productivity. ICT infrastructure, physical resources, availability of technical support, poses major factors that could affect the integration of information communication technology in public schools in Mogotio. This need to be addressed with the urgency it requires.

CHAPTER FIVE:

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1Introduction

This chapter presents the summary and conclusion of the study findings. It further stipulates the relevant recommendations.

5.2 Summary of findings:

5.2.1 Objective one: Extent to which infrastructural support influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County.

Based on this objective, the study found that a majority felt that some schools have made efforts to supply computers for the various departments in the labs but there is still a problem with the accessibility and maintenance; a major hindrance being lack of internet connectivity. This has rendered the use of ICT for teaching almost impossible with a majority of the students using it (most probably their mobile phones) mainly to seek further knowledge. Some of the other hindrances to effective ICT integration in teaching (curriculum implementation) mentioned were lack of training and lack of a technician who would ensure servicing and maintenance of the computers available.

5.2.2 Objective two: Extent to which physical resources influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County.

As per the second objective the study revealed that Most of the participants agreed that ICT is important in ICT teachers / HoD Science or Technical Department training. Some of the reasons given include it simplifies teaching, makes teaching enjoyable, helps ICT teachers / HoD Science or Technical Department save a lot of time amongst others.

5.2.3 Objective three: Extent to which technical support influence integration of ICT in curriculum implementation in public secondary schools in Mogotio Sub County.

The last objective reveals that more than half of the ICT teachers / HoD Science or Technical Department has not received any training in ICT. Reasons given for not training include lack of opportunities for training and inadequate time to undergo training besides teaching.

5.3 Conclusions

There is universal recognition of the need to use Information Communication Technology in education as we enter globalization where the free flow of information via satellite and the internet holds way in global information dissemination of knowledge. The rapid growth in Information Communication Technologies (ICT) has increasingly become important not only in the business sector but also in education sector. Todayôs educational institutions try to restructure their educational curricula and classroom facilities, in order to bridge the existing technology gap in teaching and learning. This restructuring process requires effective adoption of technologies into existing environment in order to provide learners with knowledge of specific subject areas, to promote meaningful learning and to enhance professional productivity. ICT infrastructure, physical resources, availability of technical support, poses major factors that could affect the integration of information communication technology in public schools in Kenya. This need to be addressed with the urgency it requires.

5.4 Recommendations

ICT is very crucial in the day to day life. The education sector is slowly embracing ICT in the daily running of its operations. This should not leave behind the ICT teachers / HoD Science or Technical Department and students. Integration of ICT in curriculum implementation has had major challenges and there is need to hasten this process. Hence based on the findings of this study, it is recommended that:-

a) The ICT teachers / HoD Science or Technical Department be trained on ICT use;
b) That the computers available be regularly serviced and upgrade the current programmes
c) The government should develop a policy on ICT integration at the school level
d) That as much as possible, the schools should make arrangements for internet connectivity;
e) The schools to network important offices within so as to promote ICT use; Improve on staffing so as to curb work overload on some members of staff. This will create time for members to train on ICT; and
f) The schools should employ a technician, who will concentrate on servicing and maintaining the computers available and not teaching.

5.5 Recommendations for further research

This project was majorly designed for Mogotio sub-county public secondary schools. Further research should be employed in other parts of the country.

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APPENDIX A:

PRINCIPALS / ICT TEACHERS' / HoD SCIENCE OR TECHNICAL DEPARTMENT QUESTIONNAIRE

I am carrying out a research on the factors influencing integration of information communication technology in curriculum implementation in public secondary schools in Mogotio Sub-county Baringo County. You are kindly requested to participate in this study through responding to these questions as per given instructions, please tick [ã] or write the correct response for each of the following questions or statements. The information that you provide the researcher will be treated with utmost confidentiality. The questionnaire is made up of two parts. Section A consists of demographic information about the respondents while section B and C is made up of teachersô responses to the questions.

SECTION A: Demographic Information

1. Kindly indicate your gender

   Male [ ] female [ ]

2. Please indicate your current teaching experience?

   0-10years [ ] 20-30 years [ ]

   11-20 years [ ] above 30 years [ ]

3. a) Have you trained in information communication technology?

   Yes [ ] No [ ]

   b) If yes,

   i) What is your level of information communication technology training?

   Graduate [ ] Diploma [ ] Certificate [ ]

SECTION B

Objective 1: To establish to what extent infrastructural support influence integration of ICT in curriculum implementation

In the set of question below, you are presented with a statement. You are being asked to indicate your level of agreement or disagreement with each statement, indicate whether you; **Strongly Disagree [1], Disagree [2], Agree [3], Undecided [4], Strongly Agree [5],**

4. Use a tick **[√]** to indicate your response in one of the 5 small boxes in front of each statement. Your response should be in regard to your current working station.

Item	Distribution of Respondents				
An established computer lab to ensure implementation of ICT	**SD**	**D**	**UD**	**A**	**SA**
A well equipped computer laboratory					
Adequate power supply to ensure integration of ICT					
Enough computers to enable students learn ICT					
High internet connectivity infrastructure					

Objective 2: To establish to what extent physical resources influence integration of ICT in curriculum implementation

5. Kindly state your perception towards the availability of ICT resources in your school

Item	Distribution of Respondents				
Provision of enough computer tables	**SD**	**D**	**UD**	**A**	**SA**
Provision of a computer library					
Provision of sufficient computer books					
All teachers are provided with computers					
There are enough printers for both teachers and students					

Objective 3: To establish to what extent technical support influence integration of ICT in curriculum implementation

6. Kindly state your perception towards the need for ICT in your school; indicate your level of agreement with each statement indicating whether you; **strongly Agree [SA]; Disagree [D]; Undecided [UD]; Agree [A]; or strongly Agree [SA].**

Item	**Distribution of Respondents**				
High reliable internet connectivity	**SD**	**D**	**UD**	**A**	**SA**
All teachers are computer literate					
Students are given adequate time to use computers					
Teachers are regularly trained or upgraded in ICT					
There is adequate and relevant learning software					
The school has enough security for ICT equipment					